

IMPLEMENTING THE TPACK FRAMEWORK IN ONLINE PRIVATE QUR'ANIC LEARNING FOR YOUNG ADULTS IN NON-FORMAL ISLAMIC EDUCATION

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ABSTRACT

The rapid development of digital technology has transformed Qur'anic learning into online environments. However, many online Qur'anic learning practices remain technology-oriented without effectively integrating technology, pedagogy, and instructional content. This study aimed to analyze the implementation of the Technological Pedagogical Content Knowledge (TPACK) framework developed by Punya Mishra and Matthew J. Koehler in online private Qur'anic learning for young adults at a non-formal Qur'anic Learning Institution (pseudonym). This qualitative case study involved one online Qur'anic instructor. Data were collected through in-depth interviews, observations of Google Meet learning sessions, and documentation, and analyzed using the interactive model of Miles, Huberman, and Saldaña. Data trustworthiness was ensured through source and method triangulation and member checking. The findings reveal that all seven TPACK components were implemented in an integrated manner. The instructor utilized Google Meet, PowerPoint, recording features, and WhatsApp to support synchronous and asynchronous learning. Learner-centered pedagogy was implemented through individualized Iqra' and *talaqqi* methods, flexible pacing, immediate corrective feedback, and continuous progress evaluation. Tajwid, *tahsin*, and *makhārij al-ḥurūf* were taught through demonstrations, repetitive practice, and gradual scaffolding. The integration of technology, pedagogy, and content supported interactive learning and teacher-learner communication. According to the instructor's observations, learners demonstrated improvements in Qur'anic reading fluency and accuracy during the learning process, while digital platforms facilitated opportunities for practice beyond synchronous sessions. The study concludes that online Qur'anic learning depends on the instructor's ability to integrate technology, pedagogy, and content according to learners' individual needs.

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INTRODUCTION

The rapid development of digital technology has transformed Qur'anic learning from predominantly face-to-face instruction into increasingly flexible online learning environments (Alanshori & Zahidi, 2025). Platforms such as Google Meet enable synchronous interaction between instructors and learners, including *talaqqi*, pronunciation correction, and immediate feedback (Wong, 2023). This transformation is particularly relevant for young adults who are familiar with digital technologies and require flexible access to Qur'anic learning (Zainuri et al., 2026). However, moving Qur'anic instruction to an online platform does not automatically ensure the quality of the instructional process (Fahmi, 2025). The central challenge concerns how instructors integrate digital technology with appropriate pedagogy and Qur'anic content (Hidayat et al., 2025).

This challenge is particularly evident in teaching *tajwid*, *tahsin*, and *makhārij al-ḥurūf* (Mukmin & Kamsi, 2026). These areas require accurate demonstrations, repeated recitation, individualized correction, and continuous feedback. In an online setting, instructors must therefore select technologies that can support these instructional demands while adapting pedagogical strategies to individual learner needs (Jannah et al., 2025). Previous studies have shown that digital platforms can facilitate Qur'anic learning, but several studies have focused mainly on the use or effectiveness of particular media rather than on how technology, pedagogy, and Qur'anic content are integrated within the instructional process (Nashihuddin & Astutik, 2022). This indicates that the technological dimension alone cannot adequately explain the complexity of online Qur'anic instruction.

The Technological Pedagogical Content Knowledge (TPACK) framework developed by Punya Mishra and Matthew J. Koehler provides a relevant theoretical lens for examining this complexity. TPACK conceptualizes teacher knowledge through seven interconnected domains: Technological Knowledge (TK), Pedagogical Knowledge (PK), Content Knowledge (CK), Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical Content Knowledge (TPACK). Rather than viewing these domains as separate competencies, the framework emphasizes their interaction in particular instructional contexts. This perspective is especially relevant to online private Qur'anic learning, where instructors must simultaneously manage digital platforms, individualized teaching strategies, and the specific requirements of Qur'anic recitation era (Koehler et al., 2013).

Existing studies have examined TPACK in Qur'an-Hadith learning and other Islamic educational contexts. Suriana et al. (2024), for example, examined TPACK implementation in Qur'an-Hadith instruction, while Tiarningarum et al. (2025) explored TPACK-based digital instruction to support more interactive learning. Other studies have focused on digital media, learner interest, assessment instruments, or particular aspects of technology integration (Harahap et al., 2021; Arina & Baderiah, 2025; Istriana et al., 2024). Nevertheless, limited attention has been given to how the seven TPACK domains interact contextually in individualized online Qur'anic instruction, particularly in non-formal learning institutions. The gap is therefore not merely the absence of research examining all seven TPACK components, but the limited understanding of how these domains operate together when instructors teach *tajwid*, *tahsin*, and *makhārij al-ḥurūf* through individualized online instruction.

Accordingly, this study offers a contextual contribution by examining the interaction of the seven TPACK domains within online private Qur'anic learning for young adults in a non-formal Qur'anic Learning Institution. The study focuses on how instructors connect technological affordances with individualized pedagogy and the

specific characteristics of Qur'anic content throughout the instructional process. This perspective allows TPACK to be examined not simply as a collection of teacher competencies, but as an integrated knowledge system that operates within the particular demands of online Qur'anic instruction. Based on this gap, the study aims to: (1) examine the implementation of the seven TPACK domains in online private Qur'anic learning for young adults; (2) analyze how technology, pedagogy, and Qur'anic content interact in individualized *tajwid* and *tahsin* instruction; and (3) identify contextual factors that shape the integration of TPACK within online non-formal Qur'anic learning. The findings are expected to contribute to the application of TPACK in Islamic education and provide contextual insights into the instructional practices required for individualized online Qur'anic learning.

METHODS

This study employed a qualitative case study design to examine the implementation of the Technological Pedagogical Content Knowledge (TPACK) framework in online private Qur'anic learning for young adults (Sugiyono, 2017). The research was conducted at Qur'anic Learning Institution X, a pseudonym for a non-formal institution, from May 17 to June 1, 2026, with Ustadzah NAM (pseudonym) as the primary informant. Data were collected through in-depth interviews, observations of online learning sessions, and documentation, including instructional materials and learning records. The interviews explored the instructor's experiences, instructional strategies, technology use, and pedagogical practices, while observations examined the implementation of TPACK during learning activities (Rahardjo, 2017). Data were analyzed using the interactive model of Miles, Huberman, and Saldaña through data condensation, data display, and conclusion drawing and verification. Data trustworthiness was ensured through source and method triangulation, as well as member checking to confirm the accuracy of the data and interpretations (Miles et al., 2014).

RESULTS

A. Technological Knowledge (TK)

The findings indicate that the instructor possesses adequate technological competence to conduct online private Qur'anic learning. Proficiency in using Google Meet was acquired through prior experience with the platform before becoming a Qur'anic instructor, particularly during online university courses. This experience enabled the instructor to operate various features that support the learning process effectively. As stated by the informant:

"Alhamdulillah, I already understood how to use Google Meet because I had frequently used the application for university classes before becoming a teacher. Therefore, I already had the basic skills and became accustomed to operating Google Meet for online Qur'anic learning."

During the learning process, the instructor utilized the Share Screen, Recording, and Document Sharing features. The Share Screen feature was used to present *tahsin* materials visually, while the Recording feature documented every learning session. In addition, Document Sharing enabled learners to follow the instructional materials more systematically. The informant explained:

"The feature I use most frequently is Share Screen because I teach tahsin, making the material easier to explain visually. I also use the recording feature because every learning session must be recorded. In addition, I use the document-sharing feature when presenting instructional materials."

The primary technical challenge encountered during instruction was unstable internet connectivity, which occasionally delayed real-time correction of students' recitation. The informant explained:

"The most common problem is internet connectivity. Sometimes my voice reaches the students with a delay, so the corrections I provide are heard a few moments later. To overcome this, I look for a location with a more stable internet connection. Whenever I have difficulty using certain Google Meet features, I usually learn them through YouTube tutorials."

B. Pedagogical Knowledge (PK)

The findings reveal that the learning process was conducted using the *Iqra'* and *talaqqi* methods with a flexible approach tailored to learners' individual needs. Rather than establishing fixed weekly reading targets, the instructor designed learning objectives according to each learner's abilities and personal goals. The informant stated:

"I mainly use the Iqra' and talaqqi methods. Learning at this institution is flexible, so there are no weekly reading targets. I usually ask learners about the goals they want to achieve and then help them accomplish those goals over several learning sessions."

To maintain learners' motivation, the instructor created a relaxed learning atmosphere by incorporating light humor and ending each session with discussions about the difficulties encountered during learning. The informant stated:

"To keep the learning process interesting, I occasionally include light humor so that the sessions do not become monotonous. At the end of each lesson, I also hold a sharing or discussion session about the difficulties they experienced during learning."

Learners' reading progress was evaluated continuously through individual progress reports prepared after each meeting. As explained by the informant:

"Evaluation is conducted through a progress report after every meeting. The report records aspects that still need improvement, such as vowel length or mistakes in tajwid. Any improvement in reading ability is also documented and used as a reference for the following meeting."

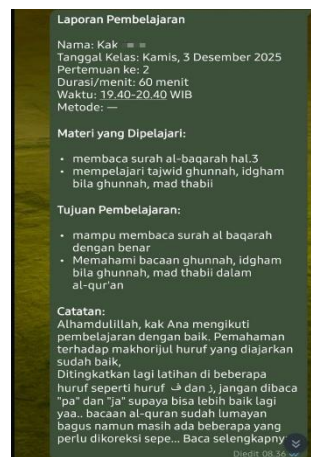


Figure 1. Learning report containing instructional materials, learning objectives, and lesson notes used to monitor students' progress after each online learning session.

C. Content Knowledge (CK)

The findings demonstrate that the instructional content focused primarily on fundamental tahsin and *tajwid* competencies, including the rules of nun sākinah and tanwīn, mīm sākinah, makhārij al-ḥurūf (points of articulation), and madd (elongation rules). As explained by the informant:

"The material I teach most frequently is tajwid, especially the rules of nun sākinah and tanwīn, mīm sākinah, and makhārij al-ḥurūf."

Learners' understanding of the material was assessed by asking them to identify examples of tajwid rules directly from Qur'anic verses and then recite them before the instructor. The informant explained:

"I usually use an example-finding method. For instance, when learning the rules of nun sākinah and tanwīn, I ask students to find several examples on the Qur'anic page they are studying. Afterwards, they read them aloud so that I can assess their understanding."

The most difficult topics for learners were the various categories of *madd* and the practical application of *ikhfā' ḥaqīqī*. The informant explained:

"The most difficult material is the rules of madd because there are many different types. In addition, the practical application of ikhfā' ḥaqīqī is quite difficult because learners are more accustomed to pronouncing letters clearly rather than concealing them according to the rules of tajwid."

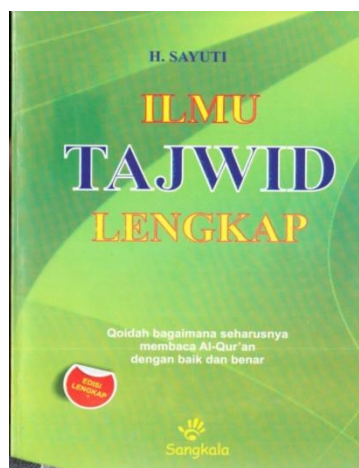


Figure 2. The tajwid textbook used as the primary instructional material in online Qur'anic learning.

D. Pedagogical Content Knowledge (PCK)

The findings indicate that the instructor integrated pedagogical strategies with tajwid content through recitation demonstrations, presentation media, and repeated instruction according to learners' levels of mastery. The informant explained:

"I use Share Screen to display PowerPoint slides containing tajwid materials. The slides include examples of recitation rules and illustrations of letter combinations. I explain each rule and demonstrate whether it should be pronounced with nasalization, elongation, or a short pronunciation."

When learners experienced difficulties in recitation, the instructor first demonstrated the correct pronunciation before asking them to imitate it. The informant explained:

"Whenever learners experience difficulties, I first demonstrate the correct recitation. Afterwards, I ask them to imitate it until their pronunciation is accurate."

Furthermore, instructional materials were repeated until learners fully mastered them before proceeding to subsequent topics. The informant explained:

"If learners have not yet understood a particular topic, I repeat the material over two or three sessions. Only after they fully understand and can apply it correctly do we continue to the next lesson."

E. Technological Content Knowledge (TCK)

The findings show that technology was employed to visualize Qur'anic learning materials, making them easier for learners to understand. The instructor primarily used PowerPoint presentations displayed through the Share Screen feature to explain tajwid rules. The informant stated:

"I utilize digital technology by presenting PowerPoint slides through the Share Screen feature on Google Meet. This enables learners to see examples of tajwid rules and how they should be recited more clearly."

In addition, WhatsApp was used as a complementary learning medium for communication, scheduling, and distributing follow-up exercises. The informant explained:

"Besides Google Meet, I use WhatsApp to communicate with learners, arrange learning schedules, and send follow-up exercises after each lesson."

F. Technological Pedagogical Knowledge (TPK)

The findings indicate that various technological features were utilized to support interactive teaching strategies. The instructor employed Share Screen, Recording, and Document Sharing to improve instructional effectiveness. The informant explained:

"I use the Share Screen feature to explain materials through PowerPoint, the recording feature to document learning sessions, and the document-sharing feature so that learners can follow the instructional materials more easily."

Interactive learning was promoted through discussions, question-and-answer sessions, identifying examples of tajwid rules, and immediate correction of learners' Qur'anic recitation. The informant explained:

"Since the learning is conducted privately, interaction is much more intensive. I frequently invite learners to discuss, ask questions, and find examples of tajwid rules in the verses they are studying. When they recite the Qur'an, I listen carefully and immediately correct any mistakes."

G. Technological Pedagogical Content Knowledge (TPACK)

The findings demonstrate that the implementation of TPACK was reflected in the integration of technology, pedagogy, and Qur'anic content within a unified instructional process. The instructor delivered learning materials through digital presentations, demonstrated proper recitation, encouraged learners to practice, provided immediate feedback, and extended learning through independent practice. As expressed by the informant:

"I present the material through digital presentations using Share Screen, then demonstrate the correct recitation. Afterwards, learners practice the recitation, and I provide direct feedback on their reading. At the end of the lesson, I send follow-up exercises through WhatsApp so that learning continues beyond the scheduled session."

interactive teaching methods, appropriate utilization of technology, intensive communication between the teacher and learners, and the learners' commitment to practicing independently outside the scheduled learning sessions."

DISCUSSION

A. Technological Knowledge (TK)

The findings indicate that the instructor possesses strong technological competence as the foundation for conducting online private Qur'anic learning. This competence is reflected in the instructor's ability to operate various digital features, including Share Screen, Recording, and Document Sharing, to facilitate the delivery of *tahsin* and *tajwid* instruction. The instructor is also able to overcome technical challenges encountered during online learning, particularly unstable internet connections, by switching to more reliable networks and independently learning new platform features through online tutorials. These findings suggest that technological competence is acquired not only through formal training but also through prior experience and continuous self-directed learning.

These findings are consistent with the concept of Technological Knowledge (TK) within the Technological Pedagogical Content Knowledge (TPACK) framework developed by Punya Mishra and Matthew J. Koehler. According to Mishra and Koehler, TK refers to teachers' ability to recognize, understand, select, and effectively operate digital tools and technologies relevant to instructional activities. This competence extends beyond technical proficiency to include the capacity to adapt to continuously evolving technological innovations. In the present study, the instructor's ability to utilize multiple online learning features, together with her willingness to independently explore new technologies, demonstrates that TK has developed dynamically. Consequently, technology functions not merely as a technical tool but as an instructional medium that enables Qur'anic learning to continue effectively despite the absence of face-to-face interaction between teacher and learners.

The findings also reinforce the study of Suriana et al. (2024), which reported that teachers' technological competence is a fundamental prerequisite for implementing TPACK in Qur'an-Hadith instruction because it determines the effectiveness of digital media integration into the learning process. Similarly, Tiarningarum et al. (2025) found that mastery of digital learning platforms enhances interaction quality and improves the effectiveness of technology-supported instruction. These findings are further supported by Everett M. Rogers' Diffusion of Innovations Theory (2003), which argues that successful adoption of technological innovation depends on individuals' readiness to accept, learn, and apply new technologies in their professional practices. Within the context of this study, the instructor demonstrates the characteristics of an early adopter by readily embracing technological innovations, learning them independently, and integrating them into online Qur'anic instruction. This indicates that technological competence develops progressively through experience, instructional needs, and continuous professional learning (Wolf, 2022).

Based on these findings, the researchers conclude that Technological Knowledge (TK) serves as the primary foundation for transforming online private Qur'anic learning. Technological competence enables instructors to conduct learning that is more flexible, interactive, and responsive to digital developments. Nevertheless, technological competence should not be interpreted merely as the

ability to operate digital applications; rather, it should be understood as the capacity to select, adapt, and optimize technological tools according to the specific needs of Qur'anic instruction. Therefore, efforts to improve digital competence among Qur'anic instructors should emphasize the continuous development of technological literacy to strengthen its integration with pedagogical knowledge and content knowledge, as advocated by the TPACK framework. These findings further demonstrate that the digital transformation of Qur'anic learning begins with teachers' readiness to master technology as the essential foundation for achieving comprehensive TPACK competence.

B. Pedagogical Knowledge (PK)

The findings indicate that the instructor's pedagogical competence is reflected in the implementation of flexible, learner-centered instructional approaches. Qur'anic learning is conducted through a combination of the Iqra' and talaqqi methods, with learning objectives tailored to the individual abilities and goals of each learner. Rather than imposing rigid reading targets, the instructor allows learners to progress according to their own pace and level of development. In addition, learning motivation is fostered through a communicative learning environment, the use of light humor, discussions about learning difficulties, and continuous assessment through individual progress reports after each learning session. These findings demonstrate that the instructional process extends beyond content delivery by emphasizing learners' psychological needs, motivation, and continuous learning development.

These findings are consistent with the Pedagogical Knowledge (PK) component of the Technological Pedagogical Content Knowledge (TPACK) framework proposed by Mishra and Koehler (2006), refers to teachers' ability to understand learners' characteristics, select appropriate instructional strategies, manage learning activities, motivate students, and conduct effective assessment. Recent research on TPACK further emphasizes that teachers' knowledge structures are enacted dynamically according to instructional contexts, requiring teachers to adapt pedagogical approaches to learners and teaching situations (König et al., 2024). In the context of online private Qur'anic learning, pedagogical competence is demonstrated through the instructor's ability to adapt teaching methods to the individual needs of learners, establish intensive communication, and provide continuous feedback throughout the learning process. This indicates that successful online instruction depends not only on the use of technology but also on teachers' capacity to design meaningful, learner-centered learning experiences. Furthermore, the instructor's flexible approach enables personalized instruction, allowing each learner to receive guidance that matches his or her level of Qur'anic reading proficiency while maintaining active engagement throughout the learning process.

The findings support the study by Harahap et al. (2021), which concluded that the effectiveness of online learning is strongly influenced by pedagogical strategies capable of maintaining learner interaction and motivation. Likewise, the findings reinforce the research of Suriana et al. (2024), which demonstrated that the pedagogical dimension of TPACK plays a significant role in the successful implementation of technology-enhanced Qur'an-Hadith instruction. In addition, these findings are supported by Lev Vygotsky's Social Constructivism Theory, which argues that knowledge is constructed through social interaction between teachers and learners. In online private Qur'anic learning, interactions such as dialogue, recitation demonstrations, immediate pronunciation correction, guided practice, and reflective discussion function as forms of scaffolding that gradually help learners improve their

Qur'anic reading skills. Consequently, learning is not merely a process of transmitting knowledge but a collaborative process through which learners actively construct understanding with continuous guidance from the instructor. This pedagogical interaction becomes particularly important in Qur'anic education, where mastery of pronunciation and recitation requires repeated practice accompanied by direct instructional support (Vygotsky, 2019).

Based on these findings, the researchers conclude that Pedagogical Knowledge (PK) is a critical component determining the quality of interaction in online private Qur'anic learning. Flexible instructional methods, the ability to motivate learners, intensive communication, personalized guidance, and continuous assessment collectively contribute to creating effective and meaningful learning experiences. Strong pedagogical competence enables instructors to adapt instructional strategies according to learners' characteristics, thereby making the learning process more individualized, engaging, and responsive to learners' needs. Therefore, the digital transformation of Qur'anic learning requires not only technological proficiency but also adaptive pedagogical competence to ensure that technology is used meaningfully to support instructional objectives. Ultimately, the findings demonstrate that technology can only achieve its full educational potential when combined with sound pedagogical practices that prioritize learner development, active participation, and continuous improvement in Qur'anic reading proficiency.

C. Content Knowledge (CK)

The findings indicate that the instructor's Content Knowledge (CK) is primarily centered on the fundamental topics that serve as the foundation of learners' Qur'anic reading proficiency. The instructional content mainly includes the rules of *nūn sākinah* and *tanwīn*, *mīm sākinah*, *makhārij al-ḥurūf* (points of articulation), *madd* rules, and *taḥsīn* (recitation improvement). The instructor not only explains the theoretical aspects of *tajwīd* but also ensures that learners understand their practical application by asking them to identify examples of *tajwīd* rules directly from the Qur'anic verses being studied. The interview findings further reveal that the most challenging topics for learners are the rules of *madd*, due to their numerous classifications, and the application of *ikhfā' ḥaqīqī*, which requires repeated articulation practice. These findings demonstrate that the instructor's mastery of content encompasses not only conceptual understanding but also the ability to identify learners' learning difficulties and present instructional materials progressively according to their level of competence.

From the perspective of the Technological Pedagogical Content Knowledge (TPACK) framework, Content Knowledge (CK) represents teachers' fundamental competence in mastering the subject matter they teach (Mishra & Koehler, 2006). In the context of online private Qur'anic instruction, CK is reflected in the instructor's mastery of *tajwīd*, *taḥsīn*, *makhārij al-ḥurūf*, and accurate Qur'anic recitation according to established rules. The findings demonstrate that the instructor possesses substantial content knowledge, enabling her to prioritize instructional topics according to learners' individual needs and levels of proficiency. This mastery allows the instructor to introduce essential concepts before progressing to more advanced topics, thereby creating a structured and sequential learning process. Within the TPACK framework, the quality of digital instruction depends not only on sophisticated technology but also on the depth of teachers' content knowledge, which remains the core element of the instructional process. Consequently, CK serves as the essential foundation upon

which pedagogical and technological competencies are effectively integrated in online Qur'anic education.

These findings reinforce the study conducted by Suriana et al. (2024), which concluded that teachers' mastery of Qur'anic content is the primary factor determining the successful implementation of TPACK in Qur'an-Hadith instruction. Likewise, Tiyaningrum et al. (2025) demonstrated that technological integration becomes effective only when supported by sufficient content mastery, enabling teachers to simplify complex learning materials according to learners' characteristics. Furthermore, Shulman's (1986) Theory of Teacher Knowledge emphasizes that teachers' professional competence begins with a deep understanding of subject matter before it can be effectively integrated with pedagogical strategies. Within Qur'anic education, mastery of *tajwid* and *tahsîn* constitutes an indispensable professional competency that cannot be replaced by technology. Therefore, technology functions merely as a medium for delivering instruction, whereas the overall quality of learning remains fundamentally dependent upon the instructor's depth of content knowledge (Dickerson et al., 2022).

Based on these findings, it can be concluded that Content Knowledge (CK) serves as the primary foundation for the transformation of online private Qur'anic learning. Comprehensive mastery of instructional content enables the instructor to organize learning sequences, identify learners' conceptual difficulties, and provide systematic explanations of each *tajwid* concept. The researchers argue that the success of online Qur'anic instruction is inseparable from the quality of teachers' disciplinary expertise. The stronger the instructor's content knowledge, the more effectively technology and pedagogical strategies can be integrated to produce meaningful, engaging, and effective Qur'anic learning experiences that enhance learners' recitation proficiency. Ultimately, these findings reaffirm that technological innovation can only maximize learning outcomes when supported by teachers who possess strong disciplinary expertise and are capable of translating that expertise into effective instructional practice.

D. Pedagogical Content Knowledge (PCK)

The findings reveal that the instructor effectively integrates Qur'anic content with instructional strategies that are appropriate for the characteristics of young adult learners. *Tajwid* concepts are presented through PowerPoint presentations containing illustrations of recitation rules, examples of letter combinations, and explanations of pronunciation techniques, including nasalized (*ghunnah*), prolonged (*madd*), and shortened pronunciations. When learners experience difficulty in reciting Qur'anic verses, the instructor first demonstrates the correct pronunciation before asking learners to imitate the recitation until accurate articulation is achieved. Furthermore, if learners have not yet mastered a particular topic, the instructor repeats the lesson over two or three learning sessions before introducing new material. These findings demonstrate that instructional delivery is continuously adjusted to learners' levels of understanding, allowing the learning process to progress gradually and systematically.

Within the TPACK framework, Pedagogical Content Knowledge (PCK) refers to teachers' ability to integrate subject matter expertise with appropriate pedagogical strategies to make learning content more accessible and understandable for students (Koehler et al., 2013). In this study, PCK is reflected in the instructor's use of recitation demonstrations (*modeling*), repetitive practice (*drilling*), concrete examples, and repeated instruction based on learners' individual needs. Rather than merely

explaining the theoretical principles of *tajwid*, the instructor carefully selects instructional strategies that transform abstract concepts into practical recitation skills that learners can immediately apply. These findings indicate that the integration of pedagogical approaches and instructional content has been implemented effectively, enabling learners to acquire deeper conceptual understanding while simultaneously improving their practical Qur'anic reading skills.

The findings are consistent with the study conducted by Istriana et al. (2024), which reported that the success of technology-enhanced Qur'anic learning largely depends on teachers' ability to connect instructional content with pedagogical strategies appropriate to learners' characteristics. Likewise, Arina and Baderiah (2025) found that successful implementation of TPACK requires not only technological competence but also strong pedagogical skills in presenting instructional content systematically and progressively. From a theoretical perspective, Lev Vygotsky's Scaffolding Theory explains that learners achieve optimal learning outcomes when they receive gradual support through demonstrations, guided instruction, feedback, and repeated practice. The instructor's use of recitation modeling, continuous correction, and repeated instructional sessions clearly reflects the application of scaffolding principles by providing instructional assistance that corresponds to learners' developmental stages and gradually fostering independent Qur'anic reading competence (Wulandari et al., 2024).

The findings indicate that the success of online private Qur'anic learning depends not only on teachers' mastery of instructional content but also on their ability to select and implement appropriate instructional strategies. Recitation demonstrations, repetitive practice, lesson repetition, individualized instruction, and continuous guidance have proven effective in helping learners understand and apply *tajwid* principles more successfully. The researchers conclude that Pedagogical Content Knowledge (PCK) serves as the critical bridge connecting content expertise with effective instructional practice. The more effectively instructors integrate Qur'anic content with appropriate pedagogical approaches, the greater the opportunity for learners to achieve accurate and fluent Qur'anic recitation, even within an online learning environment. These findings further demonstrate that effective online Qur'anic instruction requires not only technological support but also sophisticated pedagogical decision-making that transforms complex religious knowledge into meaningful learning experiences for diverse learners.

E. Technological Content Knowledge (TCK)

The findings indicate that the instructor utilized digital technology to present Qur'anic learning content in a clearer and more comprehensible manner. Technology was employed through PowerPoint presentations displayed using the Share Screen feature, enabling learners to observe examples of *tajwid* rules, illustrations of letter combinations, and correct pronunciation visually. In addition, WhatsApp was used as a supplementary learning medium for scheduling lessons, distributing instructional materials, and providing follow-up exercises after each learning session. These findings suggest that technology functioned not merely as a communication tool but also as a medium for delivering instructional content that enabled learners to engage in continuous learning beyond synchronous class sessions.

Within the Technological Pedagogical Content Knowledge (TPACK) framework, Technological Content Knowledge (TCK) refers to teachers' ability to select and utilize appropriate technologies to represent subject matter in ways that enhance learners' understanding (Koehler et al., 2013). The findings demonstrate that

the instructor successfully implemented TCK by integrating *tajwid* content into digital presentation media while employing WhatsApp as a platform for distributing learning materials and follow-up assignments. This integration transformed instructional content from purely verbal explanations into visual, organized, and learner-friendly representations. Consequently, technology functioned as a means of content representation that strengthened learners' comprehension of *tajwid* and *tahsin* concepts while facilitating independent review outside the online classroom.

These findings support the study of Suriana et al. (2024), which concluded that digital media enhance the quality of Qur'anic instruction when teachers appropriately align technology with the characteristics of instructional content. Likewise, Tiarningarum et al. (2025) reported that digital media facilitate learners' understanding of Qur'an-Hadith concepts through effective visualization and interactive presentation. The findings are further supported by Richard E. Mayer's Cognitive Theory of Multimedia Learning (2009), which argues that learners understand instructional materials more effectively when information is presented through a combination of text, images, and visual explanations rather than through verbal explanations alone. Therefore, the use of PowerPoint presentations in *tajwid* instruction represents an appropriate strategy for improving learners' comprehension by reducing cognitive load and presenting abstract concepts in a more concrete and structured manner (Mayer, 2024).

Based on these findings, it can be concluded that the implementation of Technological Content Knowledge (TCK) in online private Qur'anic learning has been effectively realized through the use of technology as a medium for representing instructional content. Digital presentations and online communication platforms enable *tajwid* materials to be delivered in a more systematic, engaging, and understandable manner. The researchers argue that successful implementation of TCK depends not on the quantity of technology employed but on teachers' ability to select technologies that align with the characteristics of the instructional content. Such alignment enhances the effectiveness of online Qur'anic learning by making complex concepts more accessible and meaningful for learners.

F. Technological Pedagogical Knowledge (TPK)

The findings reveal that the instructor utilized various technological features to support the implementation of effective online teaching strategies. The Share Screen feature was used to explain learning materials through PowerPoint presentations, the Recording feature was employed to document learning sessions, and Document Sharing enabled learners to access instructional materials more conveniently. Furthermore, instructional interaction was promoted through discussions, question-and-answer sessions, activities requiring learners to identify examples of *tajwid* rules, and immediate correction of learners' Qur'anic recitation. Because the learning was conducted individually, communication between the instructor and learners was more intensive, allowing immediate feedback and personalized instructional support throughout the learning process.

According to Koehler et al. (2013), Technological Pedagogical Knowledge (TPK) refers to teachers' ability to integrate technology with pedagogical strategies so that technology effectively supports the teaching and learning process. The findings indicate that the instructor not only possessed technological competence but also demonstrated the ability to select technological features that corresponded to specific instructional objectives. The integration of Share Screen, Recording, and Document Sharing with discussion, questioning, guided reading practice, and immediate

feedback illustrates that technology was intentionally employed to enhance instructional interaction rather than merely to deliver content. This integration strengthened two-way communication, promoted learner engagement, and created a more interactive and participatory online learning environment.

These findings are consistent with the study conducted by Harahap et al. (2021), which concluded that video-conferencing platforms improve instructional interaction when supported by appropriate pedagogical strategies. Similarly, Nashihuddin & Astutik (2022) found that the effectiveness of online learning depends not only on the use of digital media but also on teachers' ability to manage interactive learning processes. The findings are further reinforced by the Community of Inquiry (CoI) Framework developed by Garrison et al. (2000), which proposes that successful online learning depends on the integration of teaching presence, social presence, and cognitive presence. In this study, these three dimensions were reflected in the instructor's active guidance, intensive communication with learners, collaborative discussions, and immediate corrective feedback during Qur'anic recitation practice. Together, these elements created a meaningful online learning experience that encouraged active participation and sustained learner engagement (Suharno et al., 2022).

Based on these findings, the researchers conclude that the implementation of Technological Pedagogical Knowledge (TPK) contributes significantly to creating online private Qur'anic learning that is interactive, learner-centered, and pedagogically effective. Technology not only facilitates the delivery of instructional materials but also strengthens communication, discussion, guided recitation, and immediate feedback throughout the learning process. The researchers argue that successful implementation of TPK lies in teachers' ability to combine technological tools with appropriate pedagogical strategies to establish responsive, collaborative, and engaging learning interactions. Consequently, technology functions not merely as an instructional medium but as an integral component of pedagogy that supports meaningful Qur'anic learning in digital environments.

G. Technological Pedagogical Content Knowledge (TPACK)

The findings indicate that the implementation of Technological Pedagogical Content Knowledge (TPACK) was reflected in the comprehensive integration of technology, pedagogy, and Qur'anic content throughout the online private learning process. The instructor delivered *tajwid* materials using digital presentations through the Share Screen feature, followed by live recitation demonstrations to provide learners with accurate pronunciation models. Learners were then asked to practice their recitation while the instructor provided immediate corrective feedback on every identified error. After each learning session, follow-up exercises were distributed via WhatsApp to encourage independent practice outside the scheduled class. The effectiveness of this integrated approach was evident in learners' progress, as those who initially began at the basic Iqra' level gradually developed greater fluency in Qur'anic recitation and acquired a sound understanding of fundamental *tajwid* principles. The findings further reveal that successful online Qur'anic learning was influenced not only by the use of technology but also by the instructor's mastery of content, the application of interactive pedagogical strategies, intensive teacher-learner communication, and learners' commitment to continuous independent practice.

According to Mishra and Koehler (2006), Technological Pedagogical Content Knowledge (TPACK) represents the most comprehensive form of teacher knowledge because it integrates Technological Knowledge (TK), Pedagogical Knowledge (PK),

and Content Knowledge (CK) into a unified instructional practice. The findings demonstrate that the instructor successfully implemented all seven components of the TPACK framework in an integrated manner. Technological competence was reflected in the effective use of digital platforms and online learning features; pedagogical competence was demonstrated through the application of the Iqra' method, talaqqi, recitation modeling, guided discussions, and immediate feedback; while content competence was evident in the instructor's ability to explain *tajwid* concepts systematically according to learners' individual needs. The integration of these three domains transformed technology from a simple communication tool into an instructional resource that enhanced both content delivery and learning interaction. Therefore, the implementation of TPACK in this study illustrates that the transformation of online Qur'anic learning occurs through the effective synergy of technology, pedagogy, and instructional content.

The findings reinforce the study of Suriana et al. (2024), which concluded that TPACK implementation improves the effectiveness of Qur'an-Hadith instruction through the integration of technological, pedagogical, and content competencies. Likewise, Tiarningarum et al. (2025) reported that the TPACK framework promotes more active, collaborative, and learner-centered instruction aligned with the demands of twenty-first-century education. However, previous studies were primarily conducted within formal educational settings such as Islamic schools and madrasahs, whereas the present study extends the application of TPACK to online private Qur'anic learning for young adults within a non-formal educational institution. These findings are further supported by the SAMR Model proposed by Puentedura (2013), which argues that digital transformation occurs when technology moves beyond merely substituting conventional instructional media (Substitution) to modifying (Modification) and ultimately redefining (Redefinition) the learning experience. In this study, technology functioned not merely as a communication platform but as a transformative instructional medium by enabling digital content presentation, synchronous recitation practice, immediate feedback, and continuous learning beyond scheduled online sessions (Nurlailiyah, 2026).

Based on these findings, the researchers conclude that the implementation of Technological Pedagogical Content Knowledge (TPACK) constitutes the primary factor supporting the transformation of online private Qur'anic learning for young adults. The integration of technological competence, pedagogical expertise, and content mastery resulted in learning experiences that were more effective, interactive, adaptive, and learner-centered. The findings indicate that the success of online Qur'anic instruction depends not simply on sophisticated technology but on teachers' ability to harmoniously integrate all components of the TPACK framework throughout every stage of the instructional process. Consequently, the TPACK framework can serve as a valuable conceptual model for developing the professional competencies of Qur'anic instructors in the digital era, particularly within online private learning environments that require a balanced integration of instructional content, pedagogical strategies, and educational technology.

CONCLUSION

This study concludes that the implementation of the Technological Pedagogical Content Knowledge (TPACK) framework in online private Qur'anic learning at Qur'anic Learning Institution X has been carried out comprehensively through the integration of technological, pedagogical, and content competencies. The instructor demonstrated

Technological Knowledge (TK) by effectively utilizing Google Meet and its supporting features, Pedagogical Knowledge (PK) by implementing flexible learner-centered strategies through the *Iqra'* and *talaqqi* methods, and Content Knowledge (CK) by mastering essential *tajwid* and *tahsin* materials. Furthermore, the integration of these competencies was reflected in Pedagogical Content Knowledge (PCK) through demonstrations and repeated practice, Technological Content Knowledge (TCK) through the use of digital presentation media and WhatsApp, Technological Pedagogical Knowledge (TPK) through interactive communication and immediate feedback, and ultimately Technological Pedagogical Content Knowledge (TPACK) through the harmonious integration of technology, pedagogy, and Qur'anic content within a single instructional process. These findings indicate that the effectiveness of online private Qur'anic learning is determined not merely by the availability of digital technology but by the instructor's ability to integrate technological tools with appropriate pedagogical approaches and sound Qur'anic content knowledge. The study therefore contributes to the theoretical development of the TPACK framework within the field of Islamic education by demonstrating its applicability in non-formal online Qur'anic learning settings.

The findings also provide practical implications for institutions offering online Qur'anic education by highlighting the importance of strengthening instructors' competencies across all TPACK domains rather than focusing solely on digital literacy. Continuous professional development programs should emphasize the balanced integration of technology, pedagogy, and Qur'anic content to enhance the quality of online instruction. Since this study was conducted as a single case study involving one instructor at a non-formal Qur'anic learning institution, its findings cannot be generalized to all contexts. Therefore, future studies are recommended to involve multiple instructors and institutions, employ mixed-method or comparative research designs, and investigate learners' perspectives, learning outcomes, and long-term impacts of TPACK implementation. Such studies would provide broader empirical evidence and contribute to the development of more effective models for digital Qur'anic education in the contemporary era.

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