

Peer-Coaching and Mentoring Synergy: Optimizing Educators' Pedagogical Competence through Collegial Collaboration

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Abstract

This study aims to examine how peer coaching and mentoring function as interrelated forms of professional learning among peers that support teachers' pedagogical development, and how these practices can be interpreted within an Islamic educational framework of mutual assistance and guidance. A qualitative case study was conducted at SMP Negeri 2 Srono, Banyuwangi, involving purposively selected participants representing school leadership, a learning-community coordinator, and a teacher participant. Data were generated through semi-structured in-depth interviews, participant observation, and analysis of collegial reflection documents. The data were analyzed inductively through coding, categorization, and thematic development, followed by an interpretive analysis using the Islamic educational concepts of ta'awun and tawāṣī. Three interrelated findings emerged. First, Class Visits were perceived as a non-evaluative space that reduced supervisory pressure and facilitated peer reflection, feedback, and professional assistance. Second, cross-generational mentoring reflected reciprocal knowledge exchange in which practical pedagogical experience and technology-related knowledge functioned as complementary professional resources. Third, the internal learning community provided a collaborative space for discussing curricular and instructional problems, sharing teaching practices, and developing context-sensitive responses. These findings indicate that participants perceived peer-coaching and mentoring as contributing to collegial professional learning rather than demonstrating causal effectiveness or school-wide improvement in pedagogical competence. The study contributes to Islamic education scholarship by conceptualizing these practices as ta'awun-based collegial professional learning, in which teacher development is understood as a relational and ethical process of mutual assistance, reciprocal guidance, and shared professional responsibility.

Keywords: Peer-Coaching; Mentoring; Collegial Profesional Learning; Pedagogical Competence; Islamic Education; Ta'awun

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Abstrak

Penelitian ini bertujuan untuk pembinaan sesama rekan (peer-coaching) dan pendampingan (mentoring) berfungsi sebagai bentuk-bentuk pembelajaran profesional sesama rekan yang saling terkait dalam mendukung pengembangan pedagogis guru, serta bagaimana praktik-praktik tersebut dapat ditafsirkan dalam kerangka pendidikan Islam yang mengedepankan saling membantu dan bimbingan. Sebuah studi kasus kualitatif dilakukan di SMP Negeri 2 Srono, Banyuwangi, yang melibatkan peserta yang dipilih secara purposif, mewakili pimpinan sekolah, koordinator komunitas belajar, dan seorang guru peserta. Data diperoleh melalui wawancara mendalam semi-terstruktur, observasi partisipatif, dan analisis dokumen refleksi sesama rekan. Data dianalisis secara induktif melalui pengkodean, kategorisasi, dan pengembangan tematik, diikuti dengan analisis interpretatif menggunakan konsep pendidikan Islam ta'awun dan tawāṣī. Tiga temuan yang saling terkait muncul. Pertama, Kunjungan Kelas dipersepsikan sebagai ruang non-evaluatif yang mengurangi tekanan pengawasan dan memfasilitasi refleksi sesama, umpan balik, serta bantuan profesional. Kedua, pendampingan lintas generasi mencerminkan pertukaran pengetahuan timbal balik, di mana pengalaman pedagogis praktis dan pengetahuan terkait teknologi berfungsi sebagai sumber daya profesional yang saling melengkapi. Ketiga, komunitas belajar internal menyediakan ruang kolaboratif untuk mendiskusikan masalah kurikulum dan pengajaran, berbagi praktik pengajaran, serta mengembangkan respons yang sensitif terhadap konteks. Temuan-temuan ini menunjukkan bahwa para peserta memandang pembinaan sesama guru dan bimbingan sebagai kontribusi terhadap pembelajaran profesional kolegal, bukan sebagai bukti efektivitas kausal atau peningkatan kompetensi pedagogis di seluruh sekolah. Penelitian ini berkontribusi pada kajian pendidikan Islam dengan mengkonseptualisasikan praktik-praktik tersebut sebagai pembelajaran profesional kolegal berbasis ta'awun, di mana pengembangan guru dipahami sebagai proses relasional dan etis berupa saling membantu, bimbingan timbal balik, serta tanggung jawab profesional bersama.

Kata kunci: Pembinaan Sesama; Pembimbingan; Pembelajaran Profesional Kolaboratif; Kompetensi Pedagogis; Pendidikan Islam; Ta'wun

I. Introduction

The phenomenon of professional isolation remains a dominant reality among educators, where teachers tend to work independently in the classroom without systematic dialogue with colleagues (Ferry & Westerlund, 2023; Chiu & Fleming, 2025). The underlying reason for this situation is a conventional work culture that considers teaching practice a private domain, so criticism or suggestions from colleagues are often perceived as a threat to professional authority (Galdames-Calderón, 2023; Graells-Sans et al., 2026). Without collaboration, educators tend to repeat the same pedagogical mistakes over time due to a lack of external reflection. Therefore, a paradigm shift toward collegial collaboration is needed to break down these isolation barriers and improve the quality of learning through greater transparency.

The competency gap between senior and novice educators often creates obstacles to standardizing instructional quality in educational institutions (Gore et al., 2024; Qin et al., 2026). This occurs because the knowledge transfer process does not occur organically due to the lack of formal channels such as structured mentoring (Thomas, 2025; Perone et al., 2025). This situation shows that young teachers often feel overwhelmed with classroom management, while senior teachers possess practical wisdom that is not well documented. Synergy through mentoring is a crucial bridge to ensure that the tacit

knowledge possessed by experienced educators is evenly distributed to the next generation, thereby maintaining consistent educational quality (Zamiri & Esmaeili, 2024; Guo et al., 2026).

Academic supervision is often trapped in rigid administrative formalities. When the coaching process is one-way, from the top down, the resulting atmosphere actually triggers anxiety and defensiveness among educators (Desrianti & Asmendri, 2024; Liu et al., 2025). Instead of receiving genuine pedagogical guidance, educators tend to feel judged. The impact is clearly visible in daily school life: learning materials are often prepared quickly just to avoid the obligation of paper assessments, and then teaching patterns revert to old methods (Doyle, 2023; Corbin et al., 2026). To break this cycle, peer-coaching and discussion approaches have proven far more impactful. By placing teachers on an equal footing, space for honest reflection can be opened, allowing changes in teaching quality to grow from professional awareness, rather than structural pressures.

This condition aligns with Albert Bandura (1977) Social Learning Theory, which explains that individuals acquire new knowledge, skills, and behaviors through observation, interaction, modeling, and feedback from their social environment. In an educational context, peer-coaching allows teachers to learn from the best practices of their colleagues through shared observation and reflection, thus developing pedagogical competence more effectively than coaching that is solely instructional and one-way (Younis, 2024; Bradford et al., 2024). This theory asserts that a collaborative environment built through peer relationships can increase teachers' self-efficacy, the quality of teaching practice, and their willingness to make continuous improvements.

Dynamic curriculum changes often trigger hidden resistance among educators accustomed to the comfort zone of old methods (Lomba-Portela et al., 2022; Baruno et al., 2025). This reluctance to change usually arises because teachers feel left alone without adequate technical or moral support when trying new things that risk making mistakes (Johler et al., 2022; Kim et al., 2022; Adebisi & Ogunkola, 2023). Conditions in schools show a striking difference: educators who actively discuss and share their workload within a learning community tend to be much more open and adapt quickly to new regulations (Chen, 2022; Sonnenberg & Rutledge, 2024). Conversely, those isolated without colleagues to exchange ideas with are more easily frustrated. This collaborative bond between teachers acts as a psychological safety net. When this sense of togetherness exists, teachers no longer feel overly anxious about experimenting with technology and modern learning strategies in the classroom (Henderson & Corry, 2021; Deng & Liu, 2025).

Professional development programs are often overlooked by teachers, seeing them as nothing more than another administrative burden. This boredom arises because the current mass training model tends to be uniform and feels distant from the real problems

teachers face in their respective classrooms (Nwoko et al., 2024). Experience in schools shows that teachers actually develop significantly when they are invited to discuss teaching difficulties with colleagues through relaxed but focused clinical discussions. This daily problem-solving approach has proven far more effective in improving the quality of student learning than large-scale, quickly forgotten theoretical seminars (Smaldino, Moser, Perez Velilla, & Werling, 2024). Teachers' teaching competencies will only thrive if the learning environment is contextual, involves active participation, and integrates naturally with daily school routines (Leach & Bradbury, 2024).

Various studies on modern education agree that improving teacher quality is most effective when the learning process is integrated with daily school practice, one example of which is through peer-coaching (Wachidah et al., 2024). This approach feels more vibrant because it creates a space for equal discussion, enabling teachers to become more confident and flexible in managing classroom dynamics. Much previous research also shows that solid working relationships, based on mutual trust, and filled with constructive discussion, have a direct impact on how teachers teach and evaluate themselves (Singh & Loh, 2024). This close collaboration among fellow educators is not merely a supplementary program or a cosmetic option. Collegial collaboration is key to driving real and lasting change in teaching practices in schools (Meyer et al., 2023; Dunn et al., 2025).

Existing scholarship has established peer-coaching, mentoring, and professional learning communities as important mechanisms for teacher professional development. Peer-coaching emphasizes horizontal learning through observation, feedback, and reflection, whereas mentoring facilitates the transfer and reconstruction of professional knowledge across different levels of experience (Zhuang & Liu, 2022; Tripon, 2025). Studies have also demonstrated that collegial support and mentoring can strengthen teachers' adaptation, professional resilience, and capacity to respond to pedagogical change. In parallel, scholarship in Islamic education has addressed continuing professional development, school quality management, and educational management grounded in Islamic values (Diab & Green, 2024; Rahmatullah, 2025; Nurhadi et al., 2026). However, these two bodies of scholarship remain insufficiently connected. Mainstream teacher-development studies largely conceptualize collegiality as an organizational or pedagogical mechanism for improving professional competence, while Islamic education scholarship has paid less attention to the micro-processes through which teachers observe, assist, advise, reflect with, and learn from one another in everyday professional practice. Consequently, the unresolved issue is not simply whether peer-coaching and mentoring can be combined, but how such collegial practices can be conceptualized within an Islamic educational framework that understands professional learning as a relational, ethical, and collectively responsible process.

Accordingly, the novelty of this study does not reside in merely combining peer-coaching and mentoring as two established professional-development strategies. Rather,

it lies in reconceptualizing their interaction through an Islamic educational lens as a form of ta'awun-based collegial professional learning. In this framework, pedagogical knowledge is not treated solely as an individual technical competence transferred from an expert to a less experienced teacher, but as knowledge that is relationally constructed, ethically shared, and collectively refined through mutual assistance and guidance. By bringing the principles of ta'awun and tawāṣī into dialogue with empirical practices of peer observation, cross-generational mentoring, collaborative problem-solving, and professional reflection, this study proposes a moral-pedagogical interpretation of teacher professional development that extends beyond conventional organizational models of collegial collaboration.

The urgency of this study lies in the need for a teacher professional development framework that responds not only to rapidly changing pedagogical and technological demands but also to the relational and ethical dimensions of educators' professional learning. In Islamic education, professional competence cannot be understood solely as an individual capacity because educational responsibility is embedded within social relationships, mutual assistance, and continuous guidance among members of the educational community. Examining these dimensions is therefore important for extending teacher professional development beyond technically oriented models toward a framework that integrates pedagogical improvement with collective professional responsibility. Accordingly, this study aims to examine how peer-coaching and mentoring operate as interconnected forms of collegial professional learning in developing teachers' pedagogical competence and to interpret how these practices can contribute to the conceptualization of teacher professional development within an Islamic educational framework of mutual assistance and guidance.

II. Research Methods

This study employed a qualitative case study design to examine how peer-coaching and mentoring were experienced and interpreted within the collegial professional learning practices of SMP Negeri 2 Srono, Banyuwangi. The case study design was selected because the research focused on understanding professional interactions, meanings, and perceived pedagogical changes within a bounded school context rather than measuring program effectiveness or establishing causal relationships (Robert K. Yin, 1984). The school constituted the bounded case, while peer-coaching practices, cross-generational mentoring, learning-community interactions, and collegial reflection formed the primary phenomena examined within the case. SMP Negeri 2 Srono was selected because it had an active internal learning community and ongoing practices of teacher collaboration that provided an empirical context for examining how collegial professional learning developed in everyday school practice.

Data were generated through three complementary techniques: semi-structured in-depth interviews, participant observation, and document analysis. Interviews were used to explore participants' direct experiences and perceptions of peer observation, mentoring, collegial interaction, pedagogical reflection, and perceived changes in their professional practices. Observation was used to examine how teachers interacted within learning-community activities and peer-based professional exchanges, particularly the forms of assistance, feedback, discussion, and knowledge sharing that occurred among educators. Document analysis focused on available records of teaching reflection and collegial professional activities to identify evidence of pedagogical issues discussed, peer feedback provided, and follow-up actions planned by teachers. The three data sources were used complementarily rather than as independent evidence of effectiveness: interviews captured participants' interpretations, observations documented interactional processes, and reflective documents provided contextual evidence of how professional learning was recorded and followed up within the school. The following table lists the research informants designed to gather comprehensive data on the synergy of peer-coaching and mentoring at the location.

Table 1. Research Informants

No	Informant	Code	Amount	Selection Criteria / Reasons
1	Headmaster	HM	1 Person	Provided the institutional and policy perspective on teacher professional development and collegial learning practices.
2	Young Teacher	YT	1 Person	Provided a participant perspective on experiencing peer observation, collegial feedback, and professional learning.
3	Head of the Learning Community	HLC	1 Person	Provided direct information about the coordination and implementation of collective.
Total			3 Person	

Source: researcher processed data, 2026

Participants were selected purposively based on their direct involvement in or knowledge of the professional learning practices examined in this case. The Headmaster represented the institutional perspective, the Head of the Learning Community provided information concerning the organization and facilitation of collegial professional activities, and the Young Teacher provided a participant perspective on experiencing peer observation and professional feedback. The small number of participants was treated as a methodological boundary of the study rather than as a basis for representing the wider teacher population. Accordingly, interview data were interpreted as situated accounts of participants' experiences within this particular school context. Claims concerning pedagogical development were therefore derived from converging participant accounts, observed professional interactions, and reflection documents, and were not interpreted as evidence of school-wide causal effectiveness.

Data analysis was conducted iteratively alongside data collection using the interactive procedures of data condensation, data display, and conclusion drawing. In the first stage, interview transcripts, observation notes, and reflection documents were read repeatedly and coded to identify recurring meanings and interactional patterns related to peer observation, professional assistance, mentoring, knowledge exchange, collaborative problem-solving, reflection, and perceived pedagogical development. Codes with conceptual similarities were then grouped into broader categories and compared across data sources. Through this process, the analysis developed the major empirical themes concerning peer-based classroom observation, cross-generational professional learning, internal learning-community practices, and collegial reflection. Particular attention was given to whether an interpretation was supported by more than one type of data rather than relying exclusively on a single participant statement. (Miles, Huberman, & Saldana, 2014).

The analysis proceeded through a second interpretive stage in which the empirically generated themes were examined through the Islamic educational concepts of *ta'awun* (mutual assistance) and *tawāṣī* (mutual guidance). These concepts were used as sensitizing concepts rather than predetermined coding categories. This distinction was important to avoid imposing an Islamic interpretation on the empirical material before the participants' experiences and observed practices had been identified inductively. The Islamic educational framework was therefore used to interpret how particular patterns of collegial interaction could be understood in terms of relational, ethical, and collectively responsible professional learning, while the empirical description of the practices remained grounded in interview, observation, and documentary data.

To enhance the credibility of the findings, source and method triangulation were conducted by comparing participants' accounts with observation notes and available collegial-reflection documents. Triangulation was used to examine convergence, complementarity, and possible differences across data sources rather than to establish causal effectiveness. Interpretations were retained when they could be supported by sufficiently consistent evidence across the available material or when the analysis clearly identified the perspective from which a particular account originated. This procedure strengthened the transparency of the analytical process while preserving the contextual and interpretive nature of the qualitative case study (Cresswell & Fisher, 1998).

Given the bounded case design and the limited number of interview participants, the findings were not intended to statistically represent all teachers at SMP Negeri 2 Srono or to establish the effectiveness of peer-coaching and mentoring in a causal sense. Instead, the study sought analytical depth by examining how selected participants experienced these practices and how their accounts converged with observed interactions and documentary evidence. Therefore, references to pedagogical development in the findings denote perceived or contextually observed developments

within the case and should not be interpreted as standardized measurements of change in pedagogical competence.

III. Result and Discussion

A. Research Findings

The first-stage inductive analysis generated three interrelated empirical themes concerning collegial professional learning within the case: (1) Class Visits as a non-evaluative space for peer reflection and mutual support; (2) reciprocal knowledge exchange in cross-generational mentoring; and (3) internal learning communities as spaces for collaborative problem-solving. These themes were developed by comparing interview accounts, observation-based descriptions, and available reflection documents. To make the analytical process transparent, Table 2 presents examples of how raw empirical material was condensed into initial codes, categories, themes, and findings. The themes were subsequently interpreted through the Islamic educational concepts of ta'awun and tawāṣī, as described in the research method.

Table 2. Illustrative Analytical Trail from Empirical Data to Findings

NO	Raw Evidence	Empirical Initial Codes	Category	Theme	Finding
1	HLC described the locally named <i>Sambang Kelas</i> ("Class Visits") as "horizontal" and as replacing awkwardness with mutual support.	Horizontal observation; reduced awkwardness; mutual assistance	non-evaluative peer interaction	Class Visits as a Non-Evaluative Space for Peer Reflection and Mutual Support	Participants described peer observation as a supportive rather than punitive professional interaction.
2	YT reported initial nervousness during classroom observation but later perceived colleagues as coming "not to find fault, but to help."	observation anxiety; peer advice; assistance with classroom difficulties	psychological safety and supportive feedback	Class Visits as a Non-Evaluative Space for Peer Reflection and Mutual Support	The participating young teacher perceived collegial observation as creating greater openness to feedback and professional assistance.
3	Reflection documentation concerning technology use by senior teachers included continued mentoring with a Leading Teacher as a planned follow-up.	technology use; continued mentoring; professional knowledge exchange	cross-generational professional support	Reciprocal Knowledge Exchange in Cross-Generational Mentoring	Documentary evidence indicated that technology-related professional learning was supported through continued collegial mentoring.

4	HM described the internal learning community as a space to discuss curriculum implementation, share teaching practices, jointly develop teaching materials, and address instructional problems.	sharing practices; joint material development; collective problem-solving	collaborative professional learning	Internal Learning Communities as Spaces for Collaborative Problem-Solving	The learning community was described as a space for collectively discussing and responding to instructional problems.
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1. Sambang Kelas as a Non- Evaluative Space for Peer Reflection and Mutual Support

The first theme concerns participants' experiences of Class Visits as a form of peer-based classroom observation characterized by reduced evaluative pressure and mutual professional support. The HLC described the practice as intentionally horizontal, while the participating young teacher emphasized that colleagues entered the classroom to provide assistance rather than to identify mistakes. Across these accounts, the recurring codes of horizontal interaction, mutual assistance, reduced awkwardness, and supportive feedback were grouped under the category of non-evaluative peer interaction. These data suggest that, within the experiences represented in this case, Class Visits were perceived less as formal supervision and more as a collegial space for discussing and responding to immediate instructional difficulties.

These findings show that educators at the school, which received the Adiwiyata award in 2018, have succeeded in changing the stigma of intimidating supervision into a more relaxed and collegial tradition of "visiting the class." In this practice, fellow teachers visit each other's classrooms not to assess, but rather to provide emotional and technical support to address pedagogical challenges encountered directly (Hargreaves, 2001; Diab & Green, 2024). The reason for this model's success is the strong emotional bond between staff, which makes the feedback felt more genuine and received as a form of peer assistance (Halsall, Daley, Hawke, Henderson, & Matheson, 2022). Evidence of this conclusion is evident in the teachers increased courage to explore innovative learning media after receiving reinforcement from colleagues conducting participatory observations. The following statement from the Head of the Learning Community (HLC) illustrates the successful transformation of work culture through a dialogical approach that eliminates hierarchical barriers among educators at the school.

"We designed 'Sambang Kelas' to be horizontal. Teachers here are accustomed to visiting each other. As a result, the culture of awkwardness has disappeared and

been replaced by a culture of mutual support to improve teaching methods directly in the field".

The HLC's account indicates how the organizational meaning of classroom observation was reframed within this particular professional interaction. Rather than describing observation as an evaluative act conducted by a superior, the participant emphasized horizontal participation and mutual support (Arar, Turan, Atmaca, & Kesim, 2026). This interpretation was reinforced by the YT's account, who initially associated classroom observation with nervousness but later described colleagues' presence as assistance in dealing with passive students. Taken together, the two accounts indicate a perceived shift in the meaning of observation from being potentially judgmental toward being experienced as a source of professional feedback and assistance (Asad & Malik, 2024).

"At first, I was nervous when other teachers entered the classroom. But with this 'Sambang Kelas' program, it felt different. My colleagues came in not to find fault, but to help me when I was struggling with passive students. Their input was more like advice from a friend."

The statement from the Young Teacher (YT) interprets the creation of a psychologically safe space in peer-coaching practices. The reduction in tension demonstrates that supportive collegial relationships can erode young teachers' defensiveness toward classroom observation. This shifts the function of supervision from mere administrative assessment to genuine pedagogical support, thus fostering openness to naturally improving the quality of teaching (Mu'alimin, Muhith, & Hepni, 2026). From a professional-learning perspective, this pattern is consistent with studies emphasizing the importance of psychological safety and non-hierarchical feedback in collegial learning. However, the present data do not establish that Sambang Kelas improved pedagogical competence across all teachers; rather, they show that the participating educators perceived the practice as facilitating greater openness to feedback and pedagogical assistance. Through the Islamic educational lens employed in this study, this reciprocal assistance can be interpreted as an expression of ta'awun, while the exchange of constructive pedagogical advice resonates with tawāṣī. Importantly, these concepts are used here as interpretive categories rather than as claims that participants explicitly labelled their practices in Islamic terminology.

2. Reciprocal Knowledge Exchange in Cross-generation Mentoring

The second theme concerns patterns of cross-generational professional support identified in the available data. Rather than indicating a one-directional mentoring relationship, the material suggests a reciprocal exchange in which experienced teachers contributed practical pedagogical knowledge, while teachers with stronger digital competencies provided assistance related to technology-supported instruction. Reflection documentation, for example, recorded the use of online learning platforms by senior teachers and identified continued mentoring with a Leading Teacher as a planned

follow-up action. This documentary evidence supports the interpretation that cross-generational professional interaction occurred within the case, although it does not establish the extent of such practices across the entire teaching staff.

The research found that, in this school, which has 38 professional teachers, a cross-generational mentoring pattern has been established which brings together senior teachers and Leading Teachers in a mutually complementary professional relationship. Senior teachers serve as mentors in classroom management, student character building, professional ethics, and strategies for navigating various learning dynamics. Meanwhile, Leading Teachers provide guidance on the use of digital technology, the development of interactive learning media, and the implementation of learning innovations that meet the demands of 21st-century education. This relationship creates a shared learning space that enables the reciprocal exchange of knowledge.

These findings indicate that cross-generational mentoring plays a crucial role in building educators' pedagogical resilience amidst increasingly dynamic educational changes. Collaboration between senior teachers and Leading Teachers enables the integration of mature pedagogical experience with technology-based learning innovations (Stumbrienė, Jevsikova, & Kontvainė, 2024). This synergy not only enhances teachers' professional skills but also creates a balance between preserving proven educational values and the need to adapt to technological developments (Arnold et al., 2025). Thus, schools have human resources better prepared to face current and future learning challenges.



Figure. 1 Outstanding Teachers Award

This The image shows the professional collaboration practices that take place as part of the implementation of cross-generational mentoring. The interactions depicted in the image depict a participatory and mutually supportive learning atmosphere, where knowledge transfer occurs directly through discussions, demonstrations, and practice using digital learning platforms. This documentation serves as evidence that teacher competency development is implemented through a collaborative approach oriented towards mutual capacity building.

Research findings indicate that cross-generational mentoring contributes to building educators' pedagogical resilience, particularly in facing technological changes and the demands of modern learning. Senior teachers who previously experienced limitations in utilizing technology are given the opportunity to learn gradually through intensive guidance from both the Leading Teacher and teachers with greater digital expertise. The ongoing mentoring process creates a safe and supportive learning environment, so teachers do not feel pressured when having to learn new skills (Diab & Green, 2024). This environment accelerates educators' adaptation to various learning innovations developing in the school environment.

The analytical significance of this pattern lies in the direction of knowledge exchange. Mentoring was not represented solely as the transmission of expertise from senior to junior educators; instead, different forms of expertise appeared to circulate across generational positions. Practical classroom experience and technological knowledge constituted complementary professional resources. From an Islamic educational perspective, this reciprocity can be interpreted through *ta'awun* and *tawāṣī* because professional knowledge is shared through mutual assistance and guidance rather than through a strictly hierarchical conception of expertise. Nevertheless, the findings should be understood as a context-specific pattern identified in the available material, not as evidence that cross-generational mentoring reduced the digital competency gap or increased pedagogical resilience among all teachers in the school (MuhammedZein & Abdullateef, 2025).

3. Internal Learning Communities as Spaces for Collaborative Problem Solving

The third theme concerns the internal learning community as a setting for collaborative problem-solving. The Headmaster described the forum as a space where teachers discussed the implementation of the Independent Curriculum, shared teaching practices, jointly developed instructional materials, and exchanged possible solutions to instructional difficulties. Initial codes concerning experience sharing, joint material development, and collective problem-solving were grouped into the broader category of collaborative professional learning. Available documentation concerning the development of contextual teaching materials further provided contextual support for this interpretation.

The strengthening of the learning community is motivated by the need for teachers to understand and implement the Independent Curriculum more effectively. Dynamic changes in education policy often raise various questions and challenges in daily learning practices (Almufarreh & Arshad, 2023). Therefore, the school encourages teachers to utilize the learning community forum as a means of collective problem-solving without having to wait for formal direction from external parties. The discussions that occur allow teachers to find more contextual solutions tailored to the students' circumstances and the school's needs (Mahmud & Mohd Drus, 2023). Based on the results of interviews with the

Principal, strengthening the internal learning community is the main strategy in encouraging teacher collaboration and innovation in curriculum implementation in the school environment.

"We are optimizing our internal learning community as a collaborative space for teachers to discuss the implementation of the Independent Curriculum, share best practices, and develop teaching materials together. Through peer-coaching and mentoring synergies, teachers not only receive information but also learn from each other and provide solutions to learning challenges. This community serves as an incubator for innovation, encouraging the continuous improvement of pedagogical competencies."

The Headmaster's account suggests that the learning community functioned as an internal mechanism for organizing professional dialogue around immediate curricular and instructional concerns. Rather than demonstrating that the forum had already improved pedagogical competence across the school, the evidence indicates that it provided an organizational space in which teachers could collectively discuss problems and develop context-sensitive responses. This distinction is important because the qualitative data support an interpretation of professional-learning processes, not a causal evaluation of their outcomes.

Within the Islamic educational framework, collective problem-solving can be interpreted as extending professional responsibility beyond the individual teacher. The relevance of ta'awun lies in the mutual contribution of knowledge and assistance, while tawāṣī provides an interpretive lens for understanding professional advice as a reciprocal form of guidance. Thus, the significance of the learning community in this case lies not merely in its organizational function but in the relational process through which professional knowledge was shared and negotiated among educators (Zamiri & Esmaeili, 2024; Toikka & Tarnanen, 2024).

Table 3. Optimization of Learning Communities

Component	Description of Findings
Main Problem	Collective confusion in the independent implementation of the Independent Curriculum.
Strategic Objectives	Accelerate understanding of regulations without relying on central instructions.
Empirical Evidence	Formation of a contextual teaching module bank based on the characteristics of Srono students.
Main Function	As a Pedagogical Laboratory that is solution-oriented and applicable.

Source: researcher processed data, 2026

The table provides an explanation of the strategic function of learning communities as a driving force for innovation in facing changes in education policy. The available evidence suggests that the community provided one mechanism through which

participants addressed uncertainty surrounding curriculum implementation. Through its role as a Pedagogical Laboratory, this community not only serves as a forum for discussion but also produces concrete solutions in the form of a bank of teaching modules relevant to the local context (Romanova & Zhou, 2025). As a result, educators are able to accelerate their understanding of regulations in an applicable manner, thus maintaining the quality of the learning process without having to rely entirely on central bureaucratic instructions.

The synergy between peer coaching and mentoring is fundamentally aligned with the deconstruction paradigm of Islamic education proposed by Al-Kilani, (1986) in his book *Al-Fikr al-Tarbawi al-Islami*. Al-Kilani emphasized that educator competency development cannot occur in professional isolation but must be supported by an institutional ecosystem that upholds the values of collegial collaboration (*ta'awun*) and mutual guidance (*tawashawu*). Through the integration of mentoring from senior educators and peer-coaching between fellow educators, optimizing pedagogical competence is transformed from merely an administrative demand into a collective moral responsibility.

IV. Conclusion

This study examined how peer-coaching and mentoring operate as interconnected forms of collegial professional learning in developing teachers' pedagogical competence and how these practices can be interpreted within an Islamic educational framework of mutual assistance and guidance. Within the bounded case of SMP Negeri 2 Srono, the findings indicate three interrelated patterns. First, Class Visits were perceived by participants as a non-evaluative space that reduced perceived supervisory pressure and facilitated peer feedback and professional assistance. Second, cross-generational mentoring reflected reciprocal knowledge exchange, in which practical pedagogical experience and technology-related knowledge functioned as complementary professional resources. Third, the internal learning community provided an organizational space for teachers to discuss curricular and instructional problems, share practices, and develop context-sensitive responses collaboratively. These findings do not establish the causal effectiveness of peer-coaching and mentoring or demonstrate school-wide improvement in pedagogical competence; rather, they show how the participants represented in this case experienced these practices as contributing to their collegial professional learning.

Interpreted through the Islamic educational concepts of *ta'awun* and *tawāṣī*, the three findings suggest that teacher professional development can be understood not only as the acquisition of individual technical competence but also as a relational and ethical process of mutual assistance, reciprocal guidance, and shared professional responsibility. The contribution of this study therefore does not lie merely in combining peer-coaching

and mentoring as established professional-development strategies, but in reframing their interaction as a form of ta'awun-based collegial professional learning. This conceptualization contributes to addressing the gap between mainstream teacher-development literature, which commonly emphasizes organizational and pedagogical mechanisms, and Islamic education scholarship that requires greater attention to the relational and ethical micro-processes through which educators learn from and support one another in everyday professional practice.

The findings should nevertheless be interpreted within the methodological boundaries of a qualitative study conducted in a single educational setting with a limited number of participants. The study did not measure changes in pedagogical competence through standardized indicators, nor was it designed to establish causal effects or statistical generalization. Future research may examine the transferability of ta'awun-based collegial professional learning across different educational settings by involving a broader range of teacher participants, multiple institutional contexts, and longitudinal or mixed-method designs capable of examining how collegial professional learning relates to changes in pedagogical practice over time.

V. Bibliography

- Adebisi, Y. A., & Ogunkola, I. O. (2023). The global antimicrobial resistance response effort must not exclude marginalised populations. *Tropical Medicine and Health*, 51(1), 33. <https://doi.org/https://doi.org/10.1186/s41182-023-00524-w>
- Ajani, O. A. (2024). Enhancing pre-service teacher education: Crafting a technology-responsive curriculum for modern classrooms and adaptive learners. *Research in Educational Policy and Management*, 6(2), 209–229. <https://doi.org/https://doi.org/10.46303/repam.2024.32>
- Al-Kilani, M. I. (1986). *Al-Fikr al-tarbawi al-islami: Badil islami fi al-tarbiyyah wa al-ta'lim* [Islamic educational thought: An Islamic alternative in education (1st ed.). Yordania: Dar Al-manarah.
- Almufarreh, A., & Arshad, M. (2023). Promising emerging technologies for teaching and learning: Recent developments and future challenges. *Sustainability*, 15(8), 6917. <https://doi.org/https://doi.org/10.3390/su15086917>
- Arar, K., Turan, S., Atmaca, T., & Kesim, E. (2026). From hierarchies to communities: the power of a unique school culture in defining teacher collaboration in a private school. *Journal of Educational Change*, 1–24. <https://doi.org/https://doi.org/10.1007/s10833-026-09542-x>
- Arnold, L., Vosseberg, F., Bimczok, S., Brand, H., Clemens, T., Stratil, J. M., ... Starke, D. (2025). Bridging theory and practice: a qualitative interview study of barriers to and facilitators of research collaborations between academia and public health services in Germany. *Health Research Policy and Systems*, 23(1), 142. <https://doi.org/https://doi.org/10.1186/s12961-025-01413-w>
- Asad, M. M., & Malik, A. (2024). Educational quality and inclusion through collaborative hybridized cybergogy: transformative learning horizons in Pakistani universities.

- Interactive Technology and Smart Education, 21(4), 672–689.
<https://doi.org/https://doi.org/10.1108/ITSE-10-2023-0193>
- Bandura, A., & Walters, R. H. (1977). Social learning theory (Vol. 1). Prentice-hall Englewood Cliffs, NJ.
- Baruno, Y. H. E., Azzahir, S. Z. A., & Al-Akbar, N. (2025). THE ROLE OF PRINCIPAL LEADERSHIP IN IMPROVING THE QUALITY OF TEACHING PERSONNEL. Leadership: Jurnal Mahasiswa Manajemen Pendidikan Islam, 6(2), 207–217.
<https://doi.org/https://doi.org/10.32478/leadership.v6i2.2877>
- Ben-Amram, M., & Davidovitch, N. (2024). Novice teachers and mentor teachers: From a traditional model to a holistic mentoring model in the postmodern era. Education Sciences, 14(2), 143. <https://doi.org/https://doi.org/10.3390/educsci14020143>
- Bradford, A., Park, S., & Brown, H. (2024). Professional development in English-medium instruction: Faculty attitudes in South Korea and Japan. Journal of Multilingual and Multicultural Development, 45(8), 3143–3157.
<https://doi.org/https://doi.org/10.1080/01434632.2022.2086559>
- Charokar, K., & Dulloo, P. (2022). Self-directed learning theory to practice: a footstep towards the path of being a life-long learner. Journal of Advances in Medical Education & Professionalism, 10(3), 135.
<https://doi.org/https://doi.org/10.30476/JAMP.2022.94833.1609>
- Chen, L. (2022). Facilitating teacher learning in professional learning communities through action research: A qualitative case study in China. Teaching and Teacher Education, 119, 103875.
<https://doi.org/https://doi.org/10.1016/j.tate.2022.103875>
- Chiu, E. Y. Y., & Fleming, T. (2025). The Aesthetics of Disillusionment: Teachers' Narratives of "Disillusioned Transformation." Behavioral Sciences, 15(7), 858.
<https://doi.org/https://doi.org/10.3390/bs15070858>
- Corbin, T., Bearman, M., Boud, D., & Dawson, P. (2026). The wicked problem of AI and assessment. Assessment & Evaluation in Higher Education, 51(4), 736–752.
<https://doi.org/https://doi.org/10.1080/02602938.2025.2553340>
- Cresswell, J., & Fisher, D. (1998). A Qualitative Description of Teachers' and Principals' Perceptions of Interpersonal Behavior and School Environment.
- De Jong, W. A., de Kleijn, R. A. M., Lockhorst, D., Van Tartwijk, J. W. F., & Noordegraaf, M. (2025). Collaborative approaches: studying horizontal and vertical working relations in schools and how they relate to collaborative-innovation practices. Scandinavian Journal of Educational Research, 69(2), 284–302.
<https://doi.org/https://doi.org/10.1080/00313831.2023.2296898>
- Deng, Y., & Liu, H. (2025). To overcome test anxiety in on-line assessment: unpacking the mediator roles of techno competencies, teacher support, self-efficacy, and autonomy. BMC Psychology, 13(1), 192.
<https://doi.org/https://doi.org/10.1186/s40359-025-02545-y>
- Desrianti, D., & Asmendri, A. (2024). Educational Supervision and Teacher Development: Addressing the Challenges of Instructional Improvement in Schools. Journal of Social Studies Arts and Humanities (JSSAH), 4(3), 103–107.
<https://doi.org/https://doi.org/10.33751/jssah.v4i3.12836>
- Diab, A., & Green, E. (2024). Cultivating resilience and success: Support systems for novice teachers in diverse contexts. Education Sciences, 14(7), 711.

- <https://doi.org/https://doi.org/10.3390/educsci14070711>
- Doyle, T. (2023). Helping students learn in a learner-centered environment: A guide to facilitating learning in higher education. Taylor & Francis.
- Dunn, R., Thompson, P., & Hattie, J. (2025). Teachers who lead: practical strategies for building responsive teams. Corwin Press.
- Ferry, M., & Westerlund, R. (2023). Professional networks, collegial support, and school leaders: How physical education teachers manage reality shock, marginalization, and isolation in a decentralized school system. *European Physical Education Review*, 29(1), 74–90. <https://doi.org/https://doi.org/10.1177/1356336X221114531>
- Galdames-Calderón, M. (2023). Distributed leadership: School principals' practices to promote teachers' professional development for school improvement. *Education Sciences*, 13(7), 715.
- Gan, D., Alkaher, I., & Segal, T. (2023). Incorporating collaborative learning in teacher education to foster self-efficacy to implement environmental citizenship: an action research. *International Journal of Sustainability in Higher Education*, 24(3), 700–718. <https://doi.org/https://doi.org/10.1108/IJSHE-07-2021-0258>
- Gore, J., Rosser, B., Jaremus, F., Miller, A., & Harris, J. (2024). Fresh evidence on the relationship between years of experience and teaching quality. *Australian Educational Researcher*, 51(2), 547–570. <https://doi.org/https://doi.org/10.1108/JKM-03-2025-0399>
- Graells-Sans, A., Galbany-Estragués, P., Rodríguez-Martín, D., & Gasch-Gallén, À. (2026). Nursing at the intersection of power and practice: a grounded theory analysis of the profession's social position. *Journal of Advanced Nursing*, 82(4), 3537–3549. <https://doi.org/https://doi.org/10.1111/jan.70126>
- Guo, Y., Cao, Z., Lu, L., & Bao, H. (2026). Developing sustainability competencies through dual mentorship: a qualitative multiple-case study of urban and rural planning education in China. *Frontiers in Education*, 11, 1835868. Frontiers Media SA. <https://doi.org/https://doi.org/10.3389/feduc.2026.1835868>
- Halsall, T., Daley, M., Hawke, L., Henderson, J., & Matheson, K. (2022). “You can kind of just feel the power behind what someone’s saying”: a participatory-realist evaluation of peer support for young people coping with complex mental health and substance use challenges. *BMC Health Services Research*, 22(1), 1358. <https://doi.org/https://doi.org/10.1186/s12913-022-08743-3>
- Hargreaves, A. (2001). The emotional geographies of teachers' relations with colleagues. *International Journal of Educational Research*, 35(5), 503–527. [https://doi.org/https://doi.org/10.1016/S0883-0355\(02\)00006-X](https://doi.org/https://doi.org/10.1016/S0883-0355(02)00006-X)
- Henderson, J., & Corry, M. (2021). Teacher anxiety and technology change: A review of the literature. *Technology, Pedagogy and Education*, 30(4), 573–587. <https://doi.org/https://doi.org/10.1080/1475939X.2021.1931426>
- Johler, M., Krumsvik, R. J., Bugge, H. E., & Helgevold, N. (2022). Teachers' perceptions of their role and classroom management practices in a technology rich primary school classroom. *Frontiers in Education*, 7, 841385. Frontiers Media SA. <https://doi.org/https://doi.org/10.3389/feduc.2022.841385>
- Kim, J., Lee, H., & Cho, Y. H. (2022). Learning design to support student-AI collaboration:

- Perspectives of leading teachers for AI in education. *Education and Information Technologies*, 27(5), 6069–6104.
<https://doi.org/https://doi.org/10.1007/s10639-021-10831-6>
- Leach, T., & Bradbury, O. (2024). Equipping teachers for success in rural communities: Unveiling the key characteristics and attributes of thriving rural teachers. *Education Sciences*, 14(12), 1384.
<https://doi.org/https://doi.org/10.3390/educsci14121384>
- Liu, Z., Sulaiman, T., & Che Nawi, N. R. (2025). Between development and surveillance: faculty perceptions and challenges of instructional coaching in an underdeveloped university context. *Frontiers in Education*, 10, 1637546. Frontiers Media SA.
<https://doi.org/https://doi.org/10.3389/feduc.2025.1637546>
- Lomba-Portela, L., Domínguez-Lloria, S., & Pino-Juste, M. R. (2022). Resistances to educational change: Teachers' perceptions. *Education Sciences*, 12(5), 359.
- Mahmud, M. S., & Mohd Drus, N. F. (2023). The use of oral questioning to improve students' reasoning skills in primary school mathematics learning. *Frontiers in Education*, 8, 1126816. Frontiers Media SA.
<https://doi.org/https://doi.org/10.3389/feduc.2023.1126816>
- Masuwai, A., Zulkifli, H., & Hamzah, M. I. (2024). Self-assessment for continuous professional development: The perspective of Islamic Education. *Heliyon*, 10(19).
<https://doi.org/https://www.cell.com/action/showCitFormats?doi=10.1016%2Fj.heliyon.2024.e38268&pii=S2405-8440%2824%2914299-5>
- Meyer, A., Hartung-Beck, V., Gronostaj, A., Krüger, S., & Richter, D. (2023). How can principal leadership practices promote teacher collaboration and organizational change? A longitudinal multiple case study of three school improvement initiatives. *Journal of Educational Change*, 24(3), 425–455.
<https://doi.org/https://doi.org/10.1007/s10833-022-09451-9>
- Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis*. sage.
- Mu'alimin, M., Muhith, A. M., & Hepni, H. (2026). School principals' and teachers' perspectives on school quality management in Islamic schools: insights from Indonesia. *International Journal of Educational Management*, 40(4), 727–741.
<https://doi.org/https://doi.org/10.1108/IJEM-05-2025-0387>
- MuhammedZein, F. A., & Abdullateef, S. T. (2025). Quality Education for Sustainable Development: Evolving Pedagogies to Maintain a Balance Between Knowledge, Skills, and Values-Case Study of Saudi Universities. *Sustainability*, 17(2), 635.
<https://doi.org/https://doi.org/10.3390/su17020635>
- Nadeem, M. (2024). Distributed leadership in educational contexts: A catalyst for school improvement. *Social Sciences & Humanities Open*, 9, 100835.
<https://doi.org/https://doi.org/10.1016/j.ssaho.2024.100835>
- Noroozi, O., Banihashem, S. K., Biemans, H. J. A., Smits, M., Vervoort, M. T. W., & Verbaan, C.-L. (2023). Design, implementation, and evaluation of an online supported peer feedback module to enhance students' argumentative essay quality. *Education and Information Technologies*, 28(10), 12757–12784.
<https://doi.org/https://doi.org/10.1007/s10639-023-11683-y>
- Nurhadi, M., Suprayogo, I., Hadi, M., & Marfuah, S. (2026). INTEGRATED SCIENCE-ISLAMIC CURRICULUM MANAGEMENT STRATEGY. *Leadership: Jurnal Mahasiswa Manajemen Pendidikan Islam*, 7(2), 186–199.

- <https://doi.org/https://doi.org/10.32478/leadership.v8i2.4726>
- Nwoko, J. C., Anderson, E., Adegboye, O., Malau-Aduli, A. E. O., & Malau-Aduli, B. S. (2024). Navigating teachers' occupational well-being in the tides of classroom processes and school structures. *Education Sciences*, 14(11), 1225.
- Perone, A. K., Toman, L., Glover Reed, B., Coldon, T., Osborne, A., & Cook, J. (2025). Aging and mentorship in the margins: Multigenerational knowledge transfer among LGBTQ+ chosen families. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 80(6), gbaf027. <https://doi.org/https://doi.org/10.1093/geronb/gbaf027>
- Qin, M., Meng, G., Zhao, Q., Tie, J., Hou, X., Jiang, L., & Liu, J. (2026). A tiered progressive training model for clinical medical trainees exploration and application in practice teaching. *Cogent Education*, 13(1), 2629655. <https://doi.org/https://doi.org/10.1080/2331186X.2026.2629655>
- Rahmatullah, R. (2025). Strategic Management Model Based On Islamic Values In Islamic Boarding School Education. *Leadership: Jurnal Mahasiswa Manajemen Pendidikan Islam*, 6(2), 218-234. <https://doi.org/https://doi.org/10.32478/leadership.v6i2.3760>
- Robert K. Yin. (1984). *Case Study Research: Design and Methods*. Beverly Hills, California, Amerika Serikat (USA): SAGE Publications Sage UK: London, England.
- Romanova, A. M., & Zhou, L. (2025). Electronic educational and methodical complex for academic discipline" Innovations in higher education" for students enrolled in the advanced higher education program in specialty 7-06-0111-01 "Scientific and pedagogical activities" specialization "Pedago. BNTU. Retrieved from <https://rep.bntu.by/handle/data/153619>
- Sari, E. (2025). THE INFLUENCE OF MADRASAH PRINCIPAL'S LEADERSHIP STYLE ON TEACHER WORK MOTIVATION AND PERFORMANCE: LITERATURE REVIEW. *Leadership: Jurnal Mahasiswa Manajemen Pendidikan Islam*, 7(1), 102-111. <https://doi.org/https://doi.org/10.32478/leadership.v7i1.4378>
- Singh, N., & Loh, S. C. (2024). Role of professional learning communities in improving teachers' job satisfaction: why does trust in colleagues and emotional intelligence matter? *International Journal of Leadership in Education*, 1-24. <https://doi.org/https://doi.org/10.1080/13603124.2024.2342293>
- Smaldino, P. E., Moser, C., Perez Velilla, A., & Werling, M. (2024). Maintaining transient diversity is a general principle for improving collective problem solving. *Perspectives on Psychological Science*, 19(2), 454-464. <https://doi.org/https://doi.org/10.1177/17456916231180100>
- Sonnenberg, D., & Rutledge, P. (2024). Online education benefits instructors' emotional labor management. *Computers and Education Open*, 7, 100225. <https://doi.org/https://doi.org/10.1016/j.caeo.2024.100225>
- Stumbrienė, D., Jevsikova, T., & Kontvainė, V. (2024). Key factors influencing teachers' motivation to transfer technology-enabled educational innovation. *Education and Information Technologies*, 29(2), 1697-1731. <https://doi.org/https://doi.org/10.1007/s10639-023-11891-6>
- Thomas, A. (2025). The dynamics of knowledge behaviors: exploring drivers, triggers and paradoxes in knowledge sharing, hiding, hoarding and sabotage. *Journal of*

- Knowledge Management, 29(11), 117–144.
- Toikka, T., & Tarnanen, M. (2024). A shared vision for a school: Developing a learning community. *Educational Research*, 66(3), 295–311. <https://doi.org/https://doi.org/10.1080/00131881.2024.2361412>
- Tripon, C. (2025). Towards quality education for all: Integrating edtech, mentorship, and community in support of SDG 4. *Education Sciences*, 15(9), 1184. <https://doi.org/https://doi.org/10.3390/educsci15091184>
- Wachidah, N. R., Habibie, M. L. H., Syamsiah, N., & Nasution, S. P. (2024). Implementation Of The Driving School (Sekolah Penggerak) And Driving Teachers (Guru Penggerak) Program As Educational Innovation In The Society 5.0 Era. *Leadership: Jurnal Mahasiswa Manajemen Pendidikan Islam*, 6(1), 144–155. <https://doi.org/https://doi.org/10.32478/leadership.v6i1.2696>
- Younis, B. (2024). Effectiveness of a professional development program based on the instructional design framework for AI literacy in developing AI literacy skills among pre-service teachers. *Journal of Digital Learning in Teacher Education*, 40(3), 142–158. <https://doi.org/https://doi.org/10.1080/21532974.2024.2365663>
- Zamiri, M., & Esmaeili, A. (2024). Methods and technologies for supporting knowledge sharing within learning communities: A systematic literature review. *Administrative Sciences*, 14(1), 17. <https://doi.org/https://doi.org/10.3390/admsci14010017>
- Zhuang, T., & Liu, B. (2022). Sustaining higher education quality by building an educational innovation ecosystem in China—policies, implementations and effects. *Sustainability*, 14(13), 7568. <https://doi.org/https://doi.org/10.3390/su14137568>