

Transforming Principal Leadership for a Sustainable Quality Ecosystem: A Multi-Site Study of State Islamic Senior High Schools

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ABSTRACT

Madrasah in Indonesia carry rising expectations for quality while many principals still spend their working hours on administrative routine rather than on instructional improvement. This study examines how principal leadership is transformed to strengthen a quality culture and how principals build a sustainable educational quality ecosystem in State Islamic Senior High Schools in Medan City. The research employed a qualitative multi-site case study across three institutions. Data came from in-depth interviews with 13 informants spanning principals, vice principals, teachers, administrative staff, and school committee members, together with non-participant observation and document analysis, and were examined through the interactive model of data condensation, display, and verification. Data trustworthiness rested on source and method triangulation. Findings show that leadership shifted from an administrative orientation toward a visionary, participatory, and quality-focused role, enacted through hearing forums, cross-unit development teams, and quarterly internal audits rather than through personal charisma alone. Sustainability emerged not from any single flagship program but from the principal's capacity to weave teacher empowerment, resource partnerships, instructional innovation, resistance absorption, and continuous evaluation into a feedback-rich network anchored in institutional routines. The study contributes a mechanism-level account of how quality is kept alive when leaders or policies change. It implies that *madrasah* leadership development should train principals to engineer durable structures and stakeholder feedback loops instead of relying on individual initiative.

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INTRODUCTION

Educational quality in Indonesian *madrasah* has become a pressing concern as these institutions absorb rising expectations without a matching increase in institutional capacity. The Ministry of Religious Affairs reports that *madrasahs* now educate a substantial share of the nation's students, yet accreditation outcomes and learning results remain uneven across regions, and many *madrasahs* still operate under an administrative logic in which principals spend most of their working hours on paperwork rather than on instructional improvement (Nugraha et al., 2021). This gap between mandate and capacity matters because the *madrasah* is expected to deliver academic achievement, character formation, and the cultivation of Islamic values at the same time, a triple burden that ordinary bureaucratic management



cannot carry. The evidence from daily practice in State Islamic Senior High Schools in Medan City suggests that where leadership remains fixed on routine compliance, quality improvement stalls, which makes the transformation of principal leadership an urgent problem worth investigating rather than a matter of preference (Bellibaş et al., 2021; Hermansson, 2025; Umar et al., 2025).

Research on leadership and *madrasah* quality has clustered around three recurring themes. The first treats transformational leadership as a driver of teacher performance and institutional quality, with studies showing that vision, inspiration, and individualized support can raise instructional practice and school outcomes in Islamic educational settings (Peng et al., 2024). The second theme reframes leadership as a sustainability problem, arguing that the durability of quality depends on systems thinking, collaborative responsibility, and future orientation rather than on a leader's short-term achievements (Ali Mohammad Al-khamaiseh et al., 2025). The third theme locates quality in the organization itself, identifying sustainable leadership, shared vision, pluralistic communication, collective efficacy, and adaptability as characteristics of school organizations capable of sustaining effective education (Verhelst et al., 2022). Read together, these strands converge on a shared claim: quality is a collective, system-level property, not the output of a single heroic principal.

The convergence of that literature, however, exposes what it has left unexamined. Existing studies establish that transformational and sustainable leadership are associated with higher quality, and reviews have mapped the constructs with considerable precision, yet they rarely show the concrete mechanism through which quality, once achieved, is kept alive when policies shift or leaders change. Much of the evidence is either quantitative, correlating leadership dimensions with outcome scores, or synthetic, reviewing definitions across many contexts, which leaves the situated, day-to-day practices of *madrasah* principals underdescribed. This study addresses that gap by tracing how principals in three *madrasahs* actually build and sustain a quality ecosystem in practice, and its novelty lies in specifying the sustaining mechanism itself, namely the weaving of discrete initiatives into a feedback-rich network anchored in institutional routines rather than in a leader's persona.

Building on that gap, this study pursues two explicit objectives. It first analyzes how *madrasah* principal leadership is transformed to strengthen a quality culture in State Islamic Senior High Schools in Medan City, and it then examines the strategies principals employ to develop a collaborative, adaptive, innovative, and sustainable educational quality ecosystem. Framing the inquiry around these two objectives allows the study to move beyond confirming that transformational leadership matters, and toward explaining how its effects are structured and sustained within a specific institutional fabric. In doing so, the research extends the sustainable-leadership literature from the level of construct definition to the level of observable practice, offering both a theoretical account of how quality is institutionalized and a practical reference for *madrasah* governance and leadership development.

Methodologically and substantively, the study centers on understanding rather than measurement, since the questions it raises concern meaning, process, and interaction that numbers alone cannot capture. Its central argument is that the transformation of principal leadership functions as a strategic force for sustainability precisely when it is externalized into shared structures, such as participatory forums, learning communities, resource partnerships, and internal audit cycles, that continue to operate independently of any individual leader. The exploration therefore attends closely to what principals, teachers, staff, and committee members say and do, and to the documents and observed practices that corroborate their accounts across three sites. Establishing this focus on situated, triangulated practice sets the stage for the methodological choices described in the following section, where the multi-site case study design and the analytic procedures are detailed.

RESEARCH METHOD

This study employed a qualitative approach with a multi-site case study design to develop an in-depth understanding of how *madrasah* principal leadership is transformed in building a sustainable educational quality ecosystem in State Islamic Senior High Schools (Madrasah Aliyah Negeri, MAN) in Medan City (Alkaabi, 2025; Emmanuel & Valley, 2022; Shan et al., 2024). A qualitative approach was chosen because the study centers on processes, experiences, leadership practices, social interactions, and the meanings that organizational actors construct within the natural setting of the *madrasah*, rather than on measurable variables (Côté-Boileau et al., 2020; Harley & Cornelissen, 2022; Pratt et al., 2022). Earl Rinehart (2021) explains that qualitative inquiry is used to explore and interpret the meanings that individuals or groups assign to a social or human problem, with the researcher acting as the primary instrument of data collection and interpretation. A multi-site case study design was adopted because the research examines the same leadership phenomenon across three institutions, MAN 1 Medan, MAN 2 Model Medan, and MAN 3 Medan, which allows both a close reading of practices within each *madrasah* and a comparison of patterns across the three sites, thereby strengthening the transferability of the findings beyond a single institution (Tieman & Lewis, 2021; Ventrella et al., 2020).

Data were collected between February 10 and April 28, 2025, through three complementary techniques: in-depth interviews, non-participant observation, and document analysis. Informants were selected purposively to capture leadership from multiple vantage points, and comprised the principals of the three *madrasahs* as the primary informants, together with vice principals, teachers, administrative staff, and school committee representatives, yielding 13 informants in total. Interviews explored the transformation of leadership practices, the development of a quality-oriented vision, teacher empowerment, the cultivation of a quality culture, instructional innovation, cross-stakeholder collaboration, and strategies for sustaining quality improvement (Ahmad & Wilkins, 2025; Ahmed, 2023; Denieffe, 2020). Observation focused on naturally occurring events that reveal these practices in situ, including a quarterly program evaluation meeting, an internal learning-community session, and the physical artifacts of quality culture in the *madrasah* environment. Document analysis examined institutional records that corroborate informant accounts, ranging from medium-term work and quality plans to meeting minutes, internal quality-audit reports, decrees establishing the learning-community team, and memoranda of understanding with external partners. The profile of informants is presented in Table 1.

Table 1. Profile of Research Informants Across the Three Sites

Code	Role / position	Site	Data collection date
KM1	Principal	MAN 1 Medan	February 17, 2025
KM2	Principal	MAN 2 Model Medan	February 24, 2025
KM3	Principal	MAN 3 Medan	March 5, 2025
WKK1	Vice principal, curriculum	MAN 1 Medan	February 19, 2025
WKS2	Vice principal, infrastructure	MAN 2 Model Medan	February 26, 2025
WKH3	Vice principal, public relations	MAN 3 Medan	March 7, 2025
G1	Physics teacher (MGMP coordinator)	MAN 1 Medan	February 21, 2025
G2	Arabic-language teacher	MAN 2 Model Medan	February 28, 2025
G3	Mathematics teacher	MAN 3 Medan	March 12, 2025
TK1	Head of administration	MAN 1 Medan	February 22, 2025
TK2	SIMPATIKA/EMIS management staff	MAN 2 Model Medan	March 3, 2025
KOM1	Chair of the school committee	MAN 1 Medan	March 14, 2025
KOM2	Parent representative	MAN 2 Model Medan	March 18, 2025

Data analysis followed the interactive model developed by Miles, Huberman, and Saldaña, which comprises data condensation, data display, and conclusion drawing and

verification, treated as a continuous process that began during data collection and proceeded until credible findings were established (Bingham, 2023; Laari, 2025). Interview recordings were transcribed, and the transcripts, observation notes, and documents were coded and organized according to the two guiding research themes, namely the transformation of leadership for strengthening quality culture and the strategies for building a sustainable quality ecosystem. Condensed data were then displayed in thematic matrices that juxtaposed evidence from interviews, observation, and documents for each sub-finding, making convergences and divergences across sources and sites visible. Trustworthiness was established through source and method triangulation, comparing accounts among principals, vice principals, teachers, administrative staff, and committee members, and cross-checking interview findings against observational and documentary evidence, so that each interpretation rests on more than one line of evidence (Adler, 2022). Because the study is a multi-site case study of named institutions, particular care was taken to ground every claim in convergent data before it was advanced as a finding.

RESULT AND DISCUSSION

Results

Transforming Madrasah Principal Leadership to Strengthen a Quality Culture

The first set of findings shows that leadership in the three State Islamic Senior High Schools (MAN) in Medan City has moved away from a managerial pattern centered on administrative routine toward one that treats the cultivation of quality and the mobilization of people as the core of the principal's work. This shift is not merely a change in personal style; it is a change in what counts as the principal's primary task, from safeguarding bureaucratic order to driving the learning process. The principal of MAN 1 Medan described the reallocation of his attention in concrete terms:

"In the past, the madrasah principal spent most of his time behind a desk signing accountability reports and routing correspondence. Now we have changed that focus: seventy percent of our energy goes to clinical supervision, quality dialogue, and motivating teachers. We want the madrasah to become an adaptive learning ecosystem for the digital era, not merely an implementer of bureaucracy." (KM1, interview, February 17, 2025, translated)

The shift the principal described was corroborated from the teachers' side, where it registered not as a statement of vision but as a change in how the principal was present in their daily work. A teacher who also coordinates the subject-teacher working group (MGMP) at the same *madrasah* recounted:

"He is present not as a superior looking for administrative errors in our teaching materials, but as a mentor. When a teacher struggled to apply differentiated assessment, the principal facilitated an in-house workshop and sat through it from beginning to end, simply listening." (G1, interview, February 21, 2025, translated)

These two accounts matter because they issue from different positions yet converge on the same change. The principal spoke of redirecting his energy toward clinical supervision and quality dialogue, while the teacher witnessed its tangible form in the principal's attentive presence throughout a coaching session. What changed was not only the frequency of interaction but the principal's position within it, moving from the party who inspects administrative compliance to the party who facilitates the improvement of teaching practice. This relocation of the principal's role is what marks the transformation as structural rather than a mere improvement in personal disposition.

The transformation is equally visible in how quality-related decisions are made. Rather than setting targets unilaterally, principals built mechanisms that positioned members of the *madrasah* as authors of programs rather than executors of them. The principal of MAN

2 Model Medan explained the mechanism he established:

"In formulating quality targets and the annual budget plan, we do not use a top-down approach. We form a cross-unit Madrasah Development Team consisting of junior teachers, senior teachers, and administrative staff. Before a final draft is decided, we hold an open hearing forum so that a sense of program ownership can grow." (KM2, interview, February 24, 2025, translated)

This participatory practice was not the principal's claim alone, because its effects were felt directly by those working beneath him. The vice principal for curriculum at MAN 1 Medan described the concrete difference between the old pattern and the current one:

"The difference is felt in the openness of the space to speak. Previously, programs came down directly as assignment decrees, but now program designs are deliberated first in plenary meetings. A teacher proposal on laboratory digitalization was accommodated at once and entered the list of priority programs." (WKK1, interview, February 19, 2025, translated)

Field observation confirmed that this openness genuinely occurs in practice, not only in informants' statements. At the quarterly program evaluation meeting at MAN 2 Model Medan (Observation, March 10, 2025), the meeting was interactive: the principal opened the session by displaying curriculum attainment data, then gave the floor to teacher and homeroom teacher representatives to present their difficulties, until a decision to revise the olympiad tutoring schedule was reached by consensus rather than by unilateral instruction. The consistency among the principal's account, the vice principal's testimony, and what was observed in an actual forum indicates that participatory decision-making has become a way of working rather than a rhetorical claim. The process also leaves a documentary trace in the minutes of the Madrasah Development Team plenary and hearing forum dated January 15, 2025, signed by representatives of teachers, administrative staff, and the school committee, so that the claim of participation rests on a verifiable written record.

A third dimension of this transformation is the effort to make quality a daily habit rather than a seasonal activity performed in the run-up to accreditation. The principal of MAN 3 Medan emphasized that quality assurance runs on an internal cycle far tighter than the official accreditation timetable:

"We instill the mindset that quality is the madrasah's daily self-respect. We apply a quarterly evaluation cycle. Without waiting for the five-year national accreditation cycle, every three months we evaluate students' learning attainment and work discipline through internal peer audits." (KM3, interview, March 5, 2025, translated)

This statement is supported by two further forms of evidence showing that the quality culture has been institutionalized as a system and an artifact rather than remaining an intention. The fourth-quarter Internal Quality Audit report contains a summary of attainment against process and infrastructure standards together with a sheet of follow-up recommendations, which signals that the quarterly evaluation genuinely produces working documents rather than ceremonial meetings. Observation of the physical environment at MAN 3 Medan (Observation, March 18, 2025) reinforced this picture: an interactive digital board in the main corridor displayed the vision and mission, the indicators of monthly quality-target attainment, and students' competition achievements, making quality targets something posted and monitored within the everyday space of the *madrasah* community. When oral testimony, audit documentation, and physical artifacts all point to the same thing, the quality culture here can be read as something already embedded in routine rather than summoned briefly to satisfy an external assessment.

The evidentiary basis for this first theme is drawn together in the triangulation matrix presented in Table 2.

Table 2. Cross-Source Triangulation of Evidence for Leadership Transformation and Quality Culture

Sub-finding	Interview evidence	Observation evidence	Documentary evidence
Shift from administrative to visionary–instructional role	KM1 reallocating 70% of effort to supervision and quality dialogue; G1 witnessing mentoring over fault-finding	Principal giving substantive pedagogical feedback during the learning-community session (Obs. Two, Mar 13)	Medium-Term Work Plan (RKJM/RKM 2024–2027) setting strategic quality targets
Participatory, open decision-making	KM2 on the cross-unit Development Team and hearing forum; WKK1 on plenary deliberation and an accommodated teacher proposal	Consensus-based revision of the tutoring schedule at the quarterly meeting (Obs. One, Mar 10)	Minutes of the Development Team plenary and hearing forum, signed by teachers, staff, and committee (Jan 15, 2025)
Quality as institutionalized daily habit	KM3 on the quarterly internal evaluation and peer-audit cycle	Digital board displaying vision, monthly quality indicators, and achievements (Obs. Three, Mar 18)	Fourth-quarter Internal Quality Audit report with follow-up recommendations

Read across its rows, Table 1 shows that no sub-finding in this theme rests on a single voice or a single kind of evidence; each is anchored simultaneously in what informants said, what was observed in situ, and what institutional documents record. This convergence is analytically significant because it distinguishes a leadership transformation that is merely proclaimed from one that has left tracks in the *madrasah's* meetings, its corridors, and its audit files. The pattern that emerges is a principal role whose center of gravity has moved from certifying compliance to authoring and sustaining the conditions for learning, with the participatory forum and the internal audit cycle functioning as the structural devices that hold that new orientation in place.

Madrasah Principals' Strategies for Building a Sustainable Educational Quality Ecosystem

The second set of findings shows that the sustainability of quality was not pursued by principals acting alone but through strategies that link teachers, administrative staff, the school committee, parents, and external partners into a single mutually supporting network. The starting point of this strategy is the empowerment of teachers through a learning community that is regularly scheduled and institutionally backed. A mathematics teacher at MAN 3 Medan described its concrete form:

"We revitalized the madrasah's internal MGMP into a weekly learning community held every Thursday afternoon. There, teachers dissect STEAM-based teaching modules and case studies of students' learning difficulties together. The principal provides attendance incentives and internal coaching certificates." (G3, interview, March 12, 2025, translated)

Support for teacher development did not stop at the weekly forum but extended to further study and recognition of achievement. The principal of MAN 1 Medan recounted that the *madrasah* allocates a dedicated budget and offers public appreciation to accomplished teachers:

"We encourage teachers to pursue further study in their field and allocate a budget line for self-directed digital-platform training. Teachers who excel or produce instructional-media publications are recognized at the monthly flag ceremony." (KM1, interview, February 17, 2025, translated)

Taken together, these two accounts depict teacher empowerment operating on two levels at once. At the collective level, the weekly learning community becomes a space where teachers jointly dissect teaching modules and cases of learning difficulty, so that the improvement of competence proceeds as a shared process rather than an individual burden. At the individual level, support for further study, a training budget, and public appreciation supply incentives that make self-development worthwhile in teachers' eyes. Observation of the learning-community activity at MAN 1 Medan (Observation, March 13, 2025) revealed the tangible shape of this forum: 18 teachers from the mathematics and natural-science cluster ran a microteaching simulation of an interactive module, and the principal was present to give substantive feedback and to note the need for additional teaching aids. The principal's presence, not merely to open the event but to engage with its technical substance, confirms that teacher empowerment here is a process facilitated and closely stewarded by the leader. The existence of a decree establishing the Learning Community Team and a portfolio report of teacher training rounds out the picture with the administrative trace that underwrites the program's continuity.

A further strategy addresses resource constraints through partnership while simultaneously driving instructional innovation in the classroom. Limited facilities were treated not as grounds for inaction but as an entry point for mobilizing the support of others. The vice principal for infrastructure at MAN 2 Model Medan explained the arrangement for sharing the burden with the committee and alumni:

"We addressed the shortage of smart classrooms through a rotational hybrid model and partnership with alumni and the school committee. The committee funded the procurement of fifteen interactive projectors, while the madrasah covered the provision of a dedicated fiber-optic internet connection." (WKS2, interview, February 26, 2025, translated)

This provision of facilities ultimately fed into a change in how lessons are taught, as a teacher of Arabic at the same *madrasah* recounted:

"In class, we are encouraged to use blended learning and project-based learning that integrate Islamic values with modern science. The madrasah provides an integrated learning-management system account so that the record of students' assignments can be monitored in real time." (G2, interview, February 28, 2025, translated)

The link between these two accounts reveals the internal logic of the strategy: procuring facilities through partnership is not an end in itself but a precondition for instructional innovation that fuses Islamic values with modern science. Resource optimization and instructional innovation run as a single sequence, in which the interactive projectors and network procured jointly with the committee become the foundation for adopting blended and project-based learning. The durability of this partnership pattern is recorded in a memorandum of understanding between the *madrasah*, the committee, and business and industry partners covering student research internships, computer-vocational certification, and infrastructure assistance, so that the multi-party synergy has an institutional basis and does not rest on personal relationships alone.

At the same time, this study found that the transformation did not unfold without friction, and the way principals handled that friction was itself part of the strategy for sustainability. Not all teachers welcomed change with equal readiness; some senior teachers in fact showed resistance to digitalization. A staff member responsible for the SIMPATIKA/EMIS systems at MAN 2 Model Medan described how this resistance was managed:

"At the start of the transition to digital attendance and e-learning, there was resistance from several senior teachers who were not yet accustomed to the technology. The principal did not issue stern reprimands but instead created a mentoring 'buddy

system,' in which younger teachers accompanied senior teachers one by one until they became proficient." (TK2, interview, March 3, 2025, translated)

The presence of this resistance is worth recording because it shows that the quality ecosystem was not built upon uniform acceptance. The principal's response, choosing peer mentoring over sanction, demonstrates that the strategy for sustainability was carried out by drawing in those who lagged behind rather than pushing them aside, so that collaboration served simultaneously as a mechanism for overcoming internal resistance. This collaborative network then extended to the committee and parents, who were involved beyond the role of funders. The chair of the school committee at MAN 1 Medan described a more substantive form of involvement:

"The school committee is actively involved in designing the flagship extracurricular programs in research and robotics, not merely signing off on voluntary contributions. Transparency in the use of funds has sharply increased parents' trust." (KOM1, interview, March 14, 2025, translated)

Before drawing this theme together, it is useful to see how the three sites differed in the emphasis of their strategies, as summarized in Table 3.

Table 3. Cross-Site Comparison of Sustainability Strategies Across the Three Madrasahs

Strategic dimension	MAN 1 Medan	MAN 2 Model Medan	MAN 3 Medan
Signature emphasis	Teacher empowerment and public recognition of achievement	Resource partnership and management of teacher resistance	Institutionalized internal quality-assurance cycle
Teacher development mechanism	Budgeted further study and self-directed digital training; monthly recognition	Buddy-system mentoring for reluctant adopters	Weekly STEAM-based learning community with incentives
Resource and innovation strategy	Learning community as innovation hub (microteaching, interactive modules)	Committee-funded projectors plus <i>madrasah</i> -funded fiber network; hybrid rotation	LMS-supported blended and project-based learning
Stakeholder collaboration	Committee co-designing research and robotics programs	MoU with committee and industry for internships and certification	Peer-audit collaboration in quarterly evaluation
Primary evidence base	Interview (KM1, G3), Observation 2, decree and training portfolio	Interview (WKS2, TK2), Observation 1, MoU document	Interview (KM3, G3), Observation 3, Internal Quality Audit report

Table 2 makes clear that sustainability at the three madrasahs was not achieved through an identical formula but through complementary emphases that nonetheless share a common architecture. MAN 1 Medan leaned on teacher empowerment and recognition, MAN 2 Model Medan on resource partnership and the careful absorption of resistance, and MAN 3 Medan on a tightly institutionalized internal audit cycle; yet in every case the same underlying logic recurs, in which the principal connects distinct actors and resources into a self-reinforcing chain of development, evaluation, and improvement. The analytic weight of this cross-site pattern is that it locates sustainability not in any single flagship program but in the capacity to weave programs into a network, so that the failure or maturation of one node does not leave the system without support. Empowering teachers, optimizing resources through partnership, innovating in the classroom, absorbing resistance through peer mentoring, and involving the committee substantively do not stand as separate initiatives but as interlocking nodes within one quality network. The consistency of evidence across sources, from quotations spanning informant roles, to observation notes, to institutional documents such as decrees, audit reports, and memoranda of understanding, indicates that this ecosystem is not a paper concept but a working pattern with the institutional anchoring needed to be carried forward.

Discussion

The transformation observed across the three madrasahs confirms, but also sharpens, the classical account of transformational leadership (Umar et al., 2025). Saad Alessa (2021) framed such leadership as a process in which leaders and followers raise one another's motivation, ; Eaton et al. (2024) specified its dimensions as idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. The principals in this study display these dimensions clearly, from the modeling role that MAN 1's principal described to the individualized mentoring embedded in the buddy system at MAN 2 Model. Yet the findings extend this literature in an important respect. Where much prior work treats transformational leadership as a property of the leader's behavior toward followers, the evidence here shows the dimensions realized through institutional devices rather than personal charisma alone: the hearing forum, the Madrasah Development Team, and the quarterly peer audit are the vehicles through which inspiration and stimulation actually reach teachers. Konstantinidou and Kyriakides (2022) argued that school leaders influence learning indirectly by shaping organizational conditions, and the present study specifies what those conditions concretely look like in an Indonesian madrasah setting.

The second theme speaks directly to the quality-management and quality-culture traditions. (Konstantinidou & Kyriakides, 2022) located quality in continuous systemic improvement rather than in periodic inspection, and (Mittal et al., 2023) argued that total quality management in education depends on the involvement of every member of the institution. The quarterly internal audit cycle at MAN 3 Medan operationalizes precisely this principle, converting an abstract commitment to continuous improvement into a scheduled, documented routine that does not wait for the five-year accreditation clock. (Olsen et al., 2023) account of culture as shared assumptions learned collectively, and (Şamlı, 2025) analysis of how school culture shapes members' responses to change, help explain why the digital quality board and the peer-audit habit matter: they are the visible artifacts and repeated practices through which a quality orientation becomes taken for granted. The study thus supports (Yaraş & Gündüzalp, 2025), who found that quality culture is strengthened through instructional leadership, professional collaboration, and the use of data, while adding a concrete Indonesian case in which those mechanisms are observable in a single institutional fabric.

The collaborative architecture documented here aligns with the ecosystem and learning-organization perspectives that motivated the study. (Kurpius, 1993) described organizations capable of collective learning, (Garbarino, 1980) modeled development as the product of interacting environmental systems, and (Olsen et al., 2023) identified shared vision, sustainable leadership, pluralistic communication, collective efficacy, and adaptability as markers of sustainable school organizations. The multi-stakeholder network in these madrasahs, spanning teachers, administrative staff, alumni, the school committee, parents, and industry partners, exhibits these markers in practice, and the memorandum of understanding with committee and industry partners gives the network a contractual permanence beyond personal ties. This finding also resonates with (Harris & Jones, 2010) and (Hargreaves & O'Connor, 2025) on collaborative professionalism, but the *madrasah* case contributes a distinctive element largely absent from that Western-derived literature: the integration of Islamic values with modern science as the substantive content around which the collaboration is organized, visible in the STEAM-based learning community and the value-integrated project-based learning at MAN 2 Model.

A particularly instructive finding concerns the handling of resistance, which the sustainability literature often underspecifies. (Hargreaves, 2009) argued that sustainable leadership must build capacity so that improvement endures beyond any individual (Joyce & Calhoun, 1991) emphasized that real change alters organizational capacity and culture rather than merely implementing new policies. The buddy system at MAN 2 Model shows how capacity is built precisely at the point of friction: rather than treating senior teachers'

reluctance toward digitalization as an obstacle to be overridden, the principal converted it into an occasion for peer-to-peer capacity transfer. This reframes resistance not as the opposite of sustainability but as one of its engines, an interpretation that (Piranggada et al., 2025) diffusion model anticipates in its attention to trialability and observability, since the buddy system effectively lowered both barriers for hesitant adopters. Recent Indonesian scholarship pointing to transformational leadership as a catalyst for teacher performance (Buaja et al., 2025) and as a dominant predictor of educational quality alongside school-based management and teacher engagement (Konstantinidou & Kyriakides, 2022) is thereby given a process-level explanation: the catalytic effect operates through such concrete mechanisms of absorption and mentoring.

Read as a whole, the two themes reveal a pattern that the study's original linear model, in which leadership leads to culture, then to empowerment, then to innovation, does not adequately capture. The evidence instead describes a self-reinforcing network in which evaluation feeds back into improvement, resistance feeds back into collaboration, and documented outcomes feed back into the shared vision. Figure 1 synthesizes this pattern.

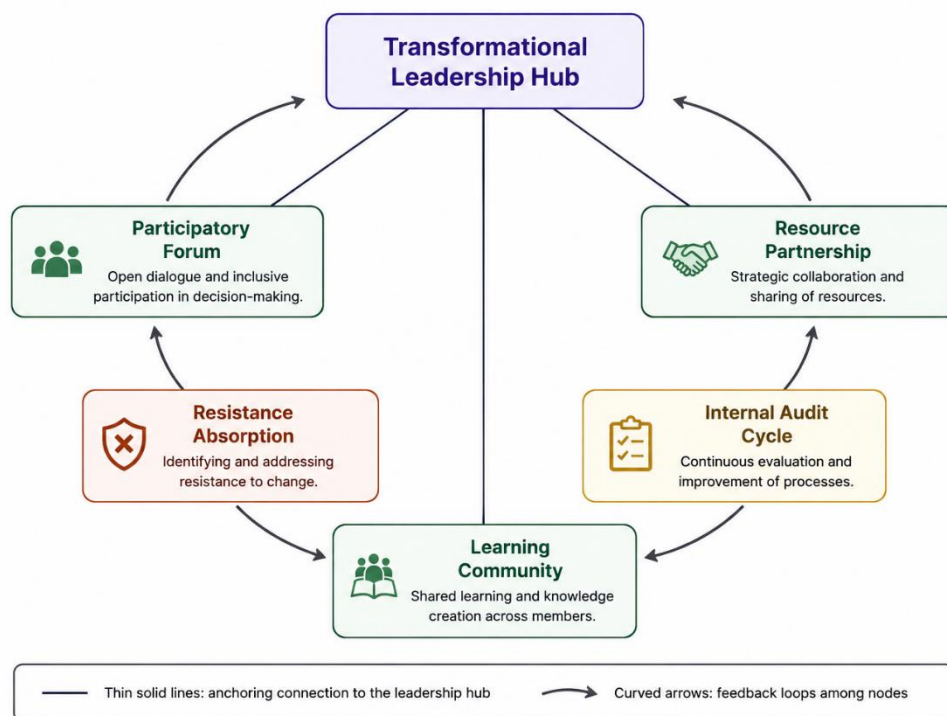


Figure 1. A network model of principal-anchored sustainability of educational quality in the three MAN of Medan City.

The synthesis in Figure 1 expresses the core theoretical contribution of this study. Rather than presenting sustainability as the endpoint of a one-directional chain, it locates sustainability in the density and feedback of the connections themselves. Transformational leadership functions as the anchoring hub, but the quality ecosystem endures because each node, the participatory forum, the learning community, the resource partnership, the resistance-absorption mechanism, and the internal audit cycle, loops back to reinforce the others rather than terminating in a final product. This is where the study departs most clearly from existing accounts. Prior work has repeatedly established that transformational leadership is associated with higher educational quality (Saad Alessa, 2021), and systematic reviews have mapped sustainable leadership as a construct (Konstantinidou & Kyriakides, 2022).

What has been less clearly specified is the mechanism by which quality, once

achieved, is kept alive when policies shift or leaders change. The present study contributes that mechanism: sustainability is produced not by any single flagship program but by a principal's capacity to weave discrete initiatives into a feedback-rich network with institutional anchoring, such that the maturation or failure of one node does not collapse the system. In terms of transformational education and learning, the contribution is to relocate the "transformational" quality from the leader's persona to the learning architecture the leader builds: teachers are transformed less by inspiration in the abstract than by being enrolled in learning communities, mentoring dyads, and audit routines that make continuous improvement a structural condition of their daily work. This offers Islamic educational management a transferable design principle, that the durability of quality depends on engineering feedback loops among stakeholders, rather than a prescription tied to the charisma of a particular *madrasah* principal.

CONCLUSION

This study set out to analyze how *madrasah* principal leadership is transformed to strengthen a quality culture and to examine the strategies through which principals build a sustainable educational quality ecosystem, and the evidence from three State Islamic Senior High Schools in Medan City shows that both processes rest on relocating leadership from administrative routine into shared institutional structures that continue to function beyond any individual leader. Several limitations qualify these findings. The study covers only three *madrasahs* in a single city over a three-month period, so its account reflects a particular urban context and cannot be generalized to rural or under-resourced *madrasahs* whose constraints differ markedly. Its reliance on interviews, observation, and documents also captures leadership as reported and observed during fieldwork rather than as it unfolds over successive leadership transitions, which is precisely where sustainability is ultimately tested. Future research would therefore benefit from longitudinal designs that follow *madrasahs* across a change of principal, from comparative studies spanning diverse regions and school types, and from mixed-method work that tests the proposed network mechanism against measurable quality outcomes.

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REFERENCES

- Adler, R. H. (2022). Trustworthiness in Qualitative Research. *Journal of Human Lactation*, 38(4), 598–602. <https://doi.org/10.1177/08903344221116620>
- Ahmad, M., & Wilkins, S. (2025). Purposive Sampling in Qualitative Research: A Framework for the Entire Journey. *Quality and Quantity*, 59(2), 1461–1479. <https://doi.org/10.1007/s11135-024-02022-5>
- Ahmed, E. I. (2023). Systematic Review of Research on Educational Leadership and Management in Muslim Societies. *Educational Management Administration and Leadership*, 51(1), 52–74. <https://doi.org/10.1177/1741143220973658>

- Ali Mohammad Al-khamaiseh, R., Bailey, R. P., & Jarvis, A. (2025). Definitions of Sustainable Leadership in Education: A Systematic Review and Analysis. *Journal of Research on Leadership Education*, 20(3), 280–297. <https://doi.org/10.1177/19427751241283029>
- Alkaabi, A. M. (2025). A Qualitative Multi-Case Study of Supervision in the Principal Evaluation Process in the United Arab Emirates. *International Journal of Leadership in Education*, 28(1), 53–80. <https://doi.org/10.1080/13603124.2021.2000032>
- Bellibaş, M. Ş., Gümüş, S., & Liu, Y. (2021). Does School Leadership Matter for Teachers' Classroom Practice? The Influence of Instructional Leadership and Distributed Leadership on Instructional Quality. *School Effectiveness and School Improvement*, 32(3), 387–412. <https://doi.org/10.1080/09243453.2020.1858119>
- Bingham, A. J. (2023). From Data Management to Actionable Findings: A Five-Phase Process of Qualitative Data Analysis. *International Journal of Qualitative Methods*, 22, 16094069231183620. <https://doi.org/10.1177/16094069231183620>
- Buaja, T., Abdullah, N., Abubakar, D., Hartina, S., & Sahjat, S. (2025). Principal Leadership as a Catalyst for Teacher Performance Improvement in Primary Education. *Education*, 18(2), 222–229. <https://doi.org/10.59397/edu.v3i2.88>
- Côté-Boileau, É., Gaboury, I., Breton, M., & Denis, J. L. (2020). Organizational Ethnographic Case Studies: Toward a New Generative In-Depth Qualitative Methodology for Health Care Research? *International Journal of Qualitative Methods*, 19. <https://doi.org/10.1177/1609406920926904>
- Denieffe, S. (2020). Commentary: Purposive Sampling: Complex or Simple? Research Case Examples. *Journal of Research in Nursing*, 25(8), 662–663. <https://doi.org/10.1177/1744987120928156>
- Earl Rinehart, K. (2021). Abductive Analysis in Qualitative Inquiry. *Qualitative Inquiry*, 27(2), 303–311. <https://doi.org/10.1177/1077800420935912>
- Eaton, L., Bridgman, T., & Cummings, S. (2024). Advancing the Democratization of Work: A New Intellectual History of Transformational Leadership Theory. *Leadership*, 20(3), 125–143. <https://doi.org/10.1177/17427150241232705>
- Emmanuel, S., & Valley, C. A. (2022). A Qualitative Case Study of Exemplary Principal Leadership in the United States Virgin Islands: An Application of Kouzes and Posner's Five Practices of Exemplary Leadership. *Journal of Research on Leadership Education*, 17(3), 243–264. <https://doi.org/10.1177/1942775121990054>
- Garbarino, J. (1980). The Ecology of Human Development: Experiments by Nature and Design. *Children and Youth Services Review*, 2(4). [https://doi.org/10.1016/0190-7409\(80\)90036-5](https://doi.org/10.1016/0190-7409(80)90036-5)
- Hargreaves, A. (2009). Sustainable Leadership. In *The Essentials of School Leadership*. Jossey-Bass. <https://doi.org/10.4135/9781446288290.n11>
- Hargreaves, A., & O'Connor, M. T. (2025). Collaborative Professionalism: When Teaching Together Means Learning for All. In *Collaborative Professionalism: When Teaching Together Means Learning for All*. Corwin. <https://doi.org/10.4135/9781506328133>
- Harley, B., & Cornelissen, J. (2022). Rigor With or Without Templates? The Pursuit of Methodological Rigor in Qualitative Research. *Organizational Research Methods*, 25(2), 239–261. <https://doi.org/10.1177/1094428120937786>
- Harris, A., & Jones, M. (2010). Professional Learning Communities and System Improvement. *Improving Schools*, 13(2), 172–181. <https://doi.org/10.1177/1365480210376487>
- Hermansson, C. (2025). Middle Leaders and School Improvement Work in Light of Principal Turnover. *Educational Management Administration and Leadership*. <https://doi.org/10.1177/17411432251376133>

- Joyce, B., & Calhoun, E. (1991). The New Meaning of Educational Change. *School Effectiveness and School Improvement*, 2(4). Teachers College Press.
<https://doi.org/10.1080/0924345910020406>
- Konstantinidou, E., & Kyriakides, L. (2022). Instructional Engagement and Student Learning Outcomes: Direct and Indirect Effects Based on Country-Specific Contingencies. *Studies in Educational Evaluation*, 73. <https://doi.org/10.1016/j.stueduc.2022.101144>
- Kurpius, D. (1993). The Fifth Discipline: The Art and Practice of the Learning Organization: Book Review. *Consulting Psychology Journal: Practice and Research*, 45(4). Doubleday.
<https://doi.org/10.1037/1061-4087.45.4.31>
- Laari, L. (2025). Inductive-Deductive Qualitative Data Analysis Logic in Health Sciences Research: A Framework for Analysing Qualitative Data. *International Journal of Qualitative Methods*, 24. <https://doi.org/10.1177/16094069251381706>
- Mittal, A., Gupta, P., Kumar, V., Antony, J., Cudney, E. A., & Furterer, S. L. (2023). TQM Practices and Their Impact on Organisational Performance: The Case of India's Deming-Award Industries. *Total Quality Management and Business Excellence*, 34(11–12), 1410–1437. <https://doi.org/10.1080/14783363.2023.2177148>
- Nugraha, M. T., Mansur, M., & Kusnayati, A. (2021). Madrasah Quality Improvement Through Madrasah Ibtidaiyah Accreditation Companion Program. *TARBAWY: Indonesian Journal of Islamic Education*, 8(1), 79–90.
<https://doi.org/10.17509/t.v8i1.30931>
- Olsen, A. M., Møller, A. M., Lehmann, S., & Kiethon, A. V. (2023). Mechanisms Linking Individual and Organizational Culture Change Through Action Research: Creating Change Agents for Organizational and Food Safety Culture Development. *Heliyon*, 9(2), e13071. <https://doi.org/10.1016/j.heliyon.2023.e13071>
- Peng, Y., Alias, B. S., Wan, X., & Mansor, A. N. (2024). The Impact of Sustainable Leadership on Education Quality: A Systematic Review. *Journal of Law and Sustainable Development*, 12(6), e3760. <https://doi.org/10.55908/sdgs.v12i6.3760>
- Piranggada, T. H., Triyoso, M., Usman, N. K., Miad, M., Efendi, K., Aslamiah, A., & Cinantya, C. (2025). Sustainable Quality Culture in Schools: A Leadership Perspective. *Curricula: Journal of Curriculum Development*, 4(2), 1679–1692.
<https://doi.org/10.17509/curricula.v4i2.90927>
- Pratt, M. G., Sonenshein, S., & Feldman, M. S. (2022). Moving Beyond Templates: A Bricolage Approach to Conducting Trustworthy Qualitative Research. *Organizational Research Methods*, 25(2), 211–238. <https://doi.org/10.1177/1094428120927466>
- Saad Alessa, G. (2021). The Dimensions of Transformational Leadership and Its Organizational Effects in Public Universities in Saudi Arabia: A Systematic Review. *Frontiers in Psychology*, 12, 682092. <https://doi.org/10.3389/fpsyg.2021.682092>
- Şamlı, E. (2025). Book Review: Understanding Organizational Culture: Innovation, Transparency, Leadership, Community. *Journal of Organizational Change Management*, 38(3), 694–695. <https://doi.org/10.1108/JOCM-05-2025-816>
- Shan, X., Yulian, Z., Ng Mooi, A., & Jiwen, L. (2024). Shadowing as a Method of Principal Development: A Qualitative Cross-Case Study in China. *Educational Management Administration and Leadership*, 52(3), 629–665.
<https://doi.org/10.1177/17411432221074885>
- Tieman, J., & Lewis, V. (2021). Benefits of Structured Engagement With Target Audiences of a Health Website: Study Design for a Multi-Case Study. *Healthcare (Switzerland)*, 9(5), 600. <https://doi.org/10.3390/healthcare9050600>
- Umar, A., Kadarisman, Y. P., & Rahman, M. R. (2025). Transformational Leadership and STEM Achievement in Indonesian Madrasahs: Insights From National Science Competitions. *Leadership and Policy in Schools*, 1–15.
<https://doi.org/10.1080/15700763.2025.2608044>

- Ventrella, J., Zhang, S., & MacCarty, N. (2020). An International, Multi-Site, Longitudinal Case Study of the Design of a Sensor-Based System for Monitoring Impacts of Clean Energy Technologies. *Design Studies*, 66, 82–113. <https://doi.org/10.1016/j.destud.2019.11.006>
- Verhelst, D., Vanhoof, J., de Maeyer, S., Sass, W., & Van Petegem, P. (2022). Enabling Effective Education for Sustainable Development: Investigating the Connection Between the School Organization and Students' Action Competence. *Journal of Environmental Education*, 53(4), 171–185. <https://doi.org/10.1080/00958964.2022.2072797>
- Yaraş, Z., & Gündüzalp, S. (2025). Quality Culture and Impact Dynamics in Educational Institutions: A Qualitative Analysis Based on the Experiences of School Administrators. *Discourses on Culture*, 24(1), 287–324. <https://doi.org/10.2478/doc-2025-0021>