



Integration of the SECI Knowledge Management Model in Developing Islamic Religious Education Teachers' Competencies: Implications for Quality-Based Learning Management in Elementary Schools

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Abstract: This study examines the implementation of Nonaka's Socialization, Externalization, Combination, and Internalization (SECI) Knowledge Creation Model in developing Islamic Religious Education (PAI) teachers' professional competencies and improving the quality of learning in elementary schools. Using a qualitative case study design, the study was conducted at SDI Mutiara Sunnah Cikarang Barat through in-depth interviews, classroom observations, and document analysis over a four-month period. The findings indicate that the four SECI processes facilitate continuous knowledge conversion through mentoring, peer observation, collaborative lesson planning, documentation, instructional application, and reflective practice. Socialization enables the exchange of teachers' experiential knowledge, Externalization transforms tacit knowledge into explicit instructional resources, Combination integrates knowledge from multiple sources, and Internalization embeds shared knowledge into teachers' classroom practices. The implementation of SECI was supported by instructional leadership, collaborative organizational culture, interpersonal trust, and institutional commitment, while administrative workload and differences in digital competencies remained significant constraints. The study further demonstrates that integrating SECI with Learning Organization principles and the PPEPP-based internal quality assurance system strengthens the relationship between teacher professional development, organizational learning, and continuous quality improvement in PAI. The study recommends that future research employ comparative and longitudinal designs across different Islamic educational institutions and educational levels to further examine and validate the sustainability and transferability of the SECI-based framework.

Keywords: SECI Knowledge Creation; Teacher Professional Competence; Islamic Religious Education.

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Introduction

Islamic Religious Education (PAI) in elementary schools occupies a strategic position in developing students' religious understanding, moral values, and character formation from an early age. Beyond transmitting religious knowledge, PAI aims to cultivate students' spiritual awareness, ethical behavior, and daily religious practices that become the foundation for lifelong learning (Abdullah & Amalia, 2025). Consequently, the quality of Islamic Religious Education is closely associated with

teachers' competencies in designing meaningful, contextual, and student-centered learning experiences.

In recent years, improving educational quality has increasingly emphasized teacher professionalism as one of the key determinants of learning effectiveness. Teachers are expected not only to master pedagogical and professional competencies but also to continuously develop instructional innovations and adapt to technological changes (Olowo & Akinguloye, 2025). However, many educational institutions still experience difficulties in systematically managing teachers' professional knowledge. Valuable instructional experiences frequently remain as individual tacit knowledge without being documented or shared among colleagues, resulting in repeated instructional problems and limited institutional learning.

Previous studies have demonstrated that knowledge management contributes significantly to organizational learning and professional development in educational institutions (ZhengKang et al., 2025). The SECI Model proposed by Nonaka and Takeuchi explains organizational knowledge creation through four interconnected processes: Socialization, Externalization, Combination, and Internalization. Through continuous knowledge conversion, tacit experiences possessed by individual teachers can be transformed into explicit organizational knowledge that benefits the entire institution (Hendrawati, 2026a).

Several recent studies have reported that collaborative knowledge-sharing practices improve teachers' professional competencies and instructional innovation. Huwaida found that SECI-based knowledge management strengthened teachers' professionalism through systematic knowledge conversion (Huwaida & Khoiruddin, 2025). Likewise, Izzah demonstrated that collaborative pedagogical innovation positively influenced instructional quality in elementary schools (Izzah & Wardan, 2026). Yang et al. further emphasized that integrating SECI into teacher professional development enhanced digital competence and pedagogical effectiveness (Yang et al., 2018). Other researchers highlighted the importance of documentation, peer mentoring, and collaborative organizational culture in sustaining continuous professional learning.

Despite these advances, previous studies have largely examined the SECI model as a general approach to knowledge management and professional development, with limited attention to its role in systematically supporting quality assurance in Islamic Religious Education at the elementary school level. In particular, existing research tends to examine teacher competency development, instructional quality, organizational culture, and educational quality management as separate dimensions rather than as interconnected components of a continuous organizational learning process. As a result, there remains a limited understanding of how the conversion of teachers' tacit and explicit knowledge through the SECI cycle can simultaneously strengthen professional competence, improve instructional practices, foster a

collaborative organizational culture, and contribute to internal quality assurance. This gap is particularly relevant in Islamic elementary schools, where educational quality encompasses not only pedagogical effectiveness but also the integration of religious values, character formation, and institutional quality improvement. Therefore, a more integrative analytical framework is needed to explain how SECI-based knowledge creation can function as a mechanism linking teacher professional development, instructional quality, organizational learning, and quality assurance in Islamic Religious Education.

A comparative review of recent studies indicates that research on teacher knowledge management has generally emphasized professional development, pedagogical innovation, or educational leadership as separate areas of inquiry. However, the empirical situation at SDI Mutiara Sunnah Cikarang Barat indicates the need for a more systematic approach to managing teachers' professional knowledge. Preliminary observations revealed that teachers regularly engaged in mentoring, collaborative lesson planning, classroom observation, reflective discussions, and the sharing of instructional experiences. Nevertheless, these professional experiences and pedagogical insights were not always systematically documented, integrated, and utilized as shared organizational knowledge for continuous quality improvement. This situation indicates that valuable tacit knowledge may remain embedded in individual teachers' experiences unless the school provides mechanisms for converting, documenting, combining, and internalizing such knowledge. The urgency of this issue is particularly evident in Islamic Religious Education, where teachers are expected to simultaneously address pedagogical quality, religious values, character formation, and students' contextual learning needs. Therefore, a systematic knowledge conversion mechanism is necessary to ensure that individual professional experiences can be transformed into sustainable organizational learning and quality improvement.

The novelty of this study lies in proposing and empirically examining an integrative SECI-based framework that connects teacher professional competence, instructional innovation, collaborative organizational culture, religious character education, and internal quality assurance within the context of Islamic elementary education. Unlike previous studies that predominantly examine these dimensions separately, this study positions the SECI knowledge conversion cycle Socialization, Externalization, Combination, and Internalization as the organizational mechanism linking teachers' experiential knowledge with instructional improvement and institutional quality management. Furthermore, the study integrates the SECI model with organizational learning principles and the Internal Quality Assurance System (SPMI/PPEPP), thereby providing a comprehensive framework for understanding how continuous knowledge creation can support sustainable improvement in Islamic Religious Education. This integrative perspective constitutes the study's principal

contribution to the literature on teacher knowledge management and quality-based educational improvement.

Table 1.
Summary of Recent Studies on SECI-Based Knowledge Management in Education

No	Reference	Focus	Method	Main Findings
1	Cheng (2023) (C. K. E. Cheng, 2023)	SECI implementation	Qualitative	Improves teacher professionalism
2	Skrbinjek et al. (2024) (Skrbinjek et al., 2024)	Pedagogical innovation	Case Study	Knowledge improves sharing learning quality
3	Kırmızı, Ö., & Mutlu Gülbak, G. (2025) (Kırmızı & Mutlu Gülbak, 2025)	Teacher competency	Qualitative	SECI enhances pedagogical competence
4	Kumar (2025) (Kumar, 2025)	Knowledge management barriers	Qualitative	Administrative workload hinders knowledge sharing
5	Rahayu & Ningsih (2025) (Rahayu & Ningsih, 2025)	Collaborative teacher development	Case Study	Peer strengthens mentoring professional competence

Based on these research gaps, this study specifically aims to:

1. Analyze the implementation of the SECI knowledge management model in developing Islamic Religious Education teachers' competencies;
2. Examine the contribution of SECI implementation toward improving quality-based Islamic Religious Education learning;
3. Identify supporting and inhibiting factors affecting SECI implementation in elementary schools;
4. Formulate an integrative framework of SECI-based quality management for sustainable teacher professional development.

The findings are expected to contribute theoretically to the development of knowledge management studies within Islamic education while providing practical recommendations for strengthening internal quality assurance systems through systematic knowledge conversion.

Methodology

This study employed a qualitative case study design to obtain an in-depth understanding of how the Socialization, Externalization, Combination, and Internalization (SECI) model is implemented in developing Islamic Religious Education teachers' competencies and improving quality-based

learning in an elementary school context. A qualitative case study was considered appropriate because the study focused on examining a contemporary organizational and educational phenomenon within its natural setting and sought to understand how teachers and school leaders experienced, interpreted, and practiced knowledge creation in their daily professional activities. This design also enabled the researchers to examine the interaction between teacher professional development, knowledge-sharing practices, organizational culture, instructional practices, and quality improvement as an interconnected phenomenon rather than as isolated variables. The case study approach is particularly relevant when the boundaries between the phenomenon under investigation and its institutional context are closely intertwined (Yin, 2018 as cite in Annamalah et al., 2025).

The research was conducted at SDI Mutiara Sunnah Cikarang Barat, Indonesia, from April 2026 to Juli 2026, with data collection conducted over approximately four months. The school was purposively selected because preliminary observations indicated the presence of collaborative professional practices that were relevant to the SECI knowledge creation process. These practices included teacher mentoring, peer discussion, collaborative lesson planning, classroom observation, reflective activities, and the sharing of instructional experiences. Preliminary observations also indicated that teachers' experiential knowledge was actively exchanged but was not always systematically documented and integrated into institutional knowledge resources. This combination of active knowledge-sharing practices and the need for more systematic knowledge management made SDI Mutiara Sunnah Cikarang Barat a particularly relevant case for examining how the SECI model operates in the development of IRE teachers' competencies and the improvement of educational quality. The site was therefore selected not merely for accessibility but because it provided an information-rich context for investigating the relationship between knowledge creation, teacher professional learning, instructional improvement, and school quality assurance.

Primary data were obtained through semi-structured in-depth interviews and participatory classroom observations, while secondary data consisted of school documents, lesson plans, teaching modules, teachers' reflective journals, meeting minutes, and institutional quality assurance documents. The combination of these data sources enabled comprehensive understanding through methodological triangulation.

Data collection was conducted using three complementary techniques: in-depth interviews, classroom observations, and documentation

studies. Each technique was guided by specific indicators aligned with the research objectives and the four stages of the SECI model. First, the in-depth interview guide examined teachers' and school leaders' experiences related to (1) mentoring and professional interaction, (2) knowledge sharing, (3) documentation of teaching experiences, (4) collaborative development of instructional materials, (5) application of shared knowledge in classroom practice, and (6) professional competency development. These indicators were used to identify the processes of Socialization, Externalization, Combination, and Internalization from participants' perspectives. Second, the classroom observation guide focused on (1) teacher-student interaction, (2) instructional strategies, (3) integration of Islamic values, (4) use of instructional and digital resources, (5) adaptation of teaching practices to students' needs, and (6) reflective or collaborative practices related to instructional improvement. Third, the documentation checklist examined (1) lesson plans and teaching modules, (2) reflective journals, (3) assessment instruments, (4) records of teacher meetings and mentoring activities, (5) professional development materials, and (6) institutional quality-assurance documents. The use of these three instruments enabled methodological triangulation by comparing participants' statements with observed practices and documented evidence, thereby strengthening the credibility and completeness of the findings.

Data analysis followed the interactive model proposed by Miles, Huberman, and Saldaña, consisting of data condensation, data display, and conclusion drawing (Mizwar et al., 2026). Throughout the analysis, the researchers continuously compared interview findings, observational evidence, and documentary data to identify recurring themes representing each stage of the SECI model.

The trustworthiness of the findings was ensured through credibility, transferability, dependability, and confirmability. Credibility was established through prolonged engagement, triangulation of data sources and methods, and member checking with participants. Ethical considerations included informed consent, confidentiality of participants' identities, voluntary participation, and responsible use of research data for academic purposes.

The research was conducted through a series of chronological stages consisting of preparation, preliminary observation, data collection, data analysis, and validation of findings. First, the preparation stage involved defining the research focus, developing the research questions, reviewing relevant literature on the SECI knowledge creation model, teacher competency development, and educational quality, and preparing the interview, observation, and documentation

instruments. Ethical procedures were also established at this stage, including obtaining institutional permission and informed consent from the participants.

Second, a preliminary observation was conducted at SDI Mutiara Sunnah Cikarang Barat to identify the school's professional learning practices, knowledge-sharing activities, collaborative culture, and quality-improvement processes relevant to the SECI model. The results of this preliminary observation were used to refine the research focus and data collection instruments.

Third, the main data collection stage was conducted over a period of four months through in-depth interviews, classroom observations, and documentation studies. Interviews were conducted with selected participants to explore their experiences and perceptions regarding mentoring, knowledge sharing, instructional practices, professional competency development, and quality improvement. Classroom observations were conducted to examine the implementation of instructional practices and the application of knowledge gained through collaborative professional activities. Relevant institutional documents, including lesson plans, teaching modules, reflective records, meeting records, professional development materials, and quality-assurance documents, were also collected and analyzed.

Fourth, the data analysis stage was conducted concurrently with data collection. Interview transcripts, observation notes, and documentary evidence were organized, coded, categorized, and analyzed thematically according to the research questions and the four SECI processes: Socialization, Externalization, Combination, and Internalization. Emerging patterns were continuously compared across data sources to identify convergent and divergent findings.

Fifth, the trustworthiness of the findings was established through credibility, transferability, dependability, and confirmability. Credibility was strengthened through prolonged engagement, triangulation of data sources and methods, and member checking with participants. Transferability was supported by providing sufficiently detailed descriptions of the research context, participants, procedures, and findings. Dependability was addressed through systematic documentation of the research process and analytical decisions, while confirmability was supported by maintaining an evidence-based link between the findings, interview data, observation notes, and documentary evidence.

Finally, the researchers reviewed and interpreted the validated findings to develop an integrated understanding of how the SECI model contributed to teacher competency development, instructional improvement, organizational learning, and quality assurance in Islamic Religious Education. Throughout all stages, ethical principles were maintained through informed consent, confidentiality of participants' identities, voluntary participation, and responsible use of research data for academic purposes.

Results and Discussion

Implementation of the SECI Model in Developing Teachers' Competencies

The empirical findings indicate that teacher competency development at SDI Mutiara Sunnah Cikarang Barat occurs through continuous collaborative interaction rather than through individual professional development activities alone. Interview and observation data show that teachers regularly participate in mentoring, peer observation, collaborative lesson planning, and reflective discussions. These activities facilitate the exchange of experiential knowledge and provide opportunities for teachers to learn directly from one another.

The Socialization process was evident in the mentoring and peer-observation practices conducted among teachers. One PAI teacher, Susilawati, explained: "When I experience difficulties in managing students or delivering certain materials, I usually discuss them with senior teachers. Sometimes I also observe how they teach so that I can understand how they handle the students in the classroom." (Teacher A, interview)

A similar pattern was identified during classroom observations, in which teachers discussed students' learning difficulties and instructional strategies after the lesson. These findings indicate that pedagogical knowledge was initially transferred through direct interpersonal interaction before being documented in formal instructional materials. Thus, Socialization functioned as an important mechanism for transferring tacit knowledge derived from teachers' classroom experiences.

The Externalization process was reflected in teachers' efforts to document instructional experiences and successful teaching practices. Sampiati, a teacher, stated: "After we discuss a teaching problem, we usually try to put the solution into the lesson plan or teaching module so that it can be used again. Sometimes we also write down the results of our reflection." (Teacher B, interview)

Document analysis confirmed this practice through the presence of lesson plans, teaching modules, reflective notes, assessment instruments, and meeting records. These documents demonstrate that teachers' individual experiences were transformed into explicit knowledge that could be accessed and discussed by other teachers. Therefore, Externalization served as a mechanism for preserving pedagogical knowledge beyond the experience of individual teachers.

The Combination stage emerged when teachers integrated documented instructional knowledge with curriculum requirements, Islamic educational principles, digital resources, and classroom experiences. Tirama Baiduri Pasaribu, the curriculum coordinator, explained: "We do not simply use the existing teaching materials. We discuss them together, compare them with the curriculum and students' needs, and then modify them. If another teacher has a successful

strategy, we also consider using it in our own lessons.” (The curriculum coordinator, interview)

This evidence shows that explicit knowledge from different sources was not merely collected but actively combined and evaluated to develop more contextual instructional strategies. Classroom observations further indicated that teachers incorporated the results of collaborative planning into their instructional practices.

The Internalization process was evident when teachers applied the knowledge generated through mentoring, documentation, and collaborative reflection in their subsequent classroom practices. Syahrani, a teacher, explained: “After discussing the lesson with other teachers, I tried the strategy in my class. When I saw that it worked with some students but not with others, I discussed the results again with my colleagues and adjusted the strategy.” (Teacher C, interview)

This cyclical process indicates that knowledge generated through collaboration was transformed into individual teaching competence through practical implementation and reflection. The implementation of the four SECI processes therefore formed a continuous cycle in which teachers shared experiences, documented knowledge, combined different sources of knowledge, applied the resulting practices, and generated new experiences for subsequent professional learning.

Overall, the field evidence demonstrates that teacher competency development at the research site was embedded in an organizational process of knowledge creation. Rather than relying primarily on periodic training, teachers developed their pedagogical competence through repeated cycles of interaction, documentation, application, and reflection. The SECI model therefore provides a useful analytical framework for explaining how individual teachers' experiential knowledge becomes shared organizational knowledge and subsequently contributes to continuous professional development.

The findings of this study demonstrate that the implementation of the Socialization, Externalization, Combination, and Internalization (SECI) model fundamentally transforms teacher competency development from an individual learning process into a collective organizational capability that continuously generates pedagogical knowledge. This transformation indicates that teacher competence is no longer understood merely as the accumulation of individual pedagogical, professional, social, and personal competencies mandated by national educational standards, but rather as an organizational asset that evolves through continuous interaction among educators (Posangi & Labaso, 2025). Within SDI Mutiara Sunnah Cikarang Barat, competency development is embedded in collaborative mentoring, reflective discussions, lesson study

activities, peer observations, and routine professional dialogue, all of which facilitate the systematic exchange of tacit and explicit knowledge.

These findings strongly support Nonaka and Takeuchi's Knowledge Creation Theory, which argues that organizational knowledge is created through continuous interaction between tacit knowledge embedded in individual experiences and explicit knowledge represented in documents, procedures, and institutional practices. Rather than treating professional development as episodic training events, the school establishes an environment where knowledge creation becomes an integral component of daily instructional practice. Recent empirical evidence similarly suggests that sustainable teacher development increasingly depends on collaborative knowledge creation rather than conventional workshop-based professional development. For example, According to the book published in 2026 demonstrated that teachers working within structured knowledge-sharing environments exhibit significantly higher instructional innovation because pedagogical experiences are continuously exchanged and refined through professional interaction (Buchori & Azhari, 2026). Likewise, Walidin et al. (2025) reported that collaborative pedagogical reflection among Islamic Religious Education teachers strengthened instructional creativity by enabling educators to adapt religious instruction to contemporary learning contexts (Walidin & Siregar, 2025). However, unlike these previous studies, which mainly focus on professional collaboration as a pedagogical strategy, the present findings reveal that collaborative interaction simultaneously functions as an institutional knowledge management mechanism that systematically strengthens organizational learning.

This distinction is theoretically important because it positions teacher competency not simply as an individual professional outcome but as a dynamic organizational resource created through continuous knowledge conversion. Consequently, the implementation of the SECI model demonstrates that sustainable professional competence in Islamic elementary education is best understood as the product of institutional learning processes rather than isolated teacher improvement initiatives, thereby expanding the practical application of Knowledge Creation Theory within faith-based educational institutions.

A more detailed examination of the Socialization phase reveals that interpersonal interaction serves as the primary mechanism through which experiential pedagogical knowledge is transmitted among teachers, confirming that tacit knowledge remains the most influential component of professional competence in Islamic Religious Education. Interviews conducted during this study indicate that experienced teachers routinely guide novice teachers through classroom observation, mentoring, informal discussion, and collaborative lesson preparation. Rather than relying exclusively on theoretical pedagogical

frameworks, novice teachers acquire contextual instructional expertise by observing how experienced educators manage classroom dynamics, integrate Islamic values into daily learning activities, respond to students' emotional and spiritual needs, and adapt instructional strategies to diverse learner characteristics. Such knowledge cannot easily be codified because it is deeply embedded in professional judgment, accumulated experience, and contextual sensitivity (Hidayat et al., 2025). This finding is entirely consistent with Nonaka's conceptualization of tacit knowledge as personal, experience-based, and difficult to articulate through formal documentation (Walia, 2025).

Nevertheless, the present study extends SECI Theory by demonstrating that tacit knowledge within Islamic schools also encompasses moral commitment, religious values, and spiritual responsibility, dimensions that are rarely emphasized in mainstream organizational knowledge management literature. Recent empirical studies support this interpretation. Pamujinarto found that effective Islamic Religious Education teachers develop professional expertise primarily through continuous interaction with senior colleagues rather than through formal certification alone (Pamujinarto, 2025). Similarly, international research by Siallagan et al. concluded that peer observation and collaborative mentoring significantly improve adaptive teaching competence because teachers collectively construct professional meaning from authentic classroom experiences (Siallagan et al., 2026). Conversely, some studies report that mentoring programs often fail to generate meaningful professional learning when organizational trust is weak or when collaboration remains administratively imposed rather than intrinsically motivated.

The present findings differ from such evidence because professional interaction at SDI Mutiara Sunnah is sustained by a strong culture of collegiality grounded in Islamic principles of *ukhuwah*, *ta'awun*, and shared responsibility for educational improvement. This cultural dimension strengthens the effectiveness of knowledge socialization by creating psychological safety in which teachers openly discuss instructional successes and failures without fear of professional judgment (Sundari et al., 2025). Therefore, the findings suggest that the Socialization process contributes not only to pedagogical competence but also to the development of organizational trust, collective efficacy, and professional identity, thereby reinforcing the theoretical proposition that knowledge creation is fundamentally a social process embedded within organizational culture rather than an individual cognitive activity.

The subsequent phases of Externalization and Combination further illustrate that sustainable teacher competency development depends upon the institution's capacity to transform individual professional experiences into explicit organizational knowledge that can be continuously shared, evaluated, and

improved (Subandi et al., 2025). The empirical findings indicate that teachers systematically document successful instructional practices through teaching modules, lesson plans, reflective journals, digital learning resources, assessment instruments, and collaborative meeting reports. These documents function not merely as administrative records but as organizational memory that preserves pedagogical innovations beyond the experience of individual teachers. From the perspective of SECI Theory, Externalization enables tacit knowledge to become communicable organizational knowledge through reflection and conceptual articulation, whereas Combination synthesizes diverse sources of explicit knowledge into increasingly sophisticated instructional systems. The findings reveal that teachers combine institutional curriculum guidelines, Islamic educational principles, digital technologies, classroom experiences, and collaborative reflections to construct instructional strategies that are more adaptive, contextual, and responsive to students' developmental needs. This interpretation aligns with recent findings reported in the *Journal of Knowledge Management*, which concluded that educational organizations capable of integrating documentation systems with collaborative learning demonstrate significantly greater instructional innovation than institutions emphasizing documentation alone (Setyawati & Sukma, 2024). Similarly, studies on teacher knowledge management by Rodríguez et al. (2023) indicate that professional documentation contributes to organizational resilience because institutional knowledge remains accessible despite staff turnover or organizational change (Rodríguez et al., 2025). Nevertheless, previous studies generally emphasize technological infrastructure as the principal facilitator of knowledge integration, whereas the present study demonstrates that collaborative culture constitutes the more fundamental determinant of successful knowledge conversion. Documentation becomes meaningful only when teachers continuously revisit, discuss, revise, and implement documented knowledge through collective professional reflection.

This finding therefore extends Nonaka's theoretical framework by illustrating that explicit knowledge acquires organizational value only when embedded within ongoing collaborative learning processes. For Islamic Religious Education teachers, this implies that documenting instructional innovation should not be perceived as fulfilling bureaucratic obligations but rather as participating in an institutional knowledge ecosystem that continuously strengthens pedagogical competence, instructional quality, and organizational learning. Consequently, the integration of Externalization and Combination establishes a sustainable foundation upon which professional competence evolves from isolated teaching experience into collectively owned organizational expertise capable of supporting long-term educational excellence.

SECI-Based Knowledge Conversion and Quality Improvement of Islamic Religious Education Learning

The findings of this study demonstrate that the implementation of the SECI model substantially improves the quality of Islamic Religious Education (PAI) learning by transforming individual pedagogical experiences into collectively shared instructional knowledge that continuously shapes classroom practice (Zulfiqri, 2026). This finding suggests that educational quality should not be interpreted merely as students' academic achievement or teachers' instructional performance but rather as the institutional capacity to continuously generate, disseminate, and utilize pedagogical knowledge for instructional improvement. Within the research, teachers regularly exchanged teaching experiences, evaluated classroom challenges, documented successful instructional innovations, and collaboratively refined learning strategies through routine professional discussions. Consequently, instructional improvement emerged not from isolated teacher initiatives but from an organizational process of continuous knowledge creation. This interpretation strongly aligns with Nonaka's SECI Knowledge Creation Theory, which conceptualizes organizational learning as a dynamic interaction between tacit and explicit knowledge through recurring cycles of Socialization, Externalization, Combination, and Internalization (Hendrawati, 2026a).

However, the present findings extend this theoretical perspective by demonstrating that knowledge conversion in Islamic elementary schools encompasses not only instructional expertise but also religious values, ethical commitments, and character-oriented pedagogical practices that are collectively constructed through professional interaction. Recent empirical evidence supports this interpretation. A systematic review published in the *Journal of Knowledge Management* concluded that educational institutions implementing structured knowledge-sharing mechanisms consistently demonstrate higher instructional adaptability and stronger innovation capacity than institutions relying solely on individual professional expertise (Febrialdito et al., 2026). Likewise, Hallinger and Kulophas found that collaborative knowledge creation significantly enhances teaching quality because organizational learning enables teachers to respond more effectively to changing curricular demands (Savaş et al., 2026). Nevertheless, Cheng et al. observed that knowledge management initiatives frequently fail to improve classroom practice when documentation remains disconnected from collaborative reflection and instructional implementation (MEI, 2025). Unlike these studies, the present findings reveal that documentation, mentoring, reflective dialogue, and collaborative lesson planning operate as an integrated organizational system rather than independent professional activities. This

distinction highlights the theoretical significance of the SECI model as a comprehensive knowledge creation framework capable of sustaining instructional quality through continuous organizational learning. For Islamic Religious Education teachers, the implication is that professional competence becomes increasingly effective when pedagogical knowledge is continuously created, critically examined, and collectively refined, thereby strengthening both instructional excellence and students' holistic religious development (Ariyanti et al., 2025).

A second important finding indicates that SECI-based knowledge conversion strengthens teachers' capacity to design contextual, student-centered, and value-oriented learning environments by integrating diverse forms of pedagogical knowledge into coherent instructional practice (Ismaniati & Lindra, 2025). The empirical evidence demonstrates that teachers no longer rely exclusively on curriculum documents or standardized teaching materials; instead, they actively combine classroom experiences, Islamic educational principles, digital learning technologies, collaborative reflections, institutional best practices, and students' learning characteristics to construct adaptive instructional strategies. Such integration reflects the Combination phase of the SECI model, where multiple sources of explicit knowledge are synthesized into increasingly sophisticated pedagogical systems capable of addressing complex educational challenges. However, the effectiveness of this process depends fundamentally upon the preceding phases of Socialization and Externalization, which ensure that valuable experiential knowledge is first shared and documented before being integrated into instructional planning (Hendrawati, 2026a).

Consequently, the findings suggest that pedagogical innovation should be understood as a cumulative organizational achievement rather than the result of isolated teacher creativity. Similar conclusions have been reported by Darling-Hammond et al, who argued that collaborative curriculum design significantly improves instructional responsiveness because teachers collectively construct pedagogical solutions based on evidence derived from classroom practice (Zeichner et al., 2024).

The findings indicate that collaborative lesson planning functioned as an important mechanism for knowledge sharing and instructional quality improvement at SDI Mutiara Sunnah Cikarang Barat. Rather than developing lesson plans independently, teachers discussed instructional materials, students' learning needs, and appropriate teaching strategies with their colleagues. One PAI teacher (Teacher A) explained: "Before preparing the lesson, we usually discuss the material and the students' needs with other

teachers. If another teacher has a strategy that has worked well, we can adapt it for our own class.” (Teacher A, interview)

This finding indicates that collaborative lesson planning provided a structured opportunity for teachers to exchange experiential knowledge and incorporate successful instructional practices into their own teaching. The process reflects the Socialization stage of the SECI model, in which tacit pedagogical knowledge is transferred through direct interpersonal interaction and professional dialogue.

A similar pattern was identified in other teacher interviews. Participants reported that discussions following classroom experiences enabled them to identify instructional problems, exchange possible solutions, and refine lesson plans collaboratively. For confidentiality, all participants are identified using codes throughout the manuscript rather than their real names. This collaborative process enabled teachers to exchange experiential knowledge and transform individual teaching experiences into shared instructional knowledge. Sampiati, another teacher, stated: “We often share our experiences after teaching. When we find a problem in the classroom, we discuss it together and try to find a better way to teach the material.” (Teacher B, interview)

The observation data also showed that collaborative discussions were followed by adjustments to lesson plans and teaching strategies. These findings suggest that collaborative lesson planning served not only as an administrative activity but also as a process of knowledge conversion through which teachers' tacit experiences were shared, discussed, and incorporated into explicit instructional practices. In this respect, the practice reflects the Socialization and Externalization stages of the SECI model.

The role of school-level coordination was also evident in this process. Tirama Baiduri Pasaribu, the curriculum coordinator, explained: “We discuss the lesson plans together and consider the curriculum, students' needs, and the experiences of the teachers. If a strategy works well in one class, we discuss whether it can be adapted for other classes.” (The curriculum coordinator, interview)

This statement demonstrates how teachers' individual experiences were combined with curriculum requirements and other instructional resources to develop more contextualized learning practices. The process therefore also reflects the Combination stage of SECI, in which explicit knowledge from different sources is integrated and reorganized to support instructional improvement.

These empirical findings are consistent with the broader view that collaborative professional practices can support continuous teacher learning

and instructional quality. However, in the present study, collaborative lesson planning was not merely identified as a general feature of effective educational systems; the field evidence demonstrates how it operated as a concrete knowledge-conversion practice within the Islamic Religious Education context. Through repeated cycles of discussion, documentation, implementation, and reflection, teachers were able to transform individual experiences into shared knowledge that could be applied to improve subsequent instructional practices.. Conversely, Alenezi et al. reported that collaborative instructional planning often produces only marginal improvements when schools lack organizational structures supporting continuous knowledge sharing and reflective dialogue (Alraba'y et al., 2024). The present study offers a contrasting perspective by demonstrating that pedagogical integration becomes sustainable because collaborative interaction has become institutionalized within the school's professional culture. This finding therefore reinforces Nonaka's proposition that knowledge integration requires continuous interaction between tacit and explicit knowledge rather than simple accumulation of instructional resources. More importantly, it illustrates that Islamic Religious Education teachers strengthen their instructional competence not merely by acquiring additional teaching materials but by participating in organizational learning processes that continuously transform collective professional experiences into adaptive pedagogical knowledge. This interpretation carries significant theoretical implications because it positions curriculum innovation as an emergent property of organizational knowledge creation rather than an externally imposed educational reform.

The findings further reveal that the improvement of learning quality through the SECI model extends beyond instructional effectiveness to encompass the systematic development of students' religious character, indicating that knowledge conversion in Islamic education simultaneously addresses cognitive, affective, and spiritual dimensions of learning (HASIBUAN, 2026). Classroom observations demonstrated that collaborative pedagogical planning enabled teachers to consistently integrate Qur'anic recitation, congregational prayer, moral storytelling, reflective dialogue, and practical worship activities into daily instructional routines (Hidayatullah, 2026). Importantly, these learning experiences were not implemented as isolated religious activities but were continuously evaluated, discussed, documented, and refined through collaborative professional reflection. This pattern suggests that organizational knowledge within Islamic schools incorporates ethical and spiritual dimensions that extend beyond technical pedagogical competence.

From the perspective of SECI Theory, the findings expand the conceptual boundaries of knowledge creation by illustrating that tacit moral values can be externalized into explicit instructional practices and subsequently internalized by both teachers and students through repeated educational experiences. Recent empirical studies similarly emphasize the importance of collaborative approaches for strengthening character education. Adawiyah reported that Islamic Religious Education teachers who regularly participate in reflective professional communities demonstrate greater consistency in integrating character education into classroom practice than teachers working individually (Adawiyah, 2026). Likewise Ramadhan and Arifin concluded that sustainable religious character education depends upon organizational cultures that continuously facilitate pedagogical dialogue concerning values-based instruction (Ramadhan & Arifin, 2025).

Nevertheless, several international studies continue to conceptualize character education primarily as an instructional issue rather than an organizational learning process (Watts et al., 2021). The present findings challenge this perspective by demonstrating that effective character education requires institutional mechanisms capable of generating, documenting, sharing, and continuously improving pedagogical knowledge concerning moral and spiritual development. Consequently, the implementation of the SECI model contributes not only to instructional innovation but also to the institutionalization of ethical educational practices, thereby reinforcing the broader mission of Islamic elementary schools to cultivate students who are intellectually competent, spiritually mature, and morally responsible. This interpretation enriches Nonaka's Knowledge Creation Theory by demonstrating that organizational knowledge in faith-based educational institutions encompasses both epistemic and ethical dimensions, making knowledge conversion a strategic process for achieving holistic educational quality.

Organizational Factors Supporting and Hindering the Implementation of the SECI Model

The findings of this study indicate that the effectiveness of the SECI model is fundamentally determined by organizational conditions rather than by individual teachers' willingness to participate in knowledge-sharing activities (Yahya et al., 2025). Although the competencies, motivation, and professional commitment of individual teachers remain important, sustainable knowledge creation only emerges when schools establish organizational structures that systematically facilitate interaction, collaboration, and continuous professional learning. Within SDI Mutiara

Sunnah Cikarang Barat, instructional leadership exercised by the principal functions as the primary organizational driver that transforms knowledge management from an incidental activity into an institutional culture embedded within everyday educational practice. Rather than positioning professional development as an externally imposed requirement, the principal actively institutionalizes collaborative lesson planning, mentoring, reflective dialogue, classroom observation, and routine pedagogical evaluation as integral components of school governance (Suheri, 2026). Such leadership reflects what Nonaka and Konno conceptualize as *Ba*, namely a shared organizational context where knowledge can be created through continuous interaction among organizational members (Nonaka et al., 2006) (Sari et al., 2025).

The empirical findings therefore demonstrate that organizational leadership does not merely coordinate educational administration but creates epistemic conditions enabling tacit knowledge to circulate and evolve into collective organizational competence. Recent empirical evidence strongly supports this interpretation. Baldera concluded that instructional leadership contributes more substantially to school improvement when leaders cultivate collaborative professional cultures rather than emphasizing bureaucratic supervision (Baldera, 2025). Similarly, Iman found that transformational leadership enhances teacher professionalism by strengthening organizational learning and collective efficacy instead of focusing exclusively on individual performance (Iman & Veronica, 2025). However, Nguyen et al., observed that leadership interventions frequently fail to sustain organizational learning because collaborative practices remain dependent upon individual initiatives instead of institutional systems (Dang et al., 2025). The present findings differ from these studies by demonstrating that leadership becomes effective only when professional collaboration is embedded within formal organizational routines supported by mentoring structures, collective reflection, and systematic documentation. Interpreted through Nonaka's SECI Theory, the Socialization stage cannot function effectively without organizational environments intentionally designed to facilitate knowledge exchange, while the subsequent stages of Externalization, Combination, and Internalization require leadership capable of sustaining continuous knowledge conversion beyond isolated professional activities (Hendrawati, 2026a). For Islamic Religious Education teachers, this finding implies that professional competence is significantly influenced by organizational leadership capable of fostering collaborative learning environments where pedagogical expertise, religious values, and instructional innovation continuously evolve through institutional interaction (Wahyuniar & Widayani, 2026). Consequently,

instructional leadership should be understood not merely as administrative authority but as an organizational capability for cultivating knowledge ecosystems that sustain educational quality and teacher professionalism.

A second major finding demonstrates that collaborative organizational culture represents the most critical enabling factor supporting knowledge conversion throughout the SECI cycle because interpersonal trust, shared professional commitment, and collective responsibility establish the social foundation upon which organizational learning depends (Noerman, 2026). The empirical evidence reveals that teachers willingly exchange classroom experiences, discuss instructional challenges, and collaboratively evaluate learning outcomes because professional knowledge is perceived as collective organizational capital rather than personal intellectual property. Such openness significantly reduces professional isolation while encouraging teachers to transform both successful instructional practices and classroom difficulties into opportunities for collective reflection and organizational learning. This finding substantially reinforces Nonaka's argument that tacit knowledge can only be effectively transferred through intensive social interaction characterized by mutual trust and shared understanding.

Nevertheless, the present study extends the theoretical application of SECI by illustrating that collaborative organizational culture within Islamic educational institutions is strengthened not solely by professional commitment but also by religious values such as *ukhuwah* (professional brotherhood), *ta'awun* (mutual assistance), and shared moral responsibility for nurturing students' religious character (Maulana & Nugraha, 2026). These values provide intrinsic motivation for knowledge sharing that extends beyond managerial expectations or formal performance indicators. Similar findings have been reported by Fox, who demonstrated that professional learning communities significantly improve instructional innovation because teachers engage in authentic collaborative inquiry rather than superficial information exchange (Fox, 2026). Likewise, OECD emphasizes that relational trust constitutes one of the strongest predictors of sustainable educational improvement because it encourages teachers to experiment, reflect, and collectively solve instructional problems (Qian et al., 2026). In contrast, Cheng et al., argue that many educational knowledge management initiatives remain ineffective because collaboration is frequently perceived as increasing administrative responsibilities without generating meaningful professional benefits (Cheng, M., Shen, Q., & Cai, 2026). Unlike these observations, the present findings reveal that collaborative learning becomes sustainable because organizational interaction is interpreted as both a professional obligation and an expression of Islamic educational ethics (Al-Hijrah &

Mubarak, 2025). This interpretation provides important theoretical implications by demonstrating that effective knowledge conversion depends not only upon organizational structures but equally upon shared cultural values that shape teachers' motivation to participate in collaborative learning. Consequently, for Islamic Religious Education teachers, collaborative culture functions simultaneously as a professional learning mechanism and a moral framework that strengthens continuous pedagogical innovation while reinforcing institutional identity as a faith-based learning organization.

Despite these enabling conditions, the study also identifies several structural barriers that constrain the effectiveness of SECI implementation, suggesting that successful organizational learning requires institutional support capable of addressing both administrative and technological challenges (Hendrawati et al., 2023). The most significant constraint concerns the increasing administrative workload experienced by teachers, which substantially limits opportunities for reflective dialogue, collaborative lesson planning, documentation of instructional innovation, and continuous mentoring (Widyasari, 2025). Although teachers express strong commitment to collaborative professional learning, extensive administrative responsibilities frequently compel them to prioritize compliance-oriented documentation over meaningful pedagogical reflection. This situation weakens the Externalization stage of the SECI model because valuable experiential knowledge often remains undocumented or is documented only to satisfy administrative requirements rather than organizational learning objectives. In addition, disparities in digital competence among teachers constrain the Combination stage by limiting their ability to integrate diverse explicit knowledge resources into innovative instructional practices.

Recent international evidence confirms these challenges, Cored-Bandrés et al., (2023) reported that excessive administrative demands significantly reduce teachers' participation in professional learning communities, thereby limiting opportunities for organizational knowledge creation (Cored-Bandrés et al., 2026). Similarly, Alnomei identified digital competency disparities as one of the principal barriers preventing schools from effectively implementing knowledge management systems capable of supporting instructional innovation (Alnomei, 2025). However, unlike these studies, the present research demonstrates that collaborative organizational culture partially mitigates such structural limitations because teachers actively compensate for differences in digital expertise through reciprocal mentoring and peer-assisted learning. Consequently, digital inequality becomes an opportunity for further knowledge sharing rather than a source of organizational fragmentation. This finding extends Nonaka's Knowledge

Creation Theory by illustrating that organizational constraints do not necessarily interrupt knowledge conversion when collaborative relationships remain sufficiently strong to facilitate mutual adaptation. For Islamic Religious Education teachers, the implication is that technological competence should be viewed as an organizational learning resource rather than merely an individual professional skill (Enes, U. O. R., Rahman, A., & Apriani, 2024). Therefore, schools seeking sustainable implementation of the SECI model should complement investments in technological infrastructure with policies that reduce unnecessary administrative burdens and provide protected time for collaborative professional learning.

The synthesis of these findings demonstrates that organizational factors supporting and constraining SECI implementation operate as an interconnected system rather than independent variables, confirming that sustainable knowledge creation depends upon the dynamic interaction between leadership, organizational culture, structural capacity, and institutional commitment to continuous improvement. Leadership establishes the strategic direction for knowledge management, collaborative culture provides the social environment for professional interaction, organizational structures create opportunities for systematic knowledge conversion, while administrative and technological conditions determine the extent to which teachers can actively participate in organizational learning. These factors should therefore be interpreted as mutually reinforcing components of an integrated educational knowledge ecosystem rather than isolated contextual influences. Such an interpretation substantially enriches Nonaka's SECI Theory by emphasizing that successful knowledge conversion requires not only interaction between tacit and explicit knowledge but also organizational conditions capable of sustaining continuous cycles of Socialization, Externalization, Combination, and Internalization over time. Recent scholarship similarly supports this systemic perspective.

Russel et al. argue that sustainable educational improvement depends upon coherent organizational systems that integrate leadership, collaborative inquiry, professional learning, and evidence-based decision making (Russell et al., 2025). Likewise, Tanghe et al., conclude that schools become effective learning organizations only when organizational structures, leadership practices, and professional cultures function synergistically rather than independently (Tanghe et al., 2024). Nevertheless, existing literature rarely examines these relationships within the specific context of Islamic elementary education, where organizational learning is simultaneously shaped by educational objectives, religious values, and institutional quality assurance. The present findings therefore contribute a novel perspective by

demonstrating that the implementation of the SECI model within Islamic schools is influenced by both managerial and spiritual dimensions of organizational life. For Islamic Religious Education teachers, this integrated organizational perspective highlights that professional competence is not solely the product of individual effort but emerges from participation in institutional systems intentionally designed to generate, preserve, and continuously improve educational knowledge. Accordingly, sustainable teacher development requires educational institutions to move beyond fragmented professional development initiatives toward comprehensive organizational strategies that integrate leadership, collaborative culture, knowledge management, and continuous quality improvement into a unified framework capable of supporting long-term educational excellence.

Integrating the SECI Model into an Internal Quality Assurance Framework for Sustainable Improvement of Islamic Religious Education

The findings of this study indicate that the implementation of the SECI model should not be interpreted merely as a knowledge management strategy for improving teacher competence but rather as a comprehensive organizational mechanism that strengthens the Internal Quality Assurance System (Sistem Penjaminan Mutu Internal/SPMI) through continuous knowledge creation and organizational learning. The empirical evidence demonstrates that each stage of knowledge conversion Socialization, Externalization, Combination, and Internalization corresponds closely with the quality assurance processes implemented within the school. Socialization facilitates the dissemination of institutional values and pedagogical experiences among teachers; Externalization transforms experiential knowledge into documented instructional resources; Combination integrates organizational knowledge into standardized learning systems; and Internalization embeds organizational knowledge into teachers' professional practice, thereby generating new experiential knowledge for subsequent improvement cycles. This recursive process mirrors the continuous improvement philosophy embedded within Indonesia's PPEPP framework (Determination, Implementation, Evaluation, Control, and Improvement), suggesting that organizational learning and quality assurance should not be conceptualized as separate institutional functions but as mutually reinforcing processes operating within a single educational system.

Bryk et al. (2021) argue that educational quality is sustained not through periodic compliance audits but through continuous inquiry, collaborative reflection, and evidence-based organizational learning (Kelty, N., & Jaksa, 2026). Likewise, OECD emphasizes that schools demonstrating high

institutional performance consistently integrate professional learning into quality assurance mechanisms rather than treating teacher development and institutional evaluation as unrelated activities (E. C. Cheng, 2026). However, several empirical investigations continue to approach knowledge management and quality assurance independently, assuming that teacher professional development automatically translates into institutional quality improvement without examining the organizational processes connecting these two domains. The present findings challenge this assumption by demonstrating that knowledge conversion provides the epistemological foundation through which quality assurance becomes operational and sustainable. Interpreted through Nonaka's SECI Knowledge Creation Theory, the effectiveness of educational quality assurance depends fundamentally upon an institution's ability to transform individual experiences into collective organizational knowledge that continuously informs pedagogical decision-making. For Islamic Religious Education teachers, this finding signifies that quality improvement is achieved not simply by complying with educational standards but by actively participating in collaborative knowledge creation that enables instructional practices, religious values, and professional expertise to evolve simultaneously. Consequently, the study proposes that SECI should be recognized as a strategic knowledge management framework capable of strengthening both teacher professionalism and institutional quality assurance within Islamic elementary education.

A second major finding emerging from the integrative analysis is that the implementation of the SECI model operationalizes the core principles of organizational learning by transforming schools into adaptive learning organizations capable of sustaining educational innovation despite changing educational demands (Li, W., & Feng, 2026). The empirical findings reveal that teachers continuously reconstruct their professional knowledge through collaborative reflection, collective problem solving, systematic documentation, and repeated instructional experimentation. These activities demonstrate that organizational learning occurs not because teachers simply acquire new information but because they collectively reinterpret existing knowledge in response to evolving classroom realities. Such findings strongly resonate with Senge's Learning Organization Theory, particularly the five disciplines of systems thinking, personal mastery, shared vision, mental models, and team learning. Personal mastery is reflected in teachers' commitment to continuous professional improvement; mental models are reconstructed through reflective dialogue concerning instructional assumptions; shared vision emerges through collective commitment to strengthening Islamic Religious Education; team learning develops through

collaborative lesson planning and mentoring; and systems thinking becomes evident as teachers increasingly perceive classroom improvement as inseparable from broader organizational development. Recent empirical studies provide substantial support for these interpretations. Krajcik, J. S., & Czerniak concluded that schools functioning as learning organizations consistently outperform traditional institutions because collaborative inquiry enables teachers to respond adaptively to curricular reform and educational complexity (Krajcik, J. S., & Czerniak, 2025). Similarly, Arar et al., argues that sustainable educational transformation depends less upon structural reform than upon schools' capacity to cultivate collaborative professional cultures supporting continuous organizational learning (Arar et al., 2026). Nevertheless, Wilson 2026 observed that many schools continue to struggle with implementing learning organization principles because professional collaboration frequently remains superficial, compliance-driven, or disconnected from instructional practice (Wilson Jr, 2026).

In contrast, the present findings demonstrate that the SECI model provides a practical mechanism through which organizational learning becomes embedded within routine educational activities rather than remaining an abstract managerial aspiration. From the perspective of Nonaka's theory, continuous interaction between tacit and explicit knowledge explains how organizational learning evolves into sustainable institutional capability rather than isolated professional competence. For Islamic Religious Education teachers, this interpretation implies that professional excellence cannot be sustained through individual expertise alone but requires participation in collaborative organizational environments where knowledge is continuously created, challenged, and refined. Therefore, integrating SECI with Learning Organization Theory offers a theoretically robust explanation for how schools cultivate adaptive capacity while simultaneously improving instructional quality and religious character education.

The analysis further demonstrates that the integration of SECI Theory and the PPEPP quality assurance framework establishes a dynamic governance model in which organizational knowledge functions as the principal resource supporting evidence-based decision-making and continuous institutional improvement (Hendrawati, 2026b). Rather than relying exclusively on externally imposed quality indicators, the school systematically generates internal evidence through collaborative reflection, instructional documentation, classroom observation, and pedagogical evaluation. This internally generated knowledge subsequently informs curriculum refinement, teacher mentoring, instructional innovation, and institutional planning, thereby enabling quality assurance processes to

become evidence-driven rather than compliance-oriented. Such findings substantially extend the theoretical application of Nonaka's Knowledge Creation Theory because they demonstrate that knowledge conversion not only enhances organizational learning but also provides the informational infrastructure required for institutional governance.

Similar conclusions have been reported by García-Martínez et al. (2023), who found that educational institutions possessing effective knowledge management systems demonstrate greater organizational resilience because institutional decisions are increasingly informed by collectively generated professional knowledge rather than hierarchical authority alone (Laufer et al., 2026). Likewise, Anning argue that sustainable educational improvement depends upon schools' capacity to integrate professional learning with organizational decision-making, thereby ensuring that instructional innovation directly influences institutional policy (Anning, 2026). Conversely, several investigations report that quality assurance initiatives often become bureaucratic exercises emphasizing documentation without generating meaningful pedagogical improvement. OECD for example, cautions that excessive reliance on administrative reporting frequently discourages teacher participation in authentic professional learning (Adeniyi, 2025). The present findings differ from these observations because documentation functions primarily as an instrument for organizational learning rather than administrative compliance. Consequently, the Externalization and Combination stages of SECI enable documented knowledge to remain actively utilized within institutional decision-making rather than becoming inactive organizational archives. For Islamic Religious Education teachers, this finding has profound implications because it positions classroom experiences as legitimate sources of organizational evidence capable of influencing curriculum development, instructional standards, and school policy. Accordingly, teacher knowledge should be recognized not merely as individual professional expertise but as strategic institutional capital essential for sustaining educational quality through continuous organizational improvement.

Collectively, the findings of this study culminate in the development of a conceptual framework positioning the SECI model as the epistemological engine connecting teacher professional learning, organizational learning, and institutional quality assurance within Islamic elementary education. Unlike previous theoretical approaches that discuss knowledge management, teacher development, organizational learning, and quality assurance as relatively independent concepts, the present study demonstrates that these dimensions constitute an integrated system in which each continuously reinforces the

others through recursive cycles of knowledge creation. Socialization enables the transmission of tacit pedagogical and religious knowledge; Externalization transforms experiential understanding into explicit organizational resources; Combination synthesizes diverse knowledge sources into coherent instructional systems; and Internalization converts organizational knowledge into renewed professional competence that subsequently generates further experiential knowledge.

Simultaneously, these knowledge conversion processes correspond directly with the PPEPP cycle by supporting the determination of quality standards, implementation of instructional practices, evaluation of educational outcomes, organizational control through evidence-based reflection, and continuous institutional improvement (Muslim et al., 2026). This integrative model advances existing theory by positioning SECI not merely as a descriptive model of organizational knowledge creation but as a strategic framework for sustainable educational governance within Islamic schools. Recent international scholarship increasingly supports such systemic interpretations. Snider argue that sustainable school improvement requires coherent integration among professional collaboration, organizational learning, evidence-based leadership, and continuous improvement systems (Snider, 2025). However, these studies rarely explain the epistemological mechanism linking professional learning with institutional quality assurance. The present study addresses this theoretical gap by demonstrating that knowledge conversion represents the missing conceptual bridge connecting teacher learning with organizational governance. For Islamic Religious Education teachers, the practical implication is that continuous professional development should no longer be viewed as an individual obligation but as an organizational responsibility embedded within the school's quality assurance system. Ultimately, this study contributes a novel conceptual proposition that sustainable educational quality in Islamic elementary schools is achieved when knowledge management, organizational learning, and quality assurance are integrated into a unified institutional ecosystem where continuous knowledge creation becomes the principal driver of pedagogical innovation, teacher professionalism, and long-term organizational excellence.

Conclusion

This study concludes that the implementation of Nonaka's Socialization, Externalization, Combination, and Internalization (SECI) Knowledge Creation Model serves as a strategic organizational mechanism for strengthening teacher professional competence and improving the quality of

Islamic Religious Education (PAI) in elementary schools. The findings demonstrate that teacher competency development is not merely an individual process of acquiring pedagogical knowledge but a continuous organizational learning process in which tacit and explicit knowledge are systematically created, shared, integrated, and internalized through collaborative professional practices. Socialization enables teachers to exchange experiential pedagogical knowledge through mentoring, peer observation, and reflective dialogue; Externalization transforms tacit experience into documented instructional resources; Combination integrates multiple knowledge sources into innovative teaching strategies; and Internalization embeds organizational knowledge into teachers' professional practice, thereby generating new cycles of instructional improvement. Consequently, the SECI model functions not only as a knowledge management framework but also as a sustainable mechanism for fostering continuous professional learning within Islamic elementary schools.

The study further demonstrates that the successful implementation of the SECI model depends largely on organizational conditions that support continuous knowledge creation. Instructional leadership, collaborative organizational culture, interpersonal trust, and institutional commitment to professional learning were identified as the principal enabling factors facilitating knowledge conversion, while excessive administrative workload and disparities in teachers' digital competencies emerged as significant constraints. These findings indicate that effective knowledge management cannot rely solely on individual teacher motivation but requires organizational structures capable of institutionalizing collaboration, reflective practice, and systematic knowledge documentation. Therefore, sustainable teacher professional development should be understood as an organizational capability embedded within school culture rather than as a series of isolated professional development activities.

Another important conclusion is that the implementation of the SECI model contributes directly to improving the quality of Islamic Religious Education by enabling teachers to design more adaptive, student-centered, and values-oriented learning experiences. Knowledge conversion encourages teachers to integrate curriculum standards, classroom experiences, Islamic educational values, digital learning resources, and collaborative reflection into innovative instructional practices that simultaneously enhance students' cognitive achievement, religious understanding, and character development. The findings therefore extend the application of SECI Theory by demonstrating that organizational knowledge in Islamic educational

institutions encompasses not only pedagogical expertise but also ethical, spiritual, and moral dimensions that shape holistic educational practice.

The study also establishes that the integration of SECI Knowledge Creation Theory, Learning Organization Theory, and Indonesia's Internal Quality Assurance System (PPEPP) provides a comprehensive conceptual framework for sustainable educational improvement. The SECI model explains how organizational knowledge is continuously created and refined, Learning Organization Theory clarifies how collaborative learning becomes institutionalized through shared vision, team learning, systems thinking, personal mastery, and mental models, while the PPEPP cycle operationalizes these knowledge processes into continuous quality assurance. The interaction among these three frameworks demonstrates that teacher professional learning, organizational learning, and institutional quality assurance are mutually reinforcing rather than independent organizational processes. Accordingly, educational quality should be viewed as the outcome of continuous organizational knowledge creation supported by collaborative professional culture and evidence-based institutional governance.

From a theoretical perspective, this study contributes to the literature by extending Nonaka's SECI Knowledge Creation Theory into the context of Islamic elementary education and proposing an integrative model linking knowledge management, organizational learning, and internal quality assurance. Unlike previous studies that examined these concepts separately, this research demonstrates that SECI functions as the epistemological mechanism connecting teacher professional development with sustainable institutional quality improvement. Practically, the findings suggest that school leaders and educational policymakers should prioritize the establishment of collaborative knowledge-sharing systems, structured mentoring, reflective professional learning communities, and digital knowledge repositories as strategic components of school quality management. Future research is recommended to examine the applicability of this integrative framework across different educational levels, institutional contexts, and cultural settings using comparative and longitudinal research designs to further validate its effectiveness in supporting sustainable educational transformation.

Limitations and Suggestions

This section is presented at the end of the article to highlight the limitations of the study and provide directions for future research.

Despite its contributions, this study has several limitations that need to be acknowledged. First, the research was conducted within a single Islamic higher education institution, which may limit the generalizability of the

findings to broader educational contexts. Second, the study relies on a qualitative phenomenological approach, which focuses on in-depth understanding rather than generalization, thus future studies are encouraged to incorporate mixed-method or quantitative approaches to validate and expand the findings. Additionally, the implementation of IoT discussed in this study remains at a conceptual and exploratory level, indicating the need for empirical testing through experimental or development-based research designs.

For future research, it is recommended to explore large-scale implementation of IoT in diverse educational settings, as well as to examine its effectiveness in improving learning outcomes through measurable indicators. Further studies should also investigate the development of IoT-based learning models integrated with TPACK in a more practical and operational framework. Moreover, strengthening digital literacy among educators and developing supportive institutional policies are essential areas that require deeper investigation to ensure sustainable and effective technology integration in education.

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Conflict of Interest Statement

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