

Data-Driven Supervision and Spiritual Accountability of Islamic Religious Education Supervisors and Teachers in Kukar

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ABSTRACT

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This study explores how Islamic Religious Education (Islamic Education) supervisors and teachers experience data-driven supervision across four dimensions of Edward III policy implementation and examines the role of spiritual accountability (*muraqabah* and *muhasabah*) in improving teacher discipline. A qualitative case study design was used at the Ministry of Religious Affairs Office. Data were collected in August–September 2026 through semi-structured interviews and written questionnaires involving six informants: two Islamic Religious Education supervisors and four teachers. Thematic analysis was conducted using data condensation, display, and conclusion drawing and verification. Findings indicate that the SITKA PAI digital system facilitates documentation and initial performance screening, but its effectiveness is still limited by digital literacy and uneven infrastructure. Face-to-face supervision remains crucial for validating digital records and assessing professional qualities that administrative indicators miss. All six informants identified *muraqabah* and *muhasabah* as more fundamental drivers of discipline than digital monitoring. The study concludes that effective supervision requires complementary digital and interpersonal mechanisms. Practically, these findings imply the need to continue supporting digital literacy and integrate spiritual accountability into teacher professional development.

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INTRODUCTION

Teachers are a determining factor in the success of the educational process, including Islamic Religious Education (IRE), as they are responsible not only for transferring competencies but also for shaping students' character and attitudes (Kusbah & Khozin, 2025; Nurhaeti, 2023). To perform this role optimally, IRE

teachers need continuous guidance and professional development delivered through a clear, well-governed supervision sequence (Arwildayanto et al., 2023; Amrullah, 2023). This responsibility rests with the Ministry of Religious Affairs, which discharges it through district/city office heads to IRE supervisors, who in turn extend it to the IRE teachers under their guidance.

Prior research indicates that guidance from the head of the district Ministry of Religious Affairs office contributes significantly to IRE teachers' professional competence. (Faisal, 2021; Naumi et al., 2025) study of IRE teachers in Bandung City found that guidance from the Ministry office head and supervisor competence jointly accounted for 44.7% of the variance in IRE teachers' professional competence, with both variables showing positive and significant relationships. Muhandi (2025) reported similar findings among elementary-school IRE teachers in Batam City, where academic supervision by IRE supervisors positively and significantly improved teachers' professional competence in planning, implementation, and assessment of learning. These findings confirm that district-level policy-implementing units play an empirically measurable role, not merely an administrative one.

More broadly, research on teacher professional development shows that its success depends on a systematic sequence of needs analysis, program design, implementation, evaluation, and follow-up supported by adequate facilities, media, and mentors (Aimi, 2026; Wahyu & Inayati, 2025), with clear in-service training governance as a precondition for success (Arwildayanto et al., 2023; Jmari et al., 2025). This aligns with Edward III's (1980) public policy implementation framework, which identifies four determinants of successful policy implementation: communication, resources, disposition, and bureaucratic structure. This model is widely used in studies of education policy implementation in Indonesia, including issues directly related to teacher professionalism. Similar evidence emerges internationally: (Wafula et al., 2024) in Kenya found that stakeholder collaboration significantly influenced the implementation of teacher professional-development policy, while (Shrestha & Acharya, 2023) in Nepal documented a gap between teacher-training policy and its field-level implementation, reinforcing the relevance of dimension-based implementation approaches such as Edward III's across national contexts. (Tambrin et al., 2021) findings on teacher performance supervision in Islamic senior high schools (Madrasah Aliyah) are particularly relevant: supervision implementation remained ineffective due to resource constraints. This pattern may recur in the Kukar context. Conceptual framework on the core features of effective teacher professional development (content focus, active learning, coherence, duration, collective participation), together with (Sims et al., 2025) large-scale meta-analysis of 104 randomized controlled trials, reinforces the theoretical grounding for understanding teacher-development effectiveness

systematically, underpinning the use of Edward III's four dimensions as this study's analytical framework. This pattern is consistent with Pujianti et al. (2026) and Tagela et al. (2025), who found that academic supervision and teacher professional competence are consistently associated with instructional quality and teacher performance, reinforcing the relevance of exploring these dimensions more deeply in a qualitative study of the Kukar context.

Kutai Kartanegara Regency (Kukar) presents a distinctive implementation context: its vast geographic area, with supervised IRE teachers dispersed into remote areas, poses challenges for the communication and resource dimensions of policy implementation. Similar challenges have been widely reported in Indonesia's frontier, outermost, and disadvantaged (3T) regions: (Haekal, 2022) found that geographic factors and infrastructure limitations were major obstacles to teacher distribution in remote areas, while (Kawuryan et al., 2021; Rahmah et al., 2025) noted that improvements in teacher qualifications have not been matched by equitable distribution, as qualified teachers tend to concentrate in urban areas. A narrative review by (Jahudin et al., 2025) of 15 articles published between 2015 and 2025 further confirmed that affirmative policies such as the Frontline Teacher program have not been accompanied by improved retention and professionalism among educators in regions facing geographic challenges similar to Kukar's (see also Kadir & Wibowo, 2024; Pratiwi et al., 2022). To date, no study has specifically examined how IRE supervisors and teachers in the Kukar region experience data-driven supervision through Edward III's four dimensions while linking it to spiritual accountability. The urgency of this study is further supported by national data: according to the Ministry of Religious Affairs (2023, as cited in Aulia et al., 2025), of approximately 185,000 IRE teachers in Indonesia, only 67% hold a teaching certificate, and 43% of these have not met minimum competency standards, indicating a national gap relevant to policy implementation research at the district level.

This study's novelty lies in two aspects. First, it foregrounds the direct voices of supervisors and IRE teachers on their lived experience of data-driven supervision, a perspective rarely documented compared with policy studies that stop at documents or regulations. Second, it links Edward III's four policy-implementation dimensions with the Islamic concept of spiritual accountability (*muraqabah* and *muhasabah*) as a complement to the Disposition dimension, offering a lens rarely applied in studies of education policy implementation in Indonesia.

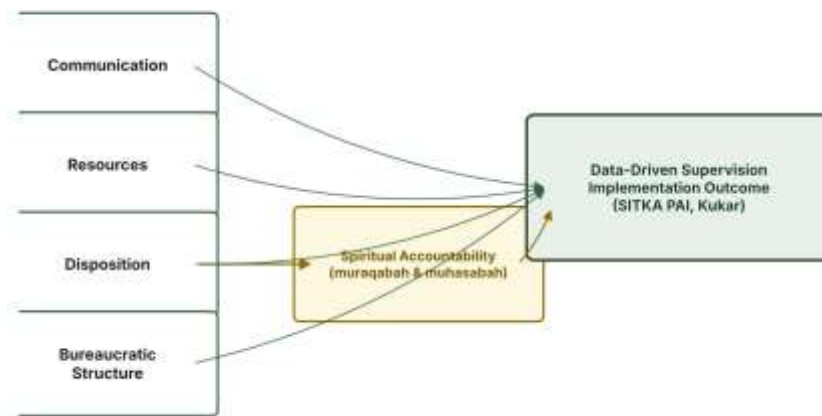


Figure 1. Conceptual Framework: Edward III's Four Dimensions and Spiritual Accountability

This study explores how supervisors and Islamic Religious Education (IRE) teachers at the Kutai Kartanegara (Kukar) Ministry of Religious Affairs Office interpret and experience data-driven supervision across Edward III's four policy-implementation dimensions: communication, resources, disposition, and bureaucratic structure. It also examines how spiritual accountability, particularly *muraqabah* and *muhasabah*, emerges in participants' experiences as a driver of IRE teacher discipline in relation to the influence of the digital supervision system itself.

METHOD

This study used a qualitative approach with a case-study design to examine how Islamic Religious Education (IRE) supervisors and teachers experience data-driven supervision within a single policy-implementing unit. The design was selected because it enables an in-depth understanding of institutional practices, participants' interpretations, and contextual factors rather than statistical generalization (Creswell & Creswell, 2018; Cohen et al., 2018). The research focused on two aspects: implementing data-driven supervision through Edward III's four dimensions—communication, resources, disposition, and bureaucratic structure—and the relevance of spiritual accountability, particularly *muraqabah* and *muhasabah*, to IRE teacher discipline. The study was conducted at the Ministry of Religious Affairs Office in Kutai Kartanegara Regency, East Kalimantan, Indonesia, because the office provides a relevant institutional context for examining the implementation of the SITKA PAI (IRE Supervision Task Information System).

Data were collected between August and September 2026 using semi-structured interviews and written self-administered questionnaires. Participants were selected through purposive sampling based on their direct involvement in

data-driven supervision practices through SITKA PAI. Six informants participated: two IRE supervisors (S1, with 21 years of service at the Muara Badak Education Office Technical Implementation Unit; and S2, with 23 years and 8 months of service at the Kutai Kartanegara Ministry of Religious Affairs Office) and four supervised IRE teachers (G1, with five years of service at SDN 007 Muara Badak; G2, with one year and nine months at SDN 027 Muara Badak; G3, with three years at SDN 003 Samboja; and G4, with four years at SDN 003 Samboja). The interviews explored how supervision was communicated, resourced, enacted, and administratively organized, as well as how participants understood spiritual accountability and teacher discipline. Interviews lasted approximately 45–60 minutes, were audio-recorded with consent, and transcribed verbatim. Participants unable to attend interviews completed the same question guide in writing to maintain thematic comparability.

Data were analyzed thematically using the interactive model of data condensation, data display, and conclusion drawing and verification. During data condensation, interview transcripts and written responses were repeatedly reviewed, relevant meaning units were identified, and statements were coded according to Edward III's four dimensions and the spiritual-accountability theme. The codes were then grouped into categories and organized into thematic displays to facilitate comparisons between supervisors' and teachers' perspectives. During conclusion drawing and verification, the researchers interpreted recurring patterns, similarities, and differences in relation to the theoretical framework and the concepts of *muraqabah* and *muhasabah*. The unit of analysis was each statement or meaning unit relevant to the research focus. Coding was performed manually using thematic worksheets without specialized qualitative analysis software. The resulting interpretations were checked against the original transcripts and written responses before the findings were formulated.

Data trustworthiness was strengthened through source triangulation by comparing accounts from supervisors and teachers and method triangulation by examining evidence from interviews and written questionnaires. The researcher also maintained reflective notes and repeatedly checked interpretations against the original data to reduce the potential influence of personal assumptions. Because the researcher had an institutional connection to the policy-implementing unit, the researcher maintained reflexivity and interpretive distance throughout the research process. Participation was voluntary, written informed consent was obtained, confidentiality was protected through participant codes (S1, S2, and G1–G4), and participants were assured that participation or nonparticipation would not affect their employment status or performance evaluations. No separate institutional ethics-board review was conducted. For transparency, the same six informants' field data also informed a

separate manuscript examining digital supervision through a Foucauldian power–knowledge framework; the present study addresses a distinct research problem and theoretical framework. One questionnaire file (pengawas_3) was excluded because it duplicated the responses in pengawas_2 (S2).

RESULT AND DISCUSSION

Result

This section presents the results of a thematic analysis of semi-structured interviews and self-administered questionnaires from six informants (two IRE supervisors and four supervised IRE teachers), organized according to Edward III's (1980) four policy-implementation dimensions plus one cross-cutting theme on spiritual accountability (*muraqabah and muhasabah*).

Informant Profile.

Table 1. Informant Profile

Code	Role	Tenure	Work Location
S1	IRE Supervisor	21 years	Technical Implementation Unit, Muara Badak Education Office
S2	IRE Supervisor	23 years 8 months	Kukar Ministry of Religious Affairs Office
G1	IRE Teacher	5 years	SDN 007 Muara Badak
G2	IRE Teacher	1 year 9 months	SDN 027 Muara Badak
G3	IRE Teacher	3 years	SDN 003 Samboja
G4	IRE Teacher	4 years	SDN 003 Samboja

Thematic Findings Across Edward III's Four Dimensions.

Communication

Both supervisors viewed the transition from conventional supervision to SITKA PAI positively. S1 explained: *"Sebelum adanya sistem pelaporan digital, proses pengawasan/supervisi guru PAI dilakukan secara konvensional, seperti melalui komunikasi WhatsApp, pengecekan dokumen secara langsung, dan pengumpulan laporan dalam bentuk berkas. Setelah adanya sistem pelaporan digital, proses menjadi lebih mudah dan sistematis karena laporan dan dokumen dapat dikumpulkan secara online, sehingga lebih mudah dipantau, direkap, dan ditindaklanjuti."* ("Before the digital reporting system, supervision of IRE teachers was conducted conventionally through WhatsApp communication, direct document checks, and file-based report collection. Since the digital reporting system was introduced, the process has become easier and more systematic, as reports and documents can be collected online, making them easier to monitor, compile, and follow up.").

From the teachers' side, G4 assessed the system as providing *"memberikan kemudahan dalam proses administrasi, dokumentasi, serta pemantauan kegiatan pembelajaran"* ("providing ease in administrative processes, documentation, and monitoring of learning activities") while emphasizing that *"pengawasan digital sebaiknya dipandang sebagai sarana untuk meningkatkan profesionalisme ... bukan semata-mata sebagai bentuk pengawasan terhadap kinerja guru"* ("digital supervision should be seen as a means of enhancing professionalism ... not merely as a form of oversight of teacher performance"). Communication regarding performance indicators also ran in both directions: S1 detailed the assessment indicators (attendance, delivery of teaching and learning activities, mastery of material, interaction with students, completeness of reports), while explicitly acknowledging their limitations (see the Indicator Gap section below).

Resources

Limited digital literacy and infrastructure posed genuine obstacles, particularly for teachers at schools located relatively far from the district center, such as SDN 003 Samboja. G3 stated that *"tingkat literasi digital secara langsung memengaruhi kenyamanan, kecepatan, dan efisiensi seorang pendidik saat mengikuti sistem supervisi"* ("digital literacy directly affects an educator's comfort, speed, and efficiency in following the supervision system"), while G4 asserted that *"keterbatasan literasi digital dapat menyebabkan proses tersebut terasa lebih sulit dan membutuhkan waktu lebih lama"* ("limited digital literacy can make the process feel more difficult and take longer"), concluding that *"peningkatan kemampuan digital bagi guru perlu dilakukan secara berkelanjutan melalui pelatihan dan pendampingan"* ("improving teachers' digital capability needs to be pursued continuously through training and mentoring"). From the supervisors' side, S1 acknowledged a similar constraint: *"tidak semua guru terbiasa menggunakan sistem digital dan masih ada data yang belum lengkap atau terlambat diperbarui ... hasil data tetap perlu dilengkapi dengan supervisi secara langsung agar penilaiannya lebih sesuai dengan kondisi sebenarnya"* ("not all teachers are accustomed to using the digital system, and some data remains incomplete or is updated late ... data results still need to be supplemented with direct supervision so that the assessment better reflects actual conditions").

Disposition: Spiritual Accountability as the Principal Driver

The most consistent finding of this study is the agreement among all six informants without exception that spiritual awareness, rather than the digital supervision system, is the principal driver of discipline. S1 stated: *"Yang paling penting adalah kesadaran diri guru sendiri. Bagi guru PAI, kesadaran bahwa setiap tugas merupakan amanah dan selalu diaawasi oleh Allah dapat menjadi dorongan untuk tetap disiplin dan bertanggung jawab"* ("what matters most is the teacher's own self-

awareness"). For IRE teachers, the awareness that every task is a trust (amanah) and is constantly watched over by God can drive them to remain disciplined and responsible. G4 affirmed the same from the teachers' side: *"Dorongan yang paling utama adalah kesadaran dan nilai spiritual pribadi. Sebagai guru PAI, saya memandang pekerjaan sebagai sebuah amanah yang akan dipertanggungjawabkan, bukan hanya kepada lembaga pendidikan, tetapi juga kepada Allah SWT... Pengawasan eksternal seharusnya menjadi pendukung, sedangkan motivasi utama berasal dari kesadaran diri ("the most important driver is personal spiritual awareness and values")*. As an IRE teacher, I view my work as a trust for which I will be held accountable, not only to the educational institution but also to Allah SWT ... external supervision should serve as a supporting factor, while the primary motivation comes from self-awareness"). G3 reinforced this: *"kesadaran dan nilai spiritual pribadi merupakan dorongan yang paling utama dan mendasar ... sementara sistem pengawasan digital berfungsi sebagai instrumen pendukung profesionalitas"* ("personal spiritual awareness and values are the most fundamental driver ... while the digital supervision system functions as a supporting instrument for professionalism"), further adding that *muraqabah and muhasabah "mentransformasi profesi guru dari sekadar pekerjaan formal menjadi sebuah bentuk ibadah yang penuh integritas"* ("transform teaching from a mere formal occupation into an act of worship imbued with integrity"). Cultivation of these values was already occurring informally: S1 noted that *muraqabah and muhasabah "pernah disampaikan dalam pembinaan guru PAI ... melalui arahan atau nasihat agar guru selalu mengingat bahwa tugas mengajar adalah amanah"* ("have been conveyed in IRE teacher development sessions ... through guidance or advice reminding teachers that teaching is a trust").

Bureaucratic Structure

SITKA PAI functions as an initial data-screening mechanism that is subsequently re-confirmed through face-to-face supervision, not as a stand-alone decision-making tool. S1 recounted: *"Ada guru yang secara data terlihat kurang baik karena administrasinya belum lengkap atau terlambat mengisi laporan. Namun, ketika saya melakukan supervisi secara langsung, guru tersebut sebenarnya mampu mengajar dengan baik, memahami materi, dan berinteraksi dengan siswa dengan baik. Jadi, data saja belum cukup untuk menggambarkan kemampuan guru secara keseluruhan"* ("Some teachers appear to perform poorly on paper because their administrative records are incomplete or reports are submitted late. However, when I conduct direct supervision, that teacher teaches well, understands the material, and interacts well with students. So, data alone is not yet sufficient to fully describe a teacher's capability. This pattern indicates that the bureaucratic structure at the Kukar Ministry of Religious Affairs Office continues to preserve a space for supervisors' professional discretion above purely data-based decisions.

Exemplary Conduct and Spiritual Depth Not Captured by Data

Both supervisors explicitly acknowledged that SITKA PAI's data indicators do not yet fully capture IRE teacher quality. S1 explained: *"Ada beberapa hal yang tidak bisa terlihat dari data, seperti cara guru berinteraksi dengan siswa, kemampuan memahami kondisi dan karakter siswa, kreativitas dalam mengajar, serta bagaimana guru membimbing dan memotivasi siswa. Hal-hal seperti ini biasanya lebih terlihat saat dilakukan supervisi atau kunjungan langsung ke kelas"* ("There are things that cannot be seen from data, such as how a teacher interacts with students, the ability to understand students' conditions and character, creativity in teaching, and how a teacher guides and motivates students. These things are usually more visible during direct supervision or classroom visits. From the teachers' side, G4 emphasized that successful IRE teaching should be measured more broadly than administrative compliance: *"keberhasilan seorang guru tidak cukup hanya diukur dari kemampuan menyampaikan materi dan memenuhi tuntutan administrasi. Hal yang sangat penting adalah keteladanan, kedekatan yang positif dengan peserta didik, kemampuan memahami karakter siswa, serta membimbing mereka agar memiliki akhlak dan kesadaran beragama yang baik"* ("A teacher's success cannot be measured solely by the ability to deliver material and meet administrative requirements.") What matters greatly is exemplary conduct, a positive closeness with students, the ability to understand students' character, and guiding them to develop good moral character and religious awareness"). This finding reveals a gap between what the digital system measures and what practitioners in the field regard as essential exemplary conduct and spiritual depth.

Taken together, these findings directly answer the research question: supervisors and IRE teachers at the Kukar Ministry of Religious Affairs Office make sense of data-driven supervision as a two-tier process in which digital data under the Communication and Bureaucratic Structure dimensions functions as an initial screen rather than a final verdict, constrained in practice by uneven digital literacy and infrastructure under the Resources dimension; and, within that lived experience, spiritual accountability (*muraqabah and muhasabah*) not the digital supervision system itself emerges under the Disposition dimension as the factor all six informants identify as the primary driver of their discipline.

Discussion

This study's findings both reinforce and extend (Edward III, 1980) policy-implementation framework within the context of data-driven IRE teacher supervision. On the Communication and Bureaucratic Structure dimensions, the transition from conventional supervision to SITKA PAI proceeded relatively smoothly, as digital data functioned as an initial screening mechanism that was still re-confirmed through face-to-face supervision, consistent with (Faisal, 2021) and (Muhardi, 2025), who found that academic supervision by IRE supervisors

contributes significantly to teachers' professional competence, while clarifying that this contribution depends on human interaction rather than on data records alone. On the Resources dimension, the limited digital literacy and infrastructure reported by informants, particularly at schools located relatively far from the district center such as SDN 003 Samboja, are consistent with the geographic and infrastructural challenges reported by (Haekal, 2022) and (Jahudin et al., 2025) in 3T (frontier, outermost, disadvantaged) regions, and underscore the importance of clear in-service training governance as recommended by (Arwildayanto et al., 2023).

The most prominent finding emerged on the Disposition dimension. Every informant, without exception, positioned spiritual accountability *muraqabah* (constant awareness of being watched by God) and *muhasabah* (self-introspection) as a more fundamental driver of discipline than the digital supervision system itself (Islamiyah, 2025; Widad & Suliyanto, 2025). This finding extends Edward III's framework, which was essentially formulated within a secular bureaucratic context without accounting for religious sources of motivation. It shows that for IRE teachers, a positive disposition toward supervisory policy is shaped not merely by external incentives or oversight, but by the spiritual framework of meaning they bring to the profession. This aligns with Desimone's (2009) principle of effective teacher development: the sustainability of changes in teaching practice depends on teachers' active engagement and participation, not merely administrative compliance.

The indicator gap acknowledged by both supervisors that SITKA PAI data do not yet capture teachers' exemplary conduct and spiritual depth points to the limitations of a purely data-driven approach in fully assessing IRE teacher professionalism and reinforces the argument that the qualitative dimension of experience must complement, rather than replace, data-based supervision mechanisms. Overall, the implementation of data-driven supervision at the Kukar Ministry of Religious Affairs Office shows a distinctive pattern: the digital system serves effectively as an administrative aid and initial screening tool (Fahriansyah et al., 2025; Suriono & Dewantoro, 2026; Wadi et al., 2023). At the same time, substantive teacher discipline remains rooted in the spiritual accountability long embedded in the ethos of their religious profession (Rizal et al., 2026; Yoeliyanto et al., 2025).

These findings also align with the broader literature on academic supervision and teacher professional development. (Novariantry et al., 2024) confirmed that educational supervision functions as an instrument for improving teacher quality and professionalism, consistent with the screening-confirmation pattern found in this study's Bureaucratic Structure dimension; similarly, (Suryani et al., 2024) found that academic supervision significantly influences instructional quality. On the Resources dimension, systematic reviews by

(Amemasor et al., 2025) on digital instructional integration, and by Ernamasari and (Ernamasari & Marmoah, 2025) and (Rasmaditala et al., 2024) on teacher professional-development programs in Indonesia, reinforce the recommendation that digital-literacy training and mentoring must be sustained rather than one-off consistent also with (Siliņa-Jasjukeviča et al., 2025) finding that transferring training into actual practice is often a weak point of teacher professional development. Meanwhile, Nabilah and Khoiroh's (2026) study of IRE teacher competence in strengthening religious moderation further confirms that exemplary conduct and spiritual depth are distinctive aspects of IRE teacher competence that are difficult to measure through administrative data alone, reinforcing this study's indicator-gap finding. The pattern of Edward III dimension-based policy implementation found in Kukar is also consistent with Rindra (Rindra Mulya Fauzi et al., 2024) study of character-education policy implementation at the school level, which likewise showed that the success of education policy implementation in Indonesia depends on the simultaneous interaction of the communication, resources, and bureaucratic structure dimensions.

CONCLUSION

This study concludes that data-driven supervision in the Kutai Kartanegara Ministry of Religious Affairs Office operates through the complementary roles of digital documentation and face-to-face interaction, while resource constraints and digital literacy influence implementation across geographically dispersed schools. The most important lesson is that technological monitoring alone cannot ensure professional discipline; *muraqabah* and *muhasabah* emerged as more prominent motivational factors across all six informants' accounts. The study contributes theoretically by extending Edward III's policy implementation framework through an Islamic spiritual-accountability perspective, particularly in understanding the disposition dimension in religious education supervision. Practically, the findings suggest strengthening digital and interpersonal supervision, providing sustained digital-literacy support, and incorporating spiritual accountability into teacher professional development. However, the single-regency setting, small sample, researcher's institutional position, and exclusion of a duplicate questionnaire limit transferability. Future research should quantitatively examine these relationships across larger teacher populations, compare regencies with different geographic and organizational contexts, and investigate how *muraqabah* and *muhasabah* can be systematically integrated into supervision and professional-development programs.

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