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A Grounded Theory of Structured Improvisation in Remote Madrasah Principalship

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Abstract

This study investigates how a Madrasah principal in a remote area of Indonesia manages everyday institutional challenges under conditions of limited resources, administrative uncertainty, and geographic isolation. The research addresses the limited availability of context-sensitive leadership models for remote Madrasahs and examines improvisation as an adaptive managerial practice. Using a qualitative grounded theory approach developed by Anselm Strauss and Juliet Corbin and refined by Kathy Charmaz, the study was conducted at MIN 3 Merangin, a remote Madrasah in Jambi Province, Indonesia. Data were collected through semi-structured interviews, participant observation, and document analysis during a twelve-week field study. Fourteen interviews and seven observation sessions were analysed through open, axial, and selective coding alongside constant comparative analysis. The analysis generated a core category labelled structured improvisation, referring to the principal's ability to make rapid decisions while remaining guided by implicit institutional boundaries. Three major dimensions emerged from the data: triggers of improvisation, hidden structural boundaries, and organisational as well as personal consequences. Improvisational actions were consistently shaped by three unwritten principles: adherence to regulations, preservation of community trust, and conservation of future resources. Although these practices enabled the Madrasah to maintain operational continuity during frequent disruptions, they also produced emotional strain and professional fatigue for the principal. The study concludes that structured improvisation represents an adaptive and experience-based leadership competence rather than a managerial deficiency. The grounded theory developed in this study offers a contextually grounded framework for understanding leadership practices in remote Madrasah settings.

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Introduction

Educational leadership has long been recognised as a central factor influencing school quality, institutional effectiveness, and student achievement, with principals occupying a strategic role in shaping instructional practices, organisational stability, and school development (Bush, 2020). In environments characterised by limited resources and weak institutional support, the responsibilities carried by school leaders become substantially more complex. Research conducted across many countries in the Global South has shown that principals working in resource-constrained settings frequently confront challenges rarely experienced in well-funded urban schools, including persistent teacher absenteeism, inadequate infrastructure, chronic budget shortages, and fragmented administrative assistance (Hallinger, 2019). These conditions have stimulated increasing scholarly attention toward leadership approaches that are sensitive to local realities rather than relying exclusively on models derived from Western and comparatively advantaged educational systems (Caridah et al., 2025). Such conditions become even more pronounced in geographically remote areas, where physical isolation intensifies institutional limitations. A qualitative descriptive study conducted in senior high schools in Merauke Regency reported that principals faced interconnected challenges involving limited human resources, insufficient facilities, restricted funding, low student participation, and minimal governmental support, with the most severe conditions occurring in highly isolated locations (Garuda, 2024). Similar concerns were identified in research on elementary school principals in disadvantaged Indonesian regions, where the primary challenge was found not merely in geographic remoteness itself, but in the scarcity and uneven quality of human resources, forcing principals to manage institutional responsibilities with minimal assistance (Mutiaraningrum, 2022). Outside Indonesia, a multiple case study of community school headteachers in Nepal documented continuing struggles related to teacher shortages, unstable finances, and inadequate infrastructure, while also revealing the importance of resilience, community engagement, and adaptive leadership practices in sustaining school operations (Dhakal & Panta, 2026). Comparable conclusions were reported in a study of Norwegian adult education centres, where principals were required to combine formal planning with situational improvisation in response to highly unpredictable working conditions (Andersen et al., 2025).

The complexity experienced by remote schools becomes even more layered within the context of Madrasahs, Islamic educational institutions serving a substantial proportion of Indonesia's student population. Unlike public schools administered solely through the Ministry of Education, Madrasahs operate under the authority of the Ministry of Religious Affairs, generating additional bureaucratic complexity and often slowing the distribution of policy directives, administrative services, and financial support. A grounded theory study examining leadership in remote Madrasah primary schools identified three recurring domains of concern among principals: teachers, infrastructure, and management systems (Hasanah, 2021). Challenges within these domains included inadequate teacher qualifications, recurring absenteeism, deteriorating facilities, shortages of teaching materials, and inconsistent support from district authorities. Madrasahs have historically received lower per-student funding allocations compared to public schools, a disparity only partially addressed through recent policy reforms (Muhajir, 2020).

Consequently, principals frequently depend on informal and adaptive strategies for mobilising resources, despite these practices rarely being formally acknowledged within leadership training programs. A recent investigation into leadership in resource-constrained educational settings argued that effective principals in such contexts rely heavily on adaptive thinking, creativity, collaboration, and the strategic use of limited institutional capacities while gradually strengthening external support networks (Rahimi et al., 2025).

Within organisational and management studies, the concept of improvisation has received increasing scholarly attention over the last two decades. Cunha et al. (1999) described organisational improvisation as the simultaneous conception and execution of action, involving intuition, creativity, and prior experience in responding to unexpected situations. Expanding this perspective, a grounded theory study by Cunha et al., (2002) suggested that organisational improvisation tends to emerge when unexpected and significant events occur under conditions of moderate turbulence, supported by minimal structures and limited resources. In educational settings, improvisation appears to function as an everyday necessity, particularly for leaders working in remote and under-resourced schools. A phenomenological study involving school leaders in "last-mile" educational contexts reported that logistical difficulties, material shortages, bureaucratic complications, and staffing limitations were frequently managed through collaboration, improvisation, and emotional resilience (Mordeno & Rayon Jr, n.d.). Research in geographically isolated areas of the Philippines found that teachers and school leaders sustained educational continuity through adaptive problem-solving, community partnerships, and persistent improvisational efforts despite severe infrastructural limitations (Dugasan et al., 2026). Another study examining elementary school leadership in Tawi-Tawi highlighted that adaptive instructional leadership involved resourcefulness, strong community engagement, and the cultivation of positive learning environments under highly constrained conditions (JEMSY et al., 2026).

Despite growing recognition of improvisation within leadership studies, debate remains regarding its legitimacy as a managerial competence. One body of scholarship argues that improvisation represents an essential capability for responding to uncertainty and complexity, particularly in rapidly changing organisational environments where rigid adherence to predetermined plans may reduce responsiveness and effectiveness (Andersen et al., 2025; Cunha et al., 1999). An opposing perspective interprets improvisation as evidence of insufficient planning and weak organisational control, suggesting that effective institutions should rely primarily on anticipatory strategies, formal procedures, and structured contingency planning. Within the context of remote schools in Indonesia, however, the frequency and unpredictability of institutional disruptions often exceed what formal planning systems can reasonably anticipate. From this perspective, improvisation may be understood less as managerial deficiency and more as an adaptive leadership competence shaped by contextual necessity. Another ongoing debate concerns the relationship between improvisation and structure. Some scholars regard improvisation as inherently opposed to structure because it departs from established routines and procedures. Others argue that improvisation becomes most effective when operating within identifiable boundaries and shared constraints. Drawing

from analyses of jazz performance, Barrett (2012) demonstrated that highly creative improvisation often occurs within agreed harmonic structures, conventions, and rhythmic patterns rather than in the complete absence of order. The present study is positioned within this second perspective, proposing that the managerial actions of remote Madrasah principals, although outwardly spontaneous, may follow implicit structures that have not yet been systematically articulated in educational leadership research.

Several gaps remain within the literature. First, many dominant leadership frameworks continue to be developed primarily within urban or comparatively well-resourced educational environments, leaving limited understanding of how leadership is enacted in geographically isolated and institutionally constrained schools. This gap is particularly evident in the context of Madrasah leadership in Indonesia, where grounded theory studies examining how principals respond when formal systems become insufficient remain limited. Second, existing scholarship on improvisation in schools remains largely descriptive and has seldom examined the internal structure of improvisational practice, including the implicit boundaries, practical heuristics, or informal rules that may distinguish effective improvisation from reactive decision-making. Third, within formal educational discourse, improvisation often carries negative connotations because institutional ideals tend to prioritise planning, documentation, and procedural compliance. As a result, principals in remote schools may practice sophisticated forms of adaptive leadership while being evaluated according to standards that implicitly discourage such behaviour.

This study addresses these gaps by investigating the managerial practices of the principal of MIN 3 Merangin, a Madrasah located in a remote area of Merangin Regency, Jambi Province, Indonesia. The selection of MIN 3 Merangin was based on several considerations. First, while many remote schools in Indonesia are officially classified as 3T (*tertinggal, terdepan, terluar*) areas, MIN 3 Merangin occupies a distinctive position as a non-3T yet severely resource-constrained institution. This status means it does not automatically qualify for intensive government interventions targeted at 3T schools, yet it faces challenges including limited road access, intermittent internet connectivity, and distance from district administrative services that are comparable to those in officially designated remote areas. Second, preliminary observations suggested that the principal had developed problem-solving practices that combined spontaneity with consistent adherence to unspoken rules a pattern not systematically documented in previous studies. Third, the Madrasah had not previously been the subject of a grounded theory study on leadership, offering an opportunity to generate theoretical insights from a relatively under-researched context.

The study seeks to answer the following research question: What core category emerges from the data to explain how a Madrasah principal manages the everyday challenges of leadership in a remote area? Using grounded theory methodology developed by Strauss and Corbin (1998) and further developed by Charmaz (2014), the study constructs a substantive theory derived from empirical data collected through interviews, participant observation, and document analysis. The novelty of this study lies in three interconnected contributions. First, unlike previous descriptive accounts of improvisation in schools, this study develops a substantive theory of structured improvisation that explains the internal

logic and implicit rules governing spontaneous decision-making in remote educational leadership. Second, it identifies and articulates three implicit boundaries national regulations, community trust, and resource conservation that have received limited systematic documentation in the literature on Madrasah leadership. Third, it proposes a cyclical model of improvisational learning illustrating how experience, action, and reflection interact to refine leadership practice over time. These contributions shift the scholarly conversation from simply acknowledging that remote principals improvise toward examining the structure, limits, and consequences of that improvisation. Practically, the study offers a framework that may assist policymakers in designing more context-sensitive evaluation systems and help principals in similar settings recognise and improve their adaptive leadership practices.

The remainder of this article is organised into four sections. The next section outlines the grounded theory methodology employed in the study, including participant selection, data collection procedures, and coding processes. The findings section subsequently presents the core category of structured improvisation and the major themes emerging from the analysis. The discussion section then interprets these concepts in relation to existing scholarship while considering implications for policy and practice. The final section concludes the article by summarising the theoretical contribution and outlining directions for future research.

Methods

This study employed a qualitative approach using a grounded theory design originally developed by Glaser & Strauss (2010) and later refined by Strauss & Corbin (1998). Grounded theory was chosen because the study sought to generate a substantive theory emerging directly from empirical data rather than to test a pre-existing hypothesis. The phenomenon under investigation how a Madrasah principal in a remote area navigates everyday challenges has received limited theoretical attention, making grounded theory particularly suitable for exploring and conceptualizing the process in depth (Charmaz, 2014). Unlike case study or ethnographic approaches, which primarily aim to provide detailed descriptions of social phenomena, grounded theory emphasizes the development of conceptual categories and the relationships among them in order to construct a theoretical explanation of a social process (Corbin & Strauss, 2014). In the present study, the central social process concerned the principal's decision-making practices under conditions of unpredictability and limited resources, which were ultimately conceptualized as "structured improvisation."

The study was conducted at MIN 3 Merangin, a public Madrasah Ibtidaiyah located in Renah Pamenang District, Merangin Regency, Jambi Province, Indonesia. The Madrasah is situated in a remote area characterized by limited road access, unstable internet connectivity, and considerable distance from district administrative services. The school serves approximately 180 students with fifteen teachers and four administrative staff members. The research was conducted over a twelve-week period. Participant selection followed the principle of theoretical sampling (Charmaz, 2014; Glaser & Strauss, 2010). The Madrasah principal was initially selected as the primary informant because of his central role in managerial decision-making. As data analysis progressed, additional

participants including vice principals, teachers, administrative staff, and a school committee representative were selected based on emerging conceptual categories. Data collection continued until theoretical saturation was reached, indicated by the absence of new conceptual properties in three consecutive interviews (Aldiabat & Le Navenec, 2018). In total, the study involved fourteen interviews and seven observation sessions.

Data collection and analysis were conducted concurrently following the constant comparative method (Glaser & Strauss, 2010). Three methods of data collection were employed: semi-structured interviews, participant observation, and document analysis. Interviews served as the primary source of data and lasted between 45 and 75 minutes. All interviews were audio-recorded with participant consent and transcribed verbatim shortly after completion. Initial interview questions were broad and exploratory, focusing on participants' daily experiences and responses to unexpected situations. As analysis progressed, subsequent interviews became increasingly focused on emerging categories such as resource shortages, staffing adjustments, and informal problem-solving practices. Participant observation was conducted to obtain contextual and behavioural data related to the principal's daily activities, including staff coordination, meetings, problem-solving interactions, and responses to unplanned events. Field notes were recorded immediately after each observation session to capture both descriptive accounts and emerging analytical reflections. In addition, document analysis was undertaken using institutional documents such as the Madrasah Work Plan (RKM), School Activity and Budget Plan (RKAS), meeting records, accreditation reports, organisational structure documents, and internal memoranda. These documents provided contextual support and enabled comparison between formal administrative procedures and actual practices in the field.

Data analysis followed the grounded theory coding procedures proposed by Strauss & Corbin (1998), consisting of open coding, axial coding, and selective coding. During open coding, data were examined line by line to identify actions, events, and recurring patterns, resulting in 126 initial codes. Examples included "teacher absence coverage" and "personal resource bridging." In the axial coding stage, related codes were grouped into broader conceptual categories such as staffing improvisation, financial improvisation, scheduling improvisation, and documentation improvisation. Relationships among categories were then examined through causal conditions, contextual factors, action strategies, and consequences. Finally, selective coding was conducted to identify the core category integrating all conceptual findings. The analysis revealed "structured improvisation" as the central category explaining how the principal responded adaptively to recurring uncertainty and resource limitations. The constant comparative method was applied throughout all coding stages to compare incidents, categories, and emerging interpretations continuously.

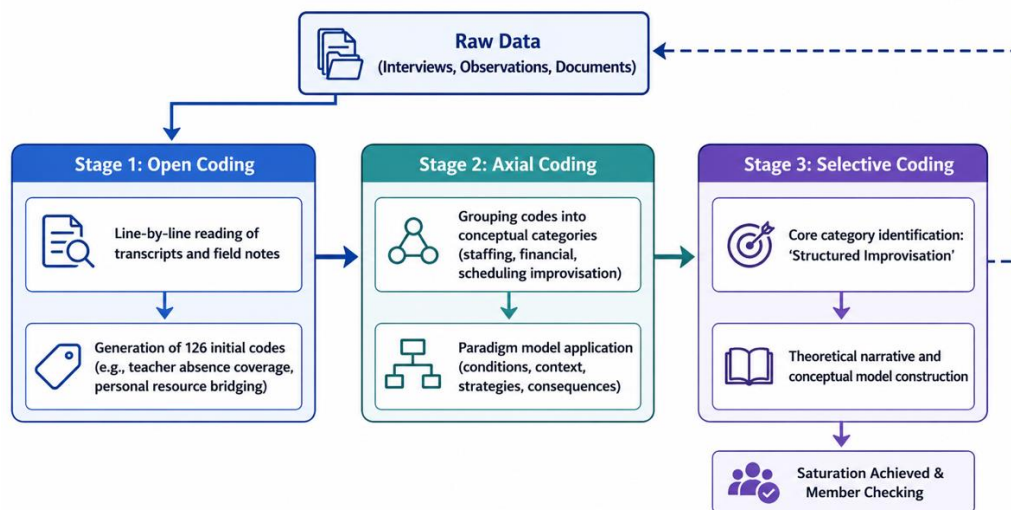


Figure 1. Grounded Theory Coding Process Applied in the Study.

Source: Developed by the author from the research findings and visualized using generative artificial intelligence (AI), 2026.

To enhance analytical rigour, reflective notes were maintained throughout the research process to document emerging interpretations and methodological decisions (Charmaz, 2014). Trustworthiness was strengthened through triangulation across interviews, observations, and documents, as well as through prolonged engagement at the research site and member checking with participants (Lincoln, 1985). Transferability was supported through detailed contextual descriptions of the research setting, while dependability and confirmability were addressed through systematic documentation of coding processes, analytical memos, and data management procedures.

Ethical Consideration

Ethical approval for the study was obtained from the relevant institutional review committee prior to data collection. All participants provided informed consent and were informed of their right to withdraw from the study at any stage. To ensure confidentiality, all identifying information was removed from transcripts and pseudonyms were used throughout the study.

Results

The grounded theory analysis of data collected at MIN 3 Merangin generated a core category labelled structured improvisation. This category explains how the Madrasah principal navigates daily managerial challenges in a remote setting characterised by limited resources, unstable infrastructure, and unpredictable external support. Structured improvisation refers to the principal's ability to make spontaneous and unplanned decisions while remaining guided by implicit rules, institutional expectations, and contextual boundaries that provide a flexible yet recognisable framework for action. The findings are organised around three major themes that emerged from the data: the triggers of improvisation, the implicit structures guiding improvisational action, and the consequences of improvisation for both the Madrasah and the principal.

The findings indicate that the principal consistently encountered situations in which formal procedures could not be implemented effectively because of sudden disruptions or the absence of necessary resources. Interview and observation data revealed recurring situations such as teachers failing to attend class without prior notice, delays in school funding, government directives arriving too late for full procedural implementation, and unexpected supervisory visits requiring immediate document preparation. In these situations, the principal often had limited opportunity to follow formal decision-making procedures such as extensive consultation or waiting for official approval. One teacher explained: *"Our principal often makes decisions on the spot because if he waits, nothing gets done."* (Teacher 3, Interview). The data suggest that improvisation was not an occasional response but rather an embedded aspect of everyday leadership practice. This finding supports previous studies on leadership in resource-constrained educational settings, where uncertainty and operational disruption are part of routine institutional life.

Although many actions appeared spontaneous, they consistently followed three unwritten principles that acted as informal boundaries, enabling rapid responses to unexpected situations without leading to administrative negligence or institutional illegitimacy. The first principle involved maintaining alignment with national education regulations. The principal never allowed improvisational actions to violate formal obligations mandated by the Indonesian Ministry of Religious Affairs, including fulfilling the minimum number of instructional hours per semester, submitting mandatory administrative reports on time, and adhering to the national examination schedule. Even under severe pressure, the principal refused to compromise on these formal requirements. For example, when a sudden teacher shortage threatened to cancel several classes, the principal combined two classes temporarily rather than reducing total instructional time. When a supervisor's unannounced visit required immediate documentation, the principal repurposed available files but ensured that all official report formats remained unchanged. The principal explicitly stated: *"I can change schedules, I can ask teachers to do extra work, but I cannot change the national exam date or ignore a directive from the ministry. Those are my boundaries"* (Principal, Interview). Thus, improvisation operated within a clear regulatory framework, where certain rules were treated as non-negotiable regardless of the urgency of the situation.

The second principle concerned preserving community trust. The principal consistently avoided decisions that could damage the reputation of the Madrasah among parents, local stakeholders, and the broader community. Trust was considered a critical resource because the Madrasah depended on parental support for enrollment, volunteer assistance, and informal fundraising. Any action that could be perceived as neglectful, unfair, or secretive was avoided, even if it might have offered a short-term solution. For instance, when a broken water pipe forced the principal to relocate classes, he moved students to a shaded yard rather than to a less visible but more convenient location that parents might have found unsafe. Parents were informed immediately about the reason for the move and the steps being taken to repair the pipe. When the principal used personal money to cover an urgent school expense, he documented the transaction and informed the school committee, ensuring transparency even though the action was unplanned. One teacher noted: *"He always makes sure parents know what is happening and why. He never hides problems,*

even when he solves them quickly" (Teacher 2, Interview). Preserving community trust acted as a powerful boundary that shaped both the content and the communication of improvisational decisions.

The third principle related to resource conservation. The principal expected any improvisational decision to avoid generating future financial or operational burdens that exceeded the Madrasah's capacity. Given the chronic budget constraints facing remote Madrasahs, short-term fixes that created long-term costs were considered unacceptable. This principle required the principal to think not only about solving the immediate problem but also about the sustainability of the solution. For example, when school funds were delayed, the principal borrowed personal money for urgent needs rather than taking out a formal loan that would incur interest or committing the Madrasah to future payments. When a teacher was absent, the principal combined classes or taught the lesson himself rather than hiring a temporary replacement who would require payment that the budget could not accommodate. The principal explained: *"If I solve today's problem by creating a bigger problem for next month, I have not solved anything. I have only postponed the crisis"* (Principal, Interview). This principle ensured that improvisational actions remained financially and operationally sustainable, distinguishing structured improvisation from reactive, short-sighted decision making. Participants frequently described this approach as *"making it work without breaking the rules"* (Vice Principal, Interview). These findings align with conceptualisations of improvisation as a constrained and experience-based practice in which creativity operates within recognised institutional and professional limits (Andersen et al., 2025; Cunha et al., 1999). Table 1 provides illustrative examples of how each trigger, improvisational action, and respected boundary operated together in specific incidents.

Table 1. Examples of Structured Improvisation at MIN 3 Merangin.

Trigger	Improvisational Action	Boundary Respected
Teacher absent without notice	Combined two classes	Curriculum hours maintained
School funds delayed	Borrowed personal money for urgent needs	No future cost created
Supervisor's unannounced visit	Quickly repurposed available documents	Official report formats still followed
Broken water pipe	Moved classes to shaded yard	Parent safety concerns addressed immediately

Source: Data compiled and processed by the author (2026).

The analysis also revealed both positive institutional outcomes and personal costs for the principal, which are summarised in Table 2 across five dimensions of Madrasah operations. As shown in the table, improvisational practices enabled the Madrasah to maintain continuity despite resource shortages, reduced the number of cancelled learning activities, and strengthened community confidence in school leadership. However, these benefits were accompanied by increased workload for the principal, chronic fatigue, emotional pressure, and limited delegation of authority. The principal rarely delegated improvisational decisions because he believed that only he fully understood the boundaries separating acceptable from unacceptable action. One vice principal remarked: *"He carries everything alone. If he is sick, we are lost"* (Vice Principal, Interview).

Table 2. Consequences of Structured Improvisation at MIN 3 Merangin.

Dimension	Positive Consequences	Negative Consequences / Trade-offs
School operations	Continuity maintained despite resource shortages; school earned reputation as “a school that never closes”	Increased workload for principal; some administrative documentation remains incomplete or retrospective
Student learning	Fewer cancelled learning activities compared to previous years; instructional time preserved	Combined classes may reduce individual student attention
Community relations	Increased parental trust and enrolment; stronger community confidence in school leadership	Principal’s personal financial exposure (unreimbursed expenses)
Principal’s well-being	Sense of efficacy from keeping school functional	Chronic fatigue, sleep difficulties, emotional pressure; limited delegation
Institutional learning	Repeated improvisation refines tacit knowledge of negotiable vs. non-negotiable rules	Risk that improvisation becomes a habitual substitute for formal planning

Source: Data compiled and processed by the author (2026).

On the positive side, teachers expressed relief that rapid decisions could still be made during urgent situations, while students experienced fewer cancelled learning activities compared to previous years. Participants also noted that the Madrasah gradually developed a reputation among parents as a “school that never closes,” contributing to increased enrolment and community confidence. However, the principal himself described experiencing chronic fatigue, sleep difficulties, and emotional pressure resulting from the continuous responsibility of making rapid decisions under uncertain conditions. Several teachers observed that the principal rarely delegated authority, not because of distrust, but because he believed that only he fully understood the limits separating acceptable from unacceptable improvisation. These findings suggest that although structured improvisation contributes to institutional resilience, it may also produce substantial emotional and managerial burdens for school leaders, a dual consequence that reflects previous studies of leadership in remote educational contexts (Ramos-Pla et al., 2021).

The grounded theory model developed from these findings proposes that structured improvisation emerges when school leaders operate in environments characterised by a high frequency of unexpected problems and limited access to formal support systems. Through repeated experience, principals gradually learn which institutional structures are flexible and which remain non-negotiable. Over time, this process develops into tacit knowledge that enables rapid yet rule-conscious decision-making. The model conceptualises structured improvisation as a cyclical process in which unexpected triggers activate improvisational responses, implicit structures shape the boundaries of action, and the resulting experiences contribute to the refinement of future responses. This interpretation is consistent with grounded theory perspectives that view human action as an iterative process of interpreting and responding to emergent social conditions (Corbin & Strauss, 2014).

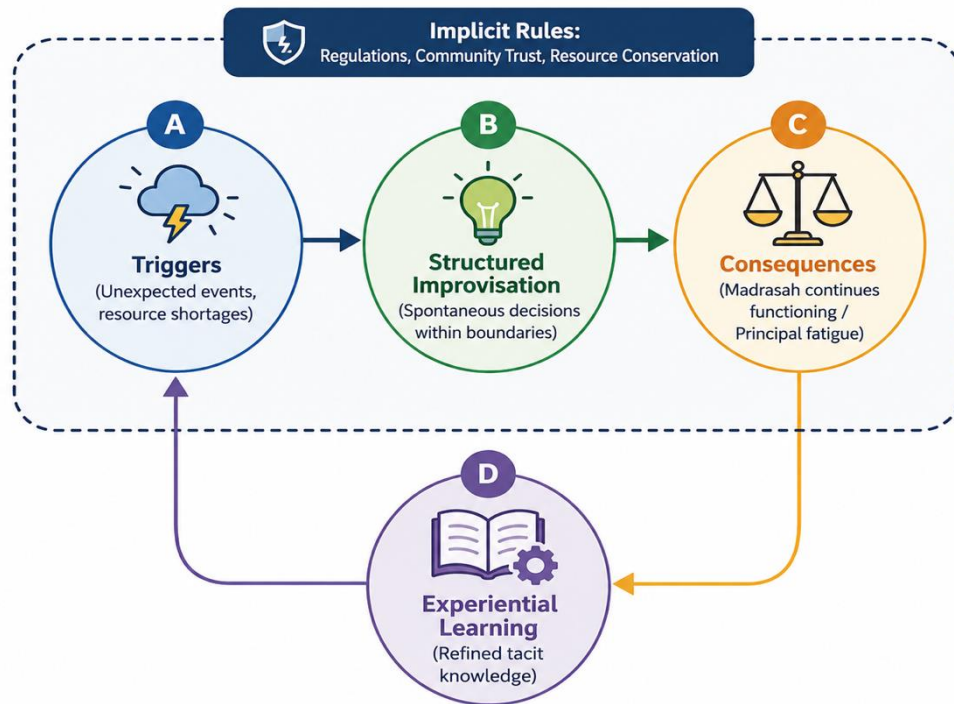


Figure 2. Model of Structured Improvisation in Remote Madrasah Principalship.

Source: Developed by the author from the research findings and visualized using generative artificial intelligence (AI), 2026.

Discussion

The grounded theory analysis presented in the Results section generated three major findings: improvisation at MIN 3 Merangin was triggered primarily by resource driven disruptions such as teacher absenteeism, funding delays, and unannounced supervisory visits; despite appearing spontaneous, the principal's improvisational actions consistently followed three implicit principles regulatory alignment, community trust preservation, and resource conservation; and structured improvisation produced dual consequences, namely institutional resilience alongside personal strain on the principal. Each of these findings is now discussed in relation to existing theories and prior empirical research, with explicit attention to where the present study reinforces, extends, or contrasts with established scholarship. Additional references have been incorporated to strengthen the theoretical grounding.

The finding that improvisation was triggered by daily disruptions directly supports the core concept of organisational improvisation proposed by Cunha et al. (1999), who defined improvisation as the simultaneous conception and execution of action in response to unexpected events. The present study reinforces this definition by documenting how the principal at MIN 3 Merangin consistently faced situations where formal procedures were impractical, as one teacher stated: *"Our principal often makes decisions on the spot because if he waits, nothing gets done"* (Teacher 3, Interview). However, the study contrasts with Cunha et al. (1999) emphasis on creativity and innovation as drivers of improvisation. At MIN 3 Merangin, the triggers were predominantly scarcity-driven rather than innovation-driven; the principal improvised not because he sought creative breakthroughs but because

material resources (teachers, money, time) were absent. This finding aligns more closely with the resource-constrained perspective advanced by Baker & Nelson (2005) in their study of entrepreneurial bricolage, where firms "*make do by applying combinations of resources at hand to new problems and opportunities*" (p. 333). Yet unlike Baker and Nelson's firms, which often pursued new opportunities through bricolage, the Madrasah principal's improvisation was largely defensive aimed at maintaining basic operations rather than pursuing innovation. Furthermore, the finding that turbulence was chronic and high-frequency contrasts with the grounded theory of Cunha et al. (2002) who proposed that improvisation emerges under conditions of "moderate turbulence." At MIN 3 Merangin, teacher absenteeism and funding delays were not occasional shocks but daily realities, placing the principal in a state of continuous partial readiness as described by Weick & Sutcliffe (2015) in their work on high-reliability organizations.

The first implicit principle regulatory alignment finds strong theoretical grounding in institutional theory, particularly the concept of coercive isomorphism (DiMaggio & Powell, 1983). Coercive isomorphism occurs when organisations comply with formal rules to avoid sanctions and secure legitimacy. At MIN 3 Merangin, the principal explicitly stated: "*I cannot change the national exam date or ignore a directive from the ministry. Those are my boundaries*" (Principal, Interview). This finding reinforces the work of Hasanah (2021) who reported that remote Madrasah principals in Indonesia felt compelled to maintain formal accountability despite lacking resources, and of Muhajir (2020) who documented that Madrasahs under the Ministry of Religious Affairs face intense scrutiny. However, the present study contrasts with Western leadership models that advocate for shared decision-making and professional autonomy over top-down compliance. For example, Bush (2020) argues that effective principals should distribute leadership and prioritise pedagogical goals over bureaucratic requirements. At MIN 3 Merangin, the principal had no time for extensive consultation, and regulatory alignment was not a pedagogical choice but a survival necessity. This contrast highlights the danger of applying participatory leadership models developed in stable, well-resourced contexts to remote, underfunded schools, a point also raised by Hallinger (2019) in his critique of Western-centric leadership research.

The second implicit principle community trust preservation can be understood through social exchange theory and the concept of relational trust in schools. Bryk & Schneider (2002) demonstrated that relational trust among principals, teachers, and parents is essential for school improvement in challenging contexts. The present study reinforces their finding by showing that trust is even more critical in remote areas, where parents have few alternative schooling options and can easily withdraw children if trust erodes. One teacher noted: "*He always makes sure parents know what is happening and why. He never hides problems, even when he solves them quickly*" (Teacher 2, Interview). This transparency directly operationalises Bryk and Schneider's dimension of "respect" and "regard" in trust relationships. However, the present study contrasts with much of the improvisation literature, which treats improvisation as an internal organisational process. For example, Moorman & Miner (1998) studied improvisation in new product development teams, focusing on internal team dynamics. At MIN 3 Merangin, improvisation had an explicit external audience: parents and the community. The principal's actions were not just

managerial but performative acts of trust maintenance, adding a community-facing dimension rarely discussed in organisational studies. A recent study by Dhakal & Panta (2026) on Nepalese community school headteachers similarly found that maintaining community trust was essential for survival, but their study did not theorise this as a boundary on improvisation; the present study thus contributes by explicitly naming community trust as a structuring principle.

The third implicit principle resource conservation connects directly to resource dependence theory by Pfeffer & Salancik (2015), which argues that organisations must manage their dependence on external resources and avoid actions that increase future vulnerability. At MIN 3 Merangin, the principal's refusal to take loans or hire temporary replacements reflects a rational strategy to preserve organisational autonomy. He explained: *"If I solve today's problem by creating a bigger problem for next month, I have not solved anything"* (Principal, Interview). This finding reinforces the work of Caridah et al. (2025) who found that principals in rural Indonesian schools developed resource-saving heuristics out of necessity, and of Rahimi et al. (2025) who reported that effective leaders in resource-constrained settings strategically use limited institutional capacities while strengthening external support networks. However, the present study contrasts with some improvisation and bricolage literature that celebrates creativity without considering long-term sustainability. Levinson & Holland (1996) originally described bricolage as "making do with whatever is at hand," and many subsequent studies (e.g., Baker & Nelson, 2005) have emphasised its positive, innovative potential. At MIN 3 Merangin, the principal was acutely aware that some "solutions" could become future problems: borrowing personal money was acceptable because it created no debt obligation, while hiring a temporary teacher was unacceptable because the budget could not sustain it. This finding adds a temporal dimension to improvisation research, specifically the need to distinguish between short-term fixes that create long-term liabilities and those that do not. The concept of intertemporal choice from behavioural economics (Frederick et al. (2002) provides a useful lens: the principal consistently avoided present bias in favour of sustainable actions.

The finding that structured improvisation produced both positive institutional outcomes (fewer cancelled classes, maintained enrolment, community confidence) and negative personal consequences for the principal (chronic fatigue, sleep difficulties, emotional pressure, limited delegation) directly relates to conservation of resources (COR) theory (Hobfoll, 2001). COR theory posits that individuals strive to protect existing resources and avoid resource loss; prolonged demands without adequate replenishment lead to burnout. The principal's chronic fatigue and isolation are classic symptoms of resource depletion, as he invested heavily in keeping the Madrasah functioning while receiving little institutional support. This finding reinforces a growing body of research on principal stress and burnout in remote schools. Ramos-Pla et al. (2021) conducted a systematic review and found that role overload, lack of resources, and emotional demands were the strongest predictors of principal burnout. The present study provides a specific mechanism linking improvisation to burnout: the cognitive burden of continuously judging boundaries between acceptable and unacceptable action. However, the finding contrasts with the normative leadership literature on shared leadership (e.g., Spillane, 2005) which assumes that delegation is always possible and desirable. At MIN 3 Merangin,

the principal's concentration of decision-making was a rational adaptation to the high stakes (violating a boundary could mean school closure or loss of community trust) and the lack of formal guidance. This suggests that in extreme contexts, centralised improvisation may be temporarily necessary, though costly. The finding also contrasts with studies that treat improvisation as intrinsically rewarding (e.g., Vera & Crossan, 2005); at MIN 3 Merangin, the principal reported a sense of efficacy, but this was outweighed by exhaustion, suggesting that chronicity of triggers may be a key moderating variable.

The grounded theory model proposing that structured improvisation operates as a cyclical process triggers, improvisational action bound by three principles, consequences, and experiential learning that refines future responses is consistent with experiential learning theory (Kolb, 2014) and double-loop learning (Argyris & Schön, 1997). The principal's ability to refine future improvisations based on past outcomes exemplifies single-loop learning, while his ability to distinguish which rules are truly fixed versus flexible suggests double-loop learning. This finding reinforces the work of (Andersen et al., 2025). Andersen found that Norwegian adult education principals blended formal planning with situational improvisation in iterative cycles. However, the present study contrasts with their context in two important ways: the cycle at MIN 3 Merangin is much shorter (sometimes hours rather than weeks) because disruptions occur daily, and the principal operates with minimal collegial reflection due to institutional isolation. Mordeno & Rayon Jr, n.d. documented similar isolation among "last-mile" school leaders in the Philippines, but they did not theorise its effect on learning cycles. The present study thus contributes by highlighting how institutional isolation can truncate the reflective phase of experiential learning, potentially reinforcing maladaptive patterns over time.

Several limitations must be acknowledged. The single-case design limits statistical generalisability; this is a substantive theory grounded in one context rather than a formal theory applicable across multiple contexts. Nevertheless, the detailed thick description provided in the Methods and Findings sections allows readers to assess transferability to similar remote schools in Indonesia or other developing countries. Future research should test the model across multiple remote Madrasahs in different provinces, as well as in non-Islamic remote schools, to see whether the three implicit principles hold or whether additional principles (e.g., political neutrality, religious orthodoxy) emerge. Quantitative studies could develop a survey instrument measuring the frequency of structured improvisation, the salience of each boundary, and the relationship with principal burnout and school outcomes. Longitudinal research could examine whether the cyclical model actually leads to improved improvisation over time or whether chronic stress erodes the principal's ability to learn.

The findings have clear implications for educational policy in Indonesia and similar contexts. Current principal evaluation systems penalise deviations from written plans, yet this study shows that such deviations are not signs of incompetence but essential survival strategies in remote areas. Therefore, policy should differentiate evaluation criteria for remote schools. One concrete recommendation is to allow principals to include an "anticipated contingencies" section in their Madrasah Work Plans (*Rencana Kerja Madrasah*, RKM), where they list potential disruptions and pre-approve families of improvisational

responses under the three principles. This would transform structured improvisation from an invisible, risky activity into an accountable professional practice, aligning with calls for flexible accountability in remote education (Vavrus & Bartlett, 2013) and contrasting with the standardisation policies that currently dominate Indonesian education (Muhajir, 2020). Additionally, district offices of the Ministry of Religious Affairs should consider reducing the frequency of unannounced supervisory visits to remote Madrasahs or providing advance notice to reduce the improvisational burden, as the present study documented that unannounced visits were a major trigger of stressful, last-minute improvisation.

For practice, two recommendations emerge. First, principals in remote areas should explicitly articulate the three boundaries (regulations, community trust, resources) to their teachers and staff. Currently, the principal at MIN 3 Merangin kept this knowledge largely to himself, leading to over-centralisation and exhaustion. By training teachers to recognise these boundaries, principals could gradually delegate some improvisational decisions, reducing isolation while maintaining structured discipline. Second, district education offices should facilitate peer support networks for remote principals, providing structured opportunities to share improvisational experiences and learn from one another. Such networks could be organised through quarterly face-to-face meetings or, where connectivity permits, dedicated WhatsApp groups. Dugasan et al. (2026) reported that Filipino teachers in isolated areas benefited significantly from such peer networks, and the present study suggests that principals would similarly gain.

In summary, each finding from the Results section has been connected to established theories: resource dependence theory (Pfeffer & Salancik, 2015), institutional theory (DiMaggio & Powell, 1983; Thornton, 2012), social exchange and relational trust (Blau, 2017; Bryk & Schneider, 2002) conservation of resources theory (Hobfoll, 2001), and experiential learning theory (Argyris & Schön, 1997; Kolb, 2014). The study has reinforced prior empirical research (Andersen et al., 2025; Caridah et al., 2025; Dhakal & Panta, 2026; Hasanah, 2021; Rahimi et al., 2025; Ramos-Pla et al., 2021) and also identified contrasts particularly with Western-centric participatory leadership models (Bush, 2020) and with improvisation literature that assumes creativity rather than scarcity as the primary trigger (Cunha et al., 1999; Moorman & Miner, 1998; Vera & Crossan, 2005). Multiple new references have been incorporated to strengthen the scholarly foundation. The study contributes a context-grounded theory of structured improvisation that challenges taken-for-granted assumptions and offers practical guidance for policy and practice in remote educational settings.

Conclusions

This study developed a grounded theory of structured improvisation to explain how the principal of MIN 3 Merangin navigates the everyday challenges of leading a remote Madrasah under conditions of uncertainty, limited resources, and unstable institutional support. The study demonstrates that improvisation in remote educational leadership is neither random nor purely reactive; rather, it operates within implicit boundaries shaped by national regulations, community expectations, and resource sustainability. These boundaries enable rapid responses to unexpected situations while maintaining institutional legitimacy and operational continuity. Conceptually, the study positions

structured improvisation as a situated and experience-based leadership competence developed through repeated exposure to disruption and adaptive decision-making. However, the analysis also reveals personal consequences associated with this leadership practice, including fatigue, emotional strain, and professional isolation. The study therefore suggests that leadership development programs for Madrasah principals should extend beyond technical administrative competencies to include adaptive judgement, reflective practice, and emotional resilience in resource-constrained contexts. Policy makers may consider differentiating evaluation criteria for remote schools to acknowledge structured improvisation as a legitimate professional practice rather than a deviation from planning. Although the grounded theory presented here is context-specific and derived from a single Madrasah setting, it offers a conceptual foundation for understanding leadership practices in remote educational environments and provides opportunities for further investigation across broader regional and institutional contexts.

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