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School Governance in Complex Contexts: A Systems-Informed Framework for Public School Leadership

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Abstract

In the evolving landscape of Philippine public education, school leaders face complex, interconnected challenges that extend beyond instructional supervision to include financial management, stakeholder engagement, and strategic planning. This study develops and field-validates a systems-informed school governance framework designed to support public school heads in diagnosing root causes, identifying leverage points, and executing coherent, sustainable interventions. Drawing from systems thinking, adaptive leadership, and complexity theory, the framework was constructed through deductive theory synthesis and field-validated during a strategic planning session at San Agustin National High School in Sagbayan, Bohol, Philippines. Using design-based qualitative methodology, the research integrated causal loop diagramming and participatory planning to assess the framework's contextual relevance. Findings reveal that the framework's six iterative stages: Diagnosis, Mapping, Focus, Leverage, Grounding, and Execution, enabled school leaders to shift from reactive compliance to strategic coherence. The study concludes that a systems-informed approach can enhance the strategic capacity of school governance, particularly in resource-constrained and policy-saturated environments.

Keywords: systems thinking, adaptive leadership, school governance, strategic planning, DepEd Philippines, complexity theory

INTRODUCTION

School governance within the Philippine public education system has evolved into a multifaceted endeavor, one increasingly tied to the sustainability of school operations and educational outcomes. School heads are no longer confined to instructional supervision; they are now expected to oversee a constellation of interrelated domains, including financial stewardship, policy implementation, school-based management (SBM), and stakeholder coordination. As the responsibilities of school leadership expand, so too does the complexity of decision-making in educational settings. When these domains are not managed as an integrated system, schools risk operational fragmentation, resource inefficiency, and burnout; conditions that threaten the long-term sustainability of school performance and reform efforts.

Globally, systems thinking has emerged as a compelling framework for managing such complexity, offering practical and conceptual tools for sustaining coherence in institutional environments. It emphasizes the importance of recognizing feedback loops, interdependencies, and leverage points within dynamic systems (Sterman, 2003). Rather than isolate problems into discrete technical tasks, systems

thinking encourages school leaders to examine how structural conditions and patterns of behavior influence one another over time. Organizations such as the Brookings Institution (2022) and Education Development Trust (2021) advocate for systems thinking in education governance as a means of strengthening sustainability through strategic alignment in planning, budgeting, and accountability.

In the Philippine context, the Department of Education (DepEd) has introduced numerous governance policies aimed at improving the structural and financial sustainability of public schools. These include DepEd Order No. 60, s. 2016 (Implementation of the Financial Management Operations Manual and Orientation of DepEd Financial Management Staff at the Regional, Division, and School Levels), DepEd Order No. 13, s. 2016 (Implementing Guidelines on the Direct Release and Use of Maintenance and Other Operating Expenses [MOOE] Allocations of Schools, Including Other Funds Managed by Schools), and DepEd Order No. 007, s. 2024 (Policy Guidelines on the Implementation of the Revised School-Based Management [SBM] System). While these policies provide the technical scaffolding for governance, their sustainability impact depends on how well they are interpreted and operationalized at the school level.

Despite the availability of this policy infrastructure, many schools continue to face persistent governance challenges that undermine their ability to sustain coherent planning and implementation. These include the underutilization of MOOE allocations, misalignment among critical planning instruments such as the School Improvement Plan (SIP), Annual Implementation Plan (AIP), and Annual Procurement Plan (APP), weak functionality of governance committees, and inconsistent monitoring and accountability systems. These inefficiencies compromise institutional resilience and perpetuate a reactive, compliance-driven culture that fails to anticipate or adapt to systemic issues.

Research increasingly shows that such governance models often prioritize procedural adherence over strategic or systemic thinking (Supriadi et al., 2021). While agencies like DepEd and the Commission on Audit (COA) provide extensive legal and financial guidance, the absence of a systems-informed decision-making framework leaves school heads to operate in fragmented silos. Without a tool that helps them diagnose root causes, sequence priorities, and navigate complex dynamics, schools remain vulnerable to short-term fixes rather than long-term sustainability.

This study responds to that gap by advocating for a systems-informed governance framework that is actionable, grounded in policy, and attuned to the lived realities of school leadership in Philippine public education. It recognizes that sustainability in school governance is not solely a matter of funding or compliance, but of strategic integration, collective ownership, and adaptive decision-making.

Specifically, the study aims to contribute a strategic planning framework that helps school heads diagnose systemic issues, identify leverage points for high-impact intervention, and align school-level actions with institutional and national goals. In doing so, it seeks to bridge the persistent gap between policy and practice while advancing the broader goal of sustainable school governance, defined here as the capacity of a school to remain effective, coherent, and responsive across time and changing conditions.

Research Questions

The main purpose of the study was to develop a systems-informed school governance framework that supports public school leaders in addressing interrelated challenges at the school level.

Specifically, the study was aimed at answering the following questions:

1. What components should a systems-informed school governance framework include to support school leaders in diagnosing challenges and identifying strategic interventions?

2. How do school planning team members perceive the relevance and contextual applicability of the proposed framework during its initial implementation?

Literature Review

A growing body of scholarship recognizes that school systems are no longer reducible to isolated functions such as curriculum delivery or financial management. Instead, they must be understood as dynamic and interconnected systems where decisions in one area often trigger ripple effects across others. This recognition has led to the increasing adoption of systems thinking in educational reform. Systems thinking offers a paradigm shift away from linear, reactive problem-solving toward an approach that identifies feedback loops, interdependencies, and leverage points within complex environments. Sterman (2003) and Meadows (2008) argue that sustainable solutions require a shift in perspective, from treating problems as discrete malfunctions to seeing them as symptoms of system-wide behaviors. In school settings, this translates into the need for leaders to understand how issues like low learner performance, stakeholder disengagement, or resource underutilization often reflect deeper systemic patterns rather than surface-level deficiencies.

The relevance of systems thinking in education is further highlighted by recent reform frameworks. The RISE Programme, for example, applies systems thinking to educational governance by emphasizing diagnostic clarity and alignment among actors, incentives, and implementation tools (Spivack & Silberstein, 2023). Their approach illustrates how a failure to consider system dynamics often results in incoherence between goals and outcomes. Likewise, Education Development Trust (2021) advocates systems thinking as an organizing principle for education sector reform, particularly in developing contexts where governance challenges are complex and multidimensional. These perspectives reinforce the necessity of designing tools and frameworks that allow school leaders to make sense of interrelated factors and respond strategically, rather than reactively.

Yet systems thinking alone may not fully capture the lived realities of school leaders who are tasked with managing day-to-day uncertainty, political pressures, and diverse stakeholder expectations. This is where the theory of adaptive leadership becomes essential. Heifetz and Laurie (1997) distinguish between technical problems, those that can be solved with existing expertise, and adaptive challenges, which require experimentation, learning, and shifts in underlying values. In schools, adaptive leadership manifests in practices such as stakeholder engagement, iterative planning, and reflective decision-making. It supports leaders not only in applying systemic insights but in facilitating collective ownership of problems and solutions. Recent empirical work has validated this approach. For instance, studies on school leadership during the COVID-19 pandemic demonstrate how adaptive leadership enabled schools to create "adaptive spaces" where innovation, feedback, and real-time learning occurred under pressure (Uhl-Bien & Arena, 2021).

Moreover, chaos and complexity theory offer additional theoretical grounding for understanding school governance in volatile environments. While often associated with the natural sciences, these theories have gained traction in educational discourse by highlighting the unpredictable and nonlinear behavior of schools as complex adaptive systems. Morrison (2002) and Davis and Sumara (2006) argue that even small changes in school processes can yield disproportionately large and unexpected outcomes. This underscores the limitations of rigid, compliance-driven planning models, particularly in settings where political, economic, and social factors interact in unpredictable ways. In this light, effective school

governance requires not only strategic alignment but also a capacity for adaptability and resilience, qualities that must be embedded in the design of planning frameworks.

Recent empirical studies within the last five years offer strong support for the theoretical synthesis that combines systems thinking, adaptive leadership, and complexity-informed planning. In a multi-country analysis, Spivack and Silberstein (2023) documented the use of systems mapping to diagnose systemic breakdowns across education sectors, concluding that sustainable reform hinges on diagnostic clarity and strategic coherence among actors. Their study emphasized the necessity of understanding policy implementation not merely as a technical rollout, but as a process embedded in a complex social system, where leverage points must be identified and activated thoughtfully.

Similarly, a 2023 study published in Frontiers in Education investigated the experiences of teachers and school leaders who were introduced to systems thinking methodologies such as causal loop diagramming and systems mapping. The study found that these tools helped educators move beyond surface-level problem identification to uncover patterns of interdependence and delayed consequences, particularly in areas like learner performance, teacher stress, and stakeholder participation. The research emphasized how system visualization techniques helped schools design more coordinated and resilient interventions.

In Australia, a series of case studies examined how public school boards navigated governance transitions using adaptive leadership principles. The findings highlighted how participatory planning, reflective dialogues, and iterative decision-making enabled school teams to respond constructively to emerging challenges and institutional complexity (Uhl-Bien & Arena, 2021). The studies also underscored that in contexts of policy overload or resource strain, it was not procedural knowledge but adaptive sense-making that sustained leadership effectiveness.

Additional insights come from a 2024 cross-national study that tracked school leadership during the post-pandemic recovery period. The study found that leaders who integrated systems thinking with collaborative leadership practices were more likely to align school planning instruments (e.g., SIP, AIP, and procurement plans) with actual institutional needs. Moreover, they were more successful in building local ownership of interventions by using systems tools to communicate strategic intent across departments. These outcomes reinforce the view that educational planning is not merely a bureaucratic function, but a deeply social, political, and adaptive process, one that requires conceptual agility and diagnostic capacity.

Another important contribution to this discourse is the work of Prabawani et al. (2022), who developed and tested a scale to measure teachers' systems thinking and leadership in education for sustainable development (ESD) within Indonesian schools recognized for environmental care and culture. Despite the schools' benchmarking status, findings revealed that teachers demonstrated relatively stronger competencies in content planning and social interaction but exhibited the weakest performance in systems thinking. For example, while many modeled respectful communication, they often failed to exhibit sustainable behaviors or engage in collaborative sustainability efforts. This gap underscores the challenge of moving from conceptual awareness to consistent, actionable practice, highlighting the necessity for structured frameworks that embed systems thinking across all levels of school governance.

Similarly, a study by Kioupi and Voulvoulis (2019) on education for sustainability found that schools with embedded systems tools were better able to sustain reform initiatives over multiple planning cycles but highlighted that such tools were rarely standardized or widely adopted.

Despite this growing theoretical and empirical momentum, persistent gaps remain in the literature, particularly around the design and application of practical, school-level frameworks that integrate systems

thinking and adaptive leadership into a coherent planning structure. Many existing models operate at the macro policy level or serve primarily as capacity-building references. Few studies document frameworks that school heads themselves can use as diagnostic, strategic, and participatory tools in their regular planning processes. Furthermore, while systems thinking is often promoted as a valuable paradigm, it is frequently introduced in abstract terms, with limited demonstration of how it can guide tangible, context-specific planning and intervention cycles within the day-to-day work of public school governance.

This study directly responds to that gap by developing and validating a systems-informed school governance framework that is both theoretically grounded and empirically tested in a real-world school planning context. Drawing from systems thinking, adaptive leadership, and complexity science, the framework is designed not as a rigid template but as a flexible and iterative tool. It equips school leaders with practical steps to identify root causes, map feedback relationships, and recognize leverage points for change. More importantly, it encourages reflective, shared ownership of planning outcomes, thus fostering a culture of sustained improvement, institutional coherence, and leadership resilience. In doing so, the study not only advances the discourse on educational planning but also offers a concrete pathway for operationalizing sustainability principles at the school level.

METHODOLOGY

Research Design

This study employed a design-based qualitative research approach aimed at developing a systems-informed school governance framework grounded in existing theories of systems thinking, adaptive leadership, and complexity. Rather than emerging inductively from school data, the framework was constructed deductively from theoretical constructs and recent scholarly models. The research followed an exploratory-developmental trajectory in which theory synthesis preceded and guided field validation.

Framework Development Process

To answer the first research question, “What essential components should a systems-informed governance framework include to support school leaders in diagnosing problems and identifying strategic interventions?”, the study undertook a critical synthesis of key theoretical frameworks. These included systems thinking (Sterman, 2003; Meadows, 2008), adaptive leadership (Heifetz & Laurie, 1997), and complexity theory as applied to educational governance (Morrison, 2002; Davis & Sumara, 2006). Core principles from these perspectives were integrated to formulate a school governance framework intended to support school leaders in recognizing patterns, identifying leverage points, and making context-responsive decisions.

The framework was conceptualized to move beyond compliance-focused planning. It emphasized diagnostic clarity, stakeholder alignment, feedback responsiveness, and the capacity to adapt to dynamic conditions. Causal Loop Diagramming (CLD) was utilized as a systems thinking tool to illustrate how various educational issues often exhibit reinforcing or balancing feedback loops, supporting the rationale behind the design of each phase.

Framework Validation and Application

To answer the second research question, “How do members of the school planning team describe the relevance and contextual usefulness of the proposed framework during its initial presentation and validation?”, the developed framework was field-tested at San Agustin National High School, the largest public high school in Sagbayan, Bohol.

The School Improvement Plan (SIP) of San Agustin National High School (SY 2025–2028) served as the core material during the validation phase. The school planning team, composed of fewer than 16 members, including the school head, department coordinators, and governance committee chairs, applied the framework during their annual strategic planning session for School Year 2025–2026.

Each phase of the framework was used to guide a particular segment of the planning process: situation appraisal, root cause analysis, goal setting, intervention design, stakeholder alignment, and reflection. Participant feedback was collected through direct observation and informal dialogue activities integrated into the planning session. Their reactions and suggestions were analyzed thematically to assess the framework's clarity, practical alignment, and perceived value.

This phase served as a validation loop: while no new data were used to redesign the framework from scratch, feedback was used to refine its usability and language, ensuring it remained theoretically robust yet responsive to on-the-ground leadership realities.

Ethical Considerations

Prior to the validation phase, the researcher secured formal permission from the school head of San Agustin National High School to present the proposed framework and to use the School Improvement Plan (SIP) as the contextual anchor for the strategic planning session. Participants, composed of department heads, governance chairs, and other planning team members, were informed of the study's purpose and consented to the integration of the framework throughout the planning process. The framework was not only presented but also actively used as the guiding structure for the entire duration of the strategic planning activity for School Year 2025–2026. No personal or sensitive data were collected. The school's identity was disclosed with institutional approval to ensure contextual accuracy. Throughout the research, ethical standards were strictly observed, including voluntary participation, transparent communication, accurate documentation of findings, and proper attribution of collaborative input.

RESULTS

This section presents the outcomes of the study in response to the two research questions. The first question sought to identify the essential components of a systems-informed governance framework that can support school leaders in diagnosing complex problems and determining strategic interventions. The second question explored how members of the school planning team evaluated the relevance and contextual utility of the proposed framework during its initial application in a real-world planning environment.

Components of the School Governance Framework

Table 1 presents the theoretical foundations supporting each stage of the School Governance Framework. This framework was developed to address persistent governance challenges in basic education by aligning school planning processes with systems-informed principles. Each stage corresponds to a specific theoretical construct drawn from contemporary literature on educational leadership, systems thinking, complexity theory, and policy alignment. These foundations provide conceptual clarity and coherence to the operationalization of each stage in the governance process.

Table 1
Components of the School Governance Framework

Theoretical Basis	Description	Stage

Adaptive Leadership (Heifetz & Laurie, 1997)	Encourages leaders to distinguish technical issues from adaptive challenges through reflective diagnosis of recurring or persistent school issues.	Diagnosis
Systems Thinking (Sterman, 2003; Meadows, 2008)	Utilizes systems tools like causal loop diagrams to visualize interdependencies and system behaviors over time.	Mapping
Complexity Theory (Davis & Sumara, 2006); Systems Thinking	Guides leaders in identifying critical systemic issues with high strategic leverage amidst complexity.	Focus
Meadows' Leverage Points Framework (2008)	Supports identification of systemic intervention points that yield significant, sustainable impact.	Leverage
Adaptive Leadership; SBM & Policy Frameworks	Aligns strategies with institutional mandates, DepEd policies, SBM structures, and school vision.	Grounding
Systems Thinking (Feedback & Delays); Adaptive Action	Converts strategic decisions into concrete plans, ensuring feedback loops and iterative learning guide implementation.	Execution

Table 1 outlines the theoretical basis, corresponding function, and structural role of each stage within the School Governance Framework. It provides a concise reference linking each framework component to its scholarly origin, highlighting how these concepts support decision-making and governance practices in schools.

Figure 1 illustrates the School Governance Framework, a six-stage cyclical model synthesizing systems thinking, adaptive leadership, and complexity theory. Developed through participatory validation with school leaders, this model reflects the dynamic and iterative nature of school governance. It outlines how school leaders can navigate interconnected challenges by following a coherent sequence: beginning with Diagnosis, moving through Mapping, Focus, Leverage, and Grounding, and culminating in Execution.

Figure 1
School Governance Framework

Figure 1 visually depicts the six stages of the School Governance Framework. Each stage represents a distinct cognitive and operational orientation: Analytical Thinking, Systems Thinking, Strategic Thinking, Change Orientation, Normative Reflection, and Operational Action, integrated in a continuous loop that promotes coherence and adaptability in school governance processes.

School Planning Team Reflection

Table 2 presents the planning team's reflections on the School Governance Framework following its implementation during the strategic planning workshop. Responses are organized by framework stage and classified according to observed usefulness and specific participant insights. This structured feedback captures how each phase of the model contributed to sense-making, prioritization, alignment, and actionability throughout the planning process.

Table 2
School Planning Team Reflections

Framework Stage	Observed Usefulness	Participant Insight
Diagnosis	Clarified long-standing issues and prevented reactive planning.	"We've seen these problems before, but we never really named them until now."
Mapping	Enabled visualization of root causes and feedback loops using causal diagrams.	"The CLD made us realize how one issue affects another; it's not just one-way."
Focus	Helped the team prioritize goals and limit overload by identifying critical areas.	"It made us ask, where will our efforts matter most?"
Leverage	Encouraged selection of realistic and high-impact interventions.	"We chose programs where we can actually make a dent, even with limited budget."
Grounding	Reconnected plans with DepEd policies and school vision.	"This made us revisit our mandates and see if our ideas are aligned."
Execution	Structured the creation of actionable outputs during the planning session.	"We didn't stop at identifying problems; we made sure we had implementable steps."

Table 2 summarizes the key observations and perceptions of the school planning team across the six framework stages. The "Observed Usefulness" column captures how each stage influenced strategic clarity and planning behavior, while "Participant Insight" offers direct quotes that reveal the team's evolving understanding and decision-making approach. Together, the table illustrates the framework's practical resonance and capacity to foster reflective, data-informed governance.

DISCUSSION

This section presents a critical interpretation of the study's key findings in relation to its two guiding research questions. It explores how the proposed systems-informed school governance framework, conceptually grounded in systems thinking, adaptive leadership, and complexity theory, responds to the diagnostic needs and contextual realities of school leaders. By examining both the conceptual development and the practical application of the framework, the discussion highlights its relevance, coherence, and utility in supporting strategic school governance. Insights from the literature are interwoven with the observed responses of the school planning team to illuminate how theoretical principles are translated into action during the validation process.

Components of the School Governance Framework

At the core of the proposed School Governance Framework (see Table 1 and Figure 1) is a staged model that integrates theoretical principles with practical processes school leaders can follow in navigating complex governance environments. Each stage is rooted in well-established theories, adaptive leadership, systems thinking, complexity theory, and sustainability-based school governance, which collectively provide both the logic and structure for decision-making in schools.

Diagnosis. The entry point of the School Governance Framework, draws heavily from the principles of Adaptive Leadership (Heifetz & Laurie, 1997). This stage challenges school leaders to go beyond surface-level compliance and to critically distinguish between technical problems, which have known solutions and standard operating procedures, and adaptive challenges, which require deeper inquiry, stakeholder engagement, and often, a shift in entrenched beliefs and practices.

Rooted in the idea that not all problems can be solved with existing expertise, this stage positions leadership as a learning process rather than a command function. Heifetz and Laurie (1997) argue that adaptive leadership "requires experiments, discoveries, and adjustments from numerous places in the organization" rather than the mere application of expert knowledge. In the context of public schools, this entails reframing persistent concerns, such as learner underperformance, low MOOE utilization, and fragmented planning cycles, not as isolated malfunctions, but as symptoms of deeper systemic tensions.

To operationalize this diagnostic orientation, the framework suggests the following steps:

1. Surface and List Key School-Level Challenges: Collect recurring issues from planning documents (e.g., SIP, AIP), administrative records, and informal consultations. Avoid premature categorization.
2. Distinguish Technical from Adaptive: Facilitate internal dialogues to ask: "Which issues have clear protocols? Which persist despite existing solutions?" For example, delays in procurement might be technical, but habitual underutilization of MOOE often signals adaptive hesitations rooted in fear of audit or lack of capacity.
3. Use the "5 Whys" Technique: Guide the team through multiple levels of inquiry to identify root causes, especially for adaptive challenges. This cultivates critical thinking and unearths hidden patterns.
4. Identify Recurring Patterns: Use reflection tools like problem trees or causal maps to look for systemic linkages across seemingly unrelated issues. Are classroom shortages linked to enrollment forecasting failures? Is disengaged parental involvement connected to communication strategies?
5. Prepare for Systemic Thinking: Conclude the diagnosis phase with an acknowledgment that not all issues will have linear solutions. Leaders must prepare themselves and their teams to hold ambiguity and complexity.

The effectiveness of this stage has been demonstrated in high-pressure contexts. Uhl-Bien and Arena (2021), in their study of school leadership responses during the COVID-19 crisis, found that institutions that "paused to diagnose, interpret, and listen" were more adaptive than those that immediately imposed pre-packaged solutions. These schools cultivated "adaptive spaces" where reflection, creativity, and collective learning could thrive, traits directly supported by this diagnostic phase.

Mapping. The second stage of the School Governance Framework, operationalizes the core principles of systems thinking as articulated by Sterman (2003) and Meadows (2008). At this point in the framework, school leaders and planning teams move from recognizing high-leverage challenges (identified in the Focus stage) to understanding the deeper systemic structures that generate and sustain them. This is accomplished through the use of Causal Loop Diagrams (CLDs)-a hallmark tool in systems analysis-which serve to expose feedback loops, delays, and repeating system archetypes that shape school dynamics.

The Mapping stage acknowledges that many school-level issues-such as low stakeholder engagement, poor monitoring and evaluation practices, and underutilized financial resources-do not exist in isolation. Rather, they are symptoms of interconnected processes that reinforce or constrain one another over time. For instance, weak monitoring may lead to ineffective implementation, which in turn reduces stakeholder confidence, further weakening engagement in future cycles-a reinforcing loop that silently entrenches dysfunction.

By visually plotting these relationships through CLDs, school leaders begin to shift their mental models from linear thinking ("if X, then Y") to systems thinking ("X and Y reinforce Z, which loops back into X"). Meadows (2008) emphasized this cognitive shift as essential to finding "leverage points"-places in a system where a small intervention can produce large, lasting changes.

In practice, the Mapping stage involves the following key steps:

1. Generate Variables from Prior Stages: Begin with the priority challenges identified in the Diagnosis and Focus stages. Break these into specific, observable variables (e.g., "timeliness of disbursement," "teacher motivation," "parental trust").
2. Construct Initial Feedback Loops: Use collaborative systems mapping to explore cause-and-effect relationships among variables. Teams draw CLDs to identify reinforcing (R) and balancing (B) loops that govern the behavior of school processes over time.
3. Identify Delays and Nonlinear Effects: Encourage the team to recognize time lags and unintended consequences. For example, a policy intervention today may not yield results until the next planning cycle-delays that, if ignored, can lead to misinterpretation or misattribution.
4. Surface System Archetypes: Look for recurring structures like "Shifting the Burden," "Limits to Growth," or "Fixes That Fail." Recognizing these archetypes helps the team understand why some interventions succeed briefly but collapse later (Sterman, 2002).
5. Validate the Map Collaboratively: Share the draft CLD with broader planning stakeholders to test assumptions and refine loop logic. As part of the validation session at San Agustin National High School, participants expressed that seeing the map "allowed us to finally understand why things keep looping back despite our efforts."

The value of this stage is not only diagnostic; it is developmental. It cultivates a new habit of mind among school teams: the ability to think in relationships rather than silos, and to recognize that persistent problems are often structurally supported, not individually caused. As Meadows (2008) famously wrote, "The behavior of a system cannot be known just by knowing its elements. The interconnections and purpose

are equally crucial." Through the Mapping stage, schools begin to uncover these interconnections, laying the groundwork for more thoughtful, aligned, and strategic responses in the stages that follow.

Focus. The third stage of the School Governance Framework is grounded in complexity theory (Davis & Sumara, 2006) and systems thinking (Sterman, 2003), which jointly emphasize that not all problems in a system hold equal weight or impact. In complex educational environments, issues are rarely isolated; instead, they emerge from intricate feedback dynamics. The Focus stage enables school leaders to identify and prioritize high-leverage challenges, those with the potential to generate transformative ripple effects across multiple domains of school functioning.

Rather than dispersing attention and resources across numerous isolated issues, this stage prompts leaders to concentrate their strategic efforts on root causes that hold the most promise for system-wide improvement. Complexity theory argues that these leverage points are often non-obvious and require deep pattern recognition. Davis and Sumara (2006) explain that "within a complex system, it is not the magnitude but the connectivity of a variable that determines its influence." Thus, effective school leadership requires discerning which issues, when addressed, will shift broader dynamics, even if they appear peripheral at first glance.

In practical terms, this means going beyond the surface. For instance, a recurring issue such as low budget absorption may initially appear as a financial management concern. However, through systems thinking, school leaders may uncover deeper structural roots: misaligned planning timelines, inadequate stakeholder engagement, or unclear accountability roles. This reflective diagnosis reframes the issue and invites more strategic responses. The RISE Programme (Spivack & Silberstein, 2023) reinforces this principle by emphasizing "strategic coherence," where reform initiatives are most effective when schools achieve clarity in how problems are framed and how interventions are sequenced. According to their findings, "systems that try to fix everything at once often fix nothing at all," suggesting the necessity of focused reform anchored in systemic understanding.

To operationalize the Focus stage, the framework proposes the following steps:

1. Analyze Feedback Loops for Influence: Return to the Causal Loop Diagrams generated during the Mapping phase. Identify which variables are situated at key junctions in reinforcing or balancing loops, these are likely leverage points.
2. Assess Root Causes Using Systems Criteria: Apply systems thinking prompts to ask: Which issues affect multiple subsystems? Which problems reappear despite previous interventions? Which concerns are structural rather than symptomatic?
3. Conduct a Prioritization Exercise: Use tools like an Impact-Effort Matrix or Problem Prioritization Matrix to sort identified issues. The goal is to focus on those that offer high systemic impact and feasible intervention strategies.
4. Define Strategic Focus Areas: Articulate 1–3 clearly framed focus areas, each tied to specific feedback loops and outcomes. Ensure these align with national policy (e.g., DepEd Orders) and the school's vision and goals.
5. Communicate and Align: Share the focus areas with key stakeholders. Adaptive leadership literature reminds us that for strategic coherence to take root, shared understanding and commitment must follow (Heifetz & Laurie, 1997).

Ultimately, the Focus stage empowers school leaders to be selective without being narrow, and decisive without being rigid. It positions them not only to manage complexity but to lead within it. As Meadows

(2008) asserts, "Leverage points are not intuitive, but they are powerful. Identifying them requires a shift in thinking, from reacting to patterns to reshaping them."

Leverage. The fourth stage of the framework is grounded in Meadows' (2008) theory of leverage points, strategic places within a system where a well-targeted shift can yield significant, system-wide effects. In school governance, this stage helps leaders focus efforts on high-impact interventions rather than diffuse, low-yield activities.

This stage involves the following four-step process:

1. Identify Repeating Pain Points: School leaders can revisit the outputs from the Mapping and Grounding stages, particularly the causal loops and validated problem areas, and scan for nodes where issues converge or reinforce one another. For example, if learner underperformance, weak monitoring, and teacher fatigue all link to poor alignment of planning instruments, that junction becomes a potential leverage point.
2. Evaluate Potential System Impact: Borrowing from Meadows' concept of systemic sensitivity, leaders assess where small changes (e.g., adjusting planning timelines, improving meeting formats, updating data-sharing protocols) could improve multiple outcomes at once. As Meadows (2008) asserts, "the power to transcend paradigms" often lies in changing information flows or rules rather than structure alone.
3. Assess Feasibility and Stakeholder Readiness: Using insights from adaptive leadership, school teams consider stakeholder capacity, institutional norms, and implementation risks. Even technically sound leverage points may fail without sufficient buy-in. Thus, intervention feasibility, including resource availability, resistance risks, and alignment with DepEd orders, must be weighed.
4. Design Focused, Scalable Interventions: After prioritization, the team develops one to three focused actions targeting those leverage points. These are not generic programs, but contextually embedded changes such as realigning SIP-AIP-APP calendars to avoid fragmented procurement, assigning a cross-functional M&E team to provide monthly feedback loops, and deploying a shared digital tracker for committee deliverables.

This strategic targeting process reflects findings from Prabawani et al. (2022), who observed that schools with "purposefully designed micro-interventions" produced more sustainable reforms than those applying broad, top-down mandates. Similarly, by Kioupi and Voulvoulis (2019) emphasize that institutional coherence is best achieved through micro-level governance alignments, particularly in decentralized systems. By anchoring this stage in systems theory, adaptive practice, and real-world feasibility, the framework empowers school leaders to act deliberately, not reactively, ensuring that interventions address not just symptoms but key points of systemic influence.

Grounding. Grounding, the fifth stage of the framework, operationalizes both adaptive leadership (Heifetz & Laurie, 1997) and local policy structures, notably the School-Based Management (SBM) Framework and DepEd Orders such as DO No. 007, s. 2024. It ensures that proposed actions are not only strategically sound but contextually valid and policy-compliant.

The stage follows this four-step sequence:

1. Policy Cross-Referencing: Teams begin by mapping their proposed interventions against relevant DepEd policies and legal mandates. For instance, if the SIP proposes budget reallocations or community partnerships, these are checked against the MOOE guidelines, SBM dimensions, and governance protocols. This aligns with Kioupi and Voulvoulis (2019), who noted that frameworks not explicitly grounded in local policy "often lose traction despite technical sophistication."

2. Cultural and Normative Alignment: Drawing from adaptive leadership's value on "navigating competing commitments," leaders reflect on whether interventions respect school norms, values, and organizational culture. For example, does the plan build on existing practices? Does it respect decision-making hierarchies? This step helps prevent reform fatigue and promotes cultural resonance, especially in traditionally structured schools.
3. Stakeholder Feedback Integration: Leaders present proposed changes in mini-feedback loops to governance committee chairs, key faculty, or parent reps. This isn't just validation, it's a reality-check phase. Adaptive leadership emphasizes the need for "leadership in the balcony," where leaders zoom out to gather multiple perspectives. This consultative loop refines interventions for feasibility and legitimacy.
4. Recalibration and Documentation: Based on validation inputs, school leaders revise the proposed interventions to match policy, culture, and resource limitations. All changes are formally encoded in planning instruments (SIP, AIP) and shared back with stakeholders. This step completes the institutionalization process, shifting ideas from theory to commitment.

In this way, Grounding acts as a reality filter. It tempers innovation with institutional logic, helping school teams ensure that bold ideas don't collapse under procedural or cultural resistance. It reflects the hybrid wisdom of adaptive leadership and systems alignment, acknowledging that no matter how powerful an idea is, "if it doesn't fit the current system, it won't hold" (Heifetz & Linsky, 2002).

Execution. This stage marks the operational translation of system-informed insights into implementable, resilient action plans. Drawing on systems thinking (Sterman, 2003; Meadows, 2008), this phase emphasizes feedback sensitivity, delay awareness, and continuous learning, recognizing that change is not a one-shot initiative but an evolving, iterative process.

It is also deeply aligned with Uhl-Bien and Arena's (2021) notion of "adaptive space," which describes the organizational environments where strategic execution and real-time learning co-exist. In such a space, action and reflection are not separated, but intertwined to create dynamic responsiveness.

This stage involves the following four-step process:

1. Operational Translation of Framework Outputs: Each strategic intervention identified in the earlier stages is translated into concrete activities, timelines, and roles within planning instruments (SIP, AIP, APP). Leaders move from "why" and "what" to "how" and "who." Systems thinking here ensures that downstream effects and time delays are anticipated during task sequencing and resource allocation. For example, aligning the budget calendar with stakeholder activities to avoid underspending, a delay-sensitive maneuver.
2. Feedback Loop Design: Execution must not be static. School teams institutionalize formal and informal feedback mechanisms to track implementation progress and adapt accordingly. These include: periodic reflection huddles, data dashboards visualizing progress indicators, and regular review sessions embedded in the school calendar. This echoes Meadows' (2008) principle of placing feedback where it can be heard, enhancing system responsiveness.
3. Learning and Adjustment Cycle: Based on gathered feedback, school teams make timely mid-course corrections. This supports adaptive execution, where flexibility trumps rigidity. Leaders are trained to treat "plans as hypotheses," using reflection data to revise strategies without losing sight of broader goals. Uhl-Bien and Arena (2021) call this capacity adaptive space cultivation, the fostering of environments where implementation and learning occur simultaneously.

4. Institutional Memory and Knowledge Transfer: Finally, the team documents learnings, bottlenecks, and emergent best practices to preserve institutional memory. This archive supports future planning cycles and builds organizational learning, a cornerstone of sustainable governance. As Davis and Sumara (2006) remind us, complex systems evolve best when learning is "distributed and accumulative."

The Execution stage embodies the philosophy that planning is never finished once the ink dries. Instead, it becomes a living system of decisions, actions, observations, and refinements. This phase closes the loop, while laying the foundation for the next planning cycle.

Together, the stages represent an iterative and cyclical governance model that promotes coherence across the diagnostic, strategic, and operational levels of school leadership. The synthesis of theory and practice, as embodied in Table 1 and Figure 1, addresses a key literature gap, offering not only a theoretically robust model but also an actionable tool for school leaders in the Philippine public education system and beyond. To further support implementation, Table 3 presents an operational summary of each stage, detailing practical tasks, tools, and intended outcomes that school leaders can use during planning cycles.

Table 3
Operational Guide to the Systems-Informed School Governance Framework

Stage	Primary Task	Key Tools/Methods	Intended Outcome
Diagnosis	Identify persistent school challenges	Problem Tree, 5 Whys, Dialogue	Clarity on root issues (technical vs adaptive)
Mapping	Visualize systemic relationships	Causal Loop Diagrams (CLDs)	Recognition of feedback loops and delays
Focus	Prioritize high-leverage issues	Impact-Effort Matrix, System Archetypes	Strategic clarity and focus areas
Leverage	Select scalable interventions	Leverage Point Analysis, Stakeholder Mapping	Realistic and high-impact solutions
Grounding	Align actions with policy and culture	Policy Mapping, Feedback Loops	Institutional legitimacy and contextual fit
Execution	Implement, monitor, and adapt	SIP/AIP encoding, Review Cycles	Iterative action and adaptive learning

School Planning Team Reflections

Table 2 presents the insights and reflections of the school planning team following their initial engagement with the systems-informed School Governance Framework. The data illustrate how each stage not only supported the team in meeting strategic planning objectives but also fostered cognitive shifts in how challenges, opportunities, and interventions were understood and acted upon. The reflections demonstrate the practical resonance of theoretical constructs such as systems thinking, adaptive leadership, and complexity theory in actual school governance work.

Diagnosis emerged as a particularly powerful entry point in disrupting reactive tendencies in planning. Participants noted how the process "clarified long-standing issues," allowing them to see persistent school challenges through a more structured and reflective lens. The comment, "We've seen these problems before, but we never really named them until now," echoes the diagnostic orientation advocated by Heifetz and Laurie (1997), where leadership begins not with answers but with re-framing the questions. Rather

than moving directly to solution mode, the team paused to explore whether issues were technical or adaptive in nature. This practice aligns with Uhl-Bien and Arena (2021), who emphasized the importance of "adaptive space" in enabling sensemaking before action. The stage, therefore, fostered a culture of inquiry and slowed down the impulse to act prematurely.

Mapping built on this diagnostic clarity by making systems-level relationships visible. The use of causal loop diagrams (CLDs) enabled the team to recognize how challenges interact, rather than treating them as siloed or linear problems. The statement, "The CLD made us realize how one issue affects another; it's not just one-way," illustrates the team's shift toward systems thinking (Sterman, 2003; Meadows, 2008). This visual and participatory process helped surface reinforcing loops, such as how weak monitoring perpetuates underperformance, and gave rise to a more dynamic understanding of feedback, delays, and unintended consequences. Mapping thus served both as an analytic and developmental intervention, cultivating relational thinking within the team.

Focus helped convert the systemic insights into actionable strategic intent. This stage, informed by complexity theory (Davis & Sumara, 2006), required the team to prioritize goals and reduce planning overload by identifying leverage-rich concerns. "It made us ask, where will our efforts matter most?" reflects an important cognitive transition, from treating all issues as equally urgent to focusing on those with the greatest potential for systemic improvement. The emphasis on leverage aligns with the RISE Programme's (Spivack & Silberstein, 2023) call for "strategic coherence" in educational reform. By narrowing their attention to pivotal points, the team gained clarity and confidence, knowing that limited resources could be directed more meaningfully.

Leverage operationalized this prioritization through concrete, high-impact choices. Grounded in Meadows' (2008) framework, this stage prompted the team to "choose programs where we can actually make a dent, even with limited budget." Their use of leverage points, such as adjusting planning calendars or refining communication loops, reflects the principle that effective interventions need not be large, only well-placed. The stage encouraged critical thinking about feasibility and strategic alignment, and it underscored the importance of contextual relevance. As Prabawani et al. (2022) have shown, micro-interventions grounded in system insight tend to yield more sustainable results than blanket reforms.

Grounding provided the normative anchor, ensuring that all proposed actions were consistent with existing DepEd policies, school values, and the SBM framework. Participant insight, "This made us revisit our mandates and see if our ideas are aligned", suggests that this stage helped to reconnect strategic innovation with institutional legitimacy. It reflects Kioupi and Voulvoulis' (2019) finding that technically sound interventions often fail if not normatively embedded. Through this stage, adaptive leadership was exercised not only as a means of innovation but also as an act of fidelity to the system's goals and culture.

Execution, the culminating stage, facilitated the translation of strategic ideas into tangible outputs during the planning session. Participants noted, "We didn't stop at identifying problems; we made sure we had implementable steps," highlighting the framework's role in bridging diagnosis and delivery. This reflects Sterman's (2003) emphasis on feedback loops and iterative learning, and echoes Uhl-Bien and Arena's (2021) call for institutionalizing "adaptive space" even during implementation. Teams were encouraged to embed formal review cycles and learning checkpoints, which transformed the implementation process from a linear rollout to a reflexive, living practice.

Taken together, these reflections affirm the framework's conceptual validity and practical usability. By aligning diagnostic clarity, systems insight, strategic focus, institutional coherence, and adaptive execution, the framework helped the planning team move beyond fragmented compliance toward more

integrated and thoughtful governance. The participant insights thus not only validate the model's design but also demonstrate the transformative potential of systems-informed school leadership in real-world settings.

The implementation and validation of the proposed systems-informed School Governance Framework revealed both conceptual robustness and practical relevance, particularly within the context of public school strategic planning. Rooted in adaptive leadership (Heifetz & Laurie, 1997), systems thinking (Sterman, 2003; Meadows, 2008), and complexity theory (Davis & Sumara, 2006), the framework addressed long-standing planning challenges by offering structured yet flexible stages that guided school leaders from diagnosis to execution. Its emphasis on feedback loops, leverage points, institutional alignment, and adaptive action reflects an understanding that school governance is not merely technical administration but a dynamic, socio-political process shaped by evolving internal and external conditions.

The reflections shared by the school planning team affirm that the framework is not only theoretically grounded but also actionable and transformative in practice. Participants reported greater clarity in defining problems, a deeper understanding of system dynamics, improved prioritization, and enhanced alignment with DepEd policies. These shifts align with literature that emphasizes the importance of strategic coherence (Spivack & Silberstein, 2023), culturally resonant reform (Kioupi & Voulvoulis, 2019), and distributed learning in complex systems (Davis & Sumara, 2006).

Critically, the framework's cyclical nature supports iterative learning rather than linear compliance. It encourages leaders to think systemically, act strategically, reflect adaptively, and institutionalize learning, capacities that are vital for navigating the evolving landscape of public education, especially in decentralized and resource-constrained contexts like the Philippines.

CONCLUSION

This study concludes that a systems-informed school governance framework, anchored in theory and refined through participatory validation, can serve as a powerful tool for enhancing the strategic capacity of school leaders. By making complexity visible, institutional mandates actionable, and strategic thinking routine, the framework supports schools in shifting from reactive planning to transformational governance. Its staged structure, Diagnosis, Mapping, Focus, Leverage, Grounding, and Execution, offers both a logical sequence and a reflective rhythm for sustained improvement.

While the framework was validated through a real-world school planning session, the study's scope was limited to a single public secondary school and a small number of planning team members. As such, generalizability is constrained, and contextual insights may not fully apply to schools with different resource conditions, governance styles, or stakeholder compositions. Moreover, the short-term nature of the validation did not allow for longitudinal tracking of planning outcomes or institutional change. The framework's potential for scalability, sustainability, and policy-level integration remains an area for future exploration.

By bridging diagnostic clarity, strategic coherence, and participatory action, this framework advances both theoretical discourse and applied school governance practice within resource-constrained systems.

Limitations

This study was conducted in a single public secondary school in Bohol, Philippines, involving a limited number of planning team members during one strategic planning session. While the framework yielded practical and conceptual value in this context, the generalizability of findings remains constrained. The

short-term validation also precluded longitudinal tracking of outcomes such as planning coherence, stakeholder ownership, and policy integration. Future studies are encouraged to apply the framework across varied school types and governance contexts to assess its adaptability and long-term impact.

Recommendations

Based on the findings, the following recommendations are proposed:

1. Institutional Integration: The Department of Education may consider embedding the framework into planning templates (e.g., SIP, AIP, APP) and capacity-building programs for school heads and governance committees.
2. Capacity Building: Training modules on systems thinking, CLD construction, leverage point identification, and adaptive leadership may be developed and localized to strengthen framework adoption.
3. Policy Support: DepEd Orders and SBM guidelines may emphasize systems-informed governance as a standard for planning and evaluation, especially under the new Education Sector Reform Agenda.
4. Further Research: Longitudinal studies are encouraged to examine how the framework impacts planning coherence, resource utilization, and learner outcomes over time.
5. Digital Integration: Development of digital tools (e.g., CLD software, planning dashboards) is encouraged to support wider implementation and monitoring of the framework across schools.

In sum, this study offers not only a framework but a pathway toward more intelligent, inclusive, and impact-oriented school governance, one that recognizes complexity not as a barrier but as the very terrain where leadership must act with courage, clarity, and care.

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