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RESEARCH ARTICLE

The Epistemic Void: Institutional Silencing, Contested Causality, and Narrative Reconstruction in EdTech Implementation: A Conceptual Framework

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ABSTRACT

Educational technology (EdTech) implementation is commonly explained through technological affordances, pedagogical alignment, institutional readiness, stakeholder acceptance, and implementation fidelity. These perspectives illuminate important conditions, yet they insufficiently explain how institutions come to know, or fail to know, why an implementation has become troubled. This conceptual article develops the Triadic Epistemic Failure Framework (TEFF), which theorizes the epistemic void as an institutionally produced condition in which relevant knowledge about implementation difficulties is absent, inaccessible, fragmented, weakly integrated, or narratively displaced. TEFF integrates organizational silence, epistemic injustice, sociotechnical systems, organizational learning, and narrative theory around three recursively related mechanisms: institutional silencing, contested causality, and narrative reconstruction. The article uses conceptual framework analysis and theory synthesis, supplemented by 25 supplied stakeholder and institutional extracts as illustrative materials. The analysis shows how silencing restricts the pool of admissible knowledge; how stakeholder position generates technically, pedagogically, organizationally, and politically differentiated causal accounts; and how official narratives stabilize selected explanations through external attribution, distributed responsibility, temporal reframing, passive agency, and narrative deletion. A contrasting extract demonstrates epistemic recovery through multi-stakeholder evidence comparison, explicit treatment of unresolved claims, delayed rollout, and accountable inquiry. Four research questions and seven theoretical propositions connect the framework's mechanisms to organizational learning. The article argues that EdTech implementation capacity includes an epistemic dimension: the ability to surface discrepant knowledge, adjudicate without forcing false consensus, preserve causal traces, and translate reconstructed accounts into governance changes. The framework offers a research agenda and a practical protocol for stakeholder-inclusive post-implementation inquiry.

Keywords: educational technology implementation; epistemic void; organizational silence; contested causality; narrative reconstruction; epistemic injustice; organizational learning; sociotechnical systems

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1. Introduction

Higher education institutions routinely adopt learning management systems, analytics platforms, adaptive technologies, artificial intelligence tools, and other digital infrastructures while expecting improvements in access, efficiency, teaching, and learning. Research nevertheless shows that implementation is not simply about acquiring a technically capable system. A review of 46 empirical studies identified the interaction of technological characteristics, stakeholder perceptions, disciplinary settings, success metrics, and theoretical frameworks as central to effective EdTech implementation (Chugh et al., 2023). A broader organizational review similarly found that sustainable implementation depends strongly on bottom-up activity, opinion leadership, appropriately timed support, recognition, and incentives. These findings establish EdTech implementation as a sociotechnical process rather than a discrete technical installation (Deacon et al., 2022). A persistent problem remains under-conceptualized: when an implementation disappoints, how does an institution establish what happened, whose account counts, and what should be learned? Existing implementation models generally treat knowledge as available for managerial use once feedback is collected. Yet knowledge may not be voiced, recorded, preserved, believed, reconciled, or connected to a decision. Organizational silence research shows that employees may collectively withhold concerns when speaking appears dangerous or futile, thereby constraining organizational change and development (Morrison & Milliken, 2000). Interview-based research further indicates that anticipated negative labeling and damage to valued relationships can discourage upward communication (Milliken et al., 2003). An institution may therefore possess numerous local observations while lacking a shared, actionable explanation.

This article names that condition the *epistemic void*. The term does not denote an empty information environment. It denotes a socio-technically produced failure to form reliable, accessible, plural, and actionable institutional knowledge about an implementation. The void can contain at least four conditions: nonproduction, when relevant evidence is never collected; concealment, when evidence exists but access is restricted; fragmentation, when different units hold disconnected traces; and displacement, when a stabilized institutional narrative redirects attention away from consequential causes. The paradox is that an institution may be data-rich yet explanation-poor.

The conceptual contribution is the Triadic Epistemic Failure Framework (TEFF). TEFF links three mechanisms that have usually been examined separately. *Institutional silencing* governs which experiences enter the organizational record. *Contested causality* concerns conflict among stakeholder explanations rooted in different roles, evidence, interests, and professional logics. *Narrative reconstruction* concerns the retrospective stabilization of selected causal meanings into accounts that may protect legitimacy but weaken learning. *Organizational narratives* can support either stability or change, and narrative analysis has accordingly become important for understanding organizational identity, strategy, and transformation (Vaara et al., 2016). TEFF explains how the three mechanisms can become recursive: silencing narrows causal debate; unresolved causal debate creates demand for a coherent account; the official account then legitimizes further silencing of alternatives.

The framework also extends epistemic injustice into EdTech governance. Epistemic injustice occurs when people are wronged in their capacity as knowers. Testimonial injustice involves an

unjust credibility deficit, whereas hermeneutical injustice arises when collective interpretive resources are inadequate for rendering experience intelligible (Fricker, 2007). In implementation settings, faculty concerns may be classified as resistance, student reports as dissatisfaction, and frontline technical observations as operational detail. Such classifications do more than rank opinions: they determine what can become institutional evidence (Sinclair, 2019). Four research questions organize the inquiry:

1) RQ1: How does institutional silencing produce and sustain an epistemic void around troubled EdTech implementation?
2) RQ2: How do stakeholder positions and epistemic authority generate and stabilize contested causal accounts of EdTech implementation difficulty?
3) RQ3: Through what narrative practices are implementation difficulties reconstructed in ways that enable or constrain organizational learning?
4) RQ4: What institutional practices can interrupt the recursive relationship among silencing, contested causality, and narrative reconstruction and support epistemic recovery?

The article contributes in four ways. First, it reframes implementation difficulty as an epistemic as well as technical, pedagogical, and managerial problem. Second, it theorizes the relations among voice, causal explanation, and narrative stabilization. Third, it distinguishes inclusive participation from epistemic recovery: allowing actors to speak does not guarantee that their knowledge will be credited, integrated, preserved, or acted upon. Fourth, it specifies propositions, observable indicators, and governance practices that permit empirical evaluation of TEFF.

2. Literature Review

2.1. EdTech as Sociotechnical Change

Sociotechnical systems theory (Baxter & Sommerville, 2011) rejects the isolation of technology from human practices, organizational arrangements, and environmental conditions. In EdTech, platform features, pedagogical designs, professional identities, procurement rules, support arrangements, data infrastructures, and learner practices jointly shape outcomes. Recent reviews emphasize that educational technologies work most effectively when embedded in robust pedagogical design and coordinated institutional systems rather than adopted as stand-alone tools (Wariyo et al., 2026). Chugh et al. (2023) likewise place stakeholder perceptions alongside technology, discipline, metrics, and theory, indicating that implementation quality is relational rather than intrinsic to the artifact. This position changes the status of causal claims. Statements such as ‘the platform failed,’ ‘faculty resisted,’ or ‘training was inadequate’ isolate one part of a coupled system. Each may identify a real condition while remaining causally incomplete. A platform limitation becomes consequential through particular workflows; resistance may arise from identity threat, workload, exclusion, or pedagogical misfit; and training may fail because it is late, generic, optional, or unable to compensate for poor design. TEFF therefore treats implementation outcomes as emergent and explanations as position-dependent.

2.2. Organizational Silence

Organizational silence is a collective phenomenon in which employees withhold information about potential problems. Morrison and Milliken (2000) argue that contextual conditions and collective sensemaking can produce shared beliefs that speaking is unsafe or ineffectual. The

construct is especially pertinent to pluralistic organizations, where distributed expertise should improve decisions but status differences and managerial assumptions can suppress it. Morrison and Milliken's (2000) foundational analysis of organizational silence, further elaborated in higher education contexts by Liu and Geertshuis (2021), demonstrates how the cycle of silence reinforces institutional dysfunction: problems are not discussed publicly because discussing them might damage institutional reputation; the absence of public discussion makes problems appear less significant to policymakers and external observers; this lack of attention prevents resource allocation to address problems, causing them to worsen; as the gap between official narratives (institutional success) and lived reality (institutional dysfunction) widens, individuals face increased pressure to maintain silence to avoid appearing to attack institutions they depend upon.

Within higher education, silence may be generated formally or informally. Formal mechanisms include restricted access to reviews, tightly controlled agendas, procurement confidentiality, nontransparent steering groups, and feedback systems that collect but do not report data. Informal mechanisms include dismissive labels, defensive responses, nonresponse, reputational warnings, meeting norms, and repeated failure to act. Silence therefore includes more than an individual decision not to speak. It can arise through institutional silencing: practices that prevent knowledge from being solicited, recognized, circulated, retained, or connected to authority. The distinction between silence and silencing is analytically important. Silence describes an observable absence or withholding of voice. Silencing foregrounds the organizational processes and power relations that produce that absence (Liu & Geertshuis, 2021). In TEFF, silencing is a filtration mechanism. It determines which experiences cross the boundary between private knowledge and institutional knowledge.

This cycle of silence operates through multiple mechanisms: fear of negative consequences for those who speak openly about institutional problems; reasonable skepticism that speaking up will produce meaningful change; social conformity pressures that discourage dissent; and institutional incentive structures that reward silence by protecting positive metrics and institutional reputation. In higher education contexts, these mechanisms operate simultaneously across multiple hierarchical levels. Faculty fear retaliation or damage to promotion prospects. Students fear damage to academic records or institutional relationships they depend upon. Administrators navigate institutional politics wherein acknowledging systemic problems may be interpreted as admissions of personal or departmental failure. Applied to EdTech implementation, institutional silence means that failures are not systematically documented, analyzed, or discussed. Post-implementation reviews, when conducted, are often treated as confidential documents serving primarily defensive rather than learning functions. The lessons from failures are not aggregated, synthesized, or shared across departments or institutions. Each failed implementation is treated as a discrete organizational event rather than evidence of systemic problems. The accumulated organizational memory of what causes EdTech implementations to fail, information essential for organizational learning, is systematically suppressed or fragmented.

2.3 Epistemic Injustice

Fricker's (2007) account provides a vocabulary for explaining why formally inclusive processes can remain epistemically exclusionary. Testimonial injustice appears when a speaker's account receives less credibility than the evidence warrants. In an EdTech project, a student's repeated account of confusing navigation may be discounted as low digital literacy, or a faculty member's

workflow concern may be discounted as resistance to change. Hermeneutical injustice appears when available institutional categories cannot adequately express an experience. For example, a dashboard may record help-desk volume but lack a category for pedagogical loss, invisible workaround labor, or the erosion of professional autonomy. TEFF uses epistemic injustice cautiously. Not every disagreement or unfavorable credibility judgment is unjust. Technical expertise, evidential quality, and role-specific access can legitimately affect credibility. The epistemic problem arises when status substitutes for evidence; when categories systematically erase certain harms; when lower-status actors must translate their experience into managerial language to be heard; or when participation is offered without influence over interpretation.

2.4 Contested Causality in Organizational Learning and Failure

Even when evidence of failure exists, the epistemic void is sustained by a second mechanism: contested causality. Different organizational actors construct incompatible causal narratives about the same failure, and institutional structures provide no mechanism for adjudicating between them. Organizations struggle to determine why failures occur, and this struggle itself represents an epistemic problem, not merely a practical challenge in root cause analysis. Learning from failure is neither automatic nor uniform. Recent research on organizational learning from failures distinguishes between two categories of failures with fundamentally different epistemological status: process-related failures ('slip-ups') vs. design-related failures ('knowledge gaps'). Slip-ups are failures that organizations should have prevented because the knowledge of how to prevent them is already institutionally held. Knowledge-gap failures result from genuine organizational ignorance, situations where the organization lacked knowledge that failure was possible or what would prevent it (Keil & Mahring, 2010; Anand & Mukherjee, 2024).

Edmondson (2011) distinguishes preventable failures in predictable operations, unavoidable failures in complex systems, and intelligent failures produced by disciplined experimentation; learning requires psychological safety, reporting, careful analysis, and context-sensitive response. Anand and Mukherjee (2024) distinguish process-related slip-ups from design-related knowledge gaps. Their analysis of 7,984 recalls across 108 firms found greater learning from design-related recalls and showed that innovation capabilities strengthened such learning. They found that firms learn significantly more from knowledge-gap failures than from slip-up failures. When an organization fails due to a slip-up, the failure may trigger temporary corrective action but rarely produces systematic organizational learning, because the assumption is that 'we should have known better' rather than that we must fundamentally change our knowledge base or organizational processes. When an organization fails due to a knowledge gap, the failure creates an impetus to acquire new knowledge, restructure processes in light of that knowledge, and fundamentally shift organizational capabilities (Lachheb & Watson, 2023).

However, determining whether a particular failure is a slip-up or knowledge gap is not straightforward. Multiple stakeholders, operating from different institutional logics and professional frameworks, will attribute causality to different factors. Technology implementers may blame institutional resistance and insufficient stakeholder buy-in. Faculty may blame inadequate platform usability and insufficient training. Administrators may blame insufficient budgeting or overambitious timelines. IT staff may blame incompatible legacy systems. Students may blame lack of pedagogical intentionality in course design. These diverse causal attributions are not merely different explanations for the same phenomenon, they represent fundamentally

different framings of what the problem is, what factors are controllable versus external, and what changes would be necessary to prevent future failures. These distinctions matter because causal classification directs remedies. A failure classified as a slip-up invites enforcement, retraining, or procedural compliance. A knowledge gap invites experimentation and redesign. A complex-system failure invites inquiry into interactions rather than blame. If stakeholders cannot agree on classification, or if an official narrative prematurely fixes the classification, the institution may implement a remedy that reproduces the problem.

This contested causality creates epistemic closure: the inability to move from identifying that a failure occurred to understanding what causal mechanisms produced it. Without resolving contested causality, organizations cannot determine whether they experienced a slip-up that requires better execution, or a knowledge-gap failure that requires fundamental organizational change. The result is that failures generate debate about causality that never resolves because the competing frameworks operate according to different epistemic standards and address different aspects of the complex implementation ecology. Learning also requires memory. Organizational memory studies examine how remembering and forgetting are shaped by organizational processes and power, not merely by archival storage. Documentation can preserve a dominant account while deleting alternatives. Thus, memory quality depends on provenance, plurality, retrievability, and connection to future decisions (Foroughi et al., 2020). TEFF treats memory not as a repository but as a governed epistemic infrastructure.

2.5 Organizational Narratives

Narratives arrange actors, events, causation, temporality, and moral evaluation into intelligible sequences. Organizational narratives can legitimate a strategy, stabilize identity, authorize change, or protect continuity. Vaara et al. (2016) show that realist, interpretive, and post-structural approaches illuminate how narratives operate in organizational stability and change. For EdTech implementation, a narrative may transform a disorderly field of complaints, metrics, workarounds, technical incidents, and political negotiations into a concise account suitable for senior management or public communication. Research on institutional responses to disruption demonstrates that stakeholders construct narratives that emphasize external factors beyond institutional control, distribute responsibility across multiple stakeholders in ways that diffuse individual accountability, or reframe failures as temporary setbacks rather than systemic problems requiring fundamental change (Lachheb & Boling, 2024). Sage et al.'s (2014) analysis of discourse surrounding failed public projects showcases how organizational narratives systematically misrepresent causal mechanisms, often emphasizing superficial factors while obscuring deeper structural issues. Similarly, narrative analysis of institutional responses to racism reveals how institutions invoke espoused values while simultaneously resisting substantive change, directing constituents to existing resources rather than committing to structural intervention (Daniels, 2021).

Critically, narrative reconstruction is not merely a problem of dishonesty or bad faith. As Fincham (2002) and Burhanuddin (2025) Vaara et al. (2016) argue, narrative is a fundamental mode of thought through which humans make sense of complex, ambiguous experience. Narratives with higher coherence across cognitive, political, and emotional dimensions are more influential and more likely to be accepted by organizational decision-makers, even when competing narratives may be more empirically accurate but less coherent. This means that the most persuasive failure

narratives are often those that align with existing organizational power structures, that minimize psychological threat to organizational actors, and that fit existing frameworks for understanding institutional problems, not necessarily those that most accurately explain failure causality. The result for organizational learning is pernicious: failure narratives that gain acceptance and circulation within institutions are often precisely those narratives that most systematically obscure systemic factors and most effectively insulate organizational decision-makers from necessity of change.

Coherence is necessary for collective action, but it is not equivalent to causal adequacy. A concise statement may be factually defensible and still omit decisive conditions. Narrative reconstruction becomes epistemically problematic when it reduces causal plurality without transparent evidential reasoning, obscures agency through passive constructions, externalizes controllable choices, or projects learning without specifying what changed. The issue is not that institutions narrate failure; narration is unavoidable. The issue is how narratives are produced, whose knowledge they contain, what evidence they suppress, and which actions they make thinkable.

2.6 The Triadic Epistemic Failure Framework (TEFF)

Building on the preceding analysis, this study proposes the Triadic Epistemic Failure Framework (TEFF), which conceptualizes EdTech implementation failure as resulting from three interconnected epistemic problems. The framework is triadic in structure because these three mechanisms (institutional silence, contested causality, and narrative reconstruction) are mutually reinforcing: institutional silence prevents contested causality from being productively engaged because different stakeholder perspectives never openly confront each other; contested causality that remains unresolved leaves a vacuum that narrative reconstruction fills; narrative reconstruction that becomes institutionally accepted further silences alternative perspectives and causal attributions. The TEFF proposes that high-quality EdTech implementation outcomes depend not only on adequate technical implementation, sufficient funding, appropriate platform selection, and stakeholder engagement, but also on a fourth dimension: the institutional capacity to develop, preserve, and act upon accurate knowledge about why implementations fail when they do. This institutional capacity depends on: (1) organizational practices that systematically surface, rather than suppress, information about failures; (2) frameworks and processes through which contested causal attributions can be engaged and resolved; and (3) narrative practices that prioritize accurate causal explanation over psychologically protective or politically convenient narratives. Table 1 shows how the theoretical strands contribute distinct components to TEFF.

Table 1. *Theoretical architecture of TEFF*

Theoretical strand	Primary question	TEFF construct	EdTech manifestation	Learning risk
Sociotechnical systems	How do technical and social elements interact?	Causal interdependence	Platform, pedagogy, governance, support, and user practices jointly produce outcomes	Single-factor explanation
Organizational silence	Why is problem knowledge withheld?	Institutional silencing	Concerns are not solicited, voiced, circulated, or retained	Missing evidence and delayed detection
Epistemic injustice	Whose knowledge is credible or intelligible?	Epistemic authority	Faculty, students, and frontline staff receive unequal credibility	Exclusion from the knowledge pool

Organizational learning	How does failure alter future action?	Epistemic conversion	Evidence is classified, interpreted, retained, and translated into change	Repetition without adaptation
Narrative theory	How is disorder made coherent?	Narrative reconstruction	Official accounts assign agency, causality, temporality, and responsibility	Legitimacy-preserving causal closure
Organizational memory	What becomes retrievable institutional history?	Causal trace preservation	Decisions, dissent, workarounds, and consequences enter or disappear from archives	Organizational forgetting

The epistemic void emerges when these processes fail jointly. It can be represented conceptually as the gap between locally available implementation knowledge and institutionally actionable causal understanding. No numerical index is proposed at this stage; the construct is relational and processual. An institution may have abundant data yet a large epistemic void if the data exclude consequential experiences, remain siloed, or cannot challenge an authorized narrative.

3. Methodology

3.1. Conceptual Design

The article adopts a theory-synthesis and model-building design. Theory synthesis connects previously separated literature streams to provide an enhanced explanation of a focal phenomenon, while model papers specify relationships among concepts (Jaakkola, 2020). Conceptual framework analysis is also appropriate because it treats a framework as a network of linked concepts and emphasizes iterative mapping, categorization, integration, synthesis, validation, and reconsideration (Jabareen, 2009). The analytical objective is explanation rather than prediction. The framework identifies what constructs matter, how they relate, why the relations should occur, and the contextual boundaries within which claims are expected to hold. These correspond to core criteria for theoretical contribution: specification of the relevant constructs, their relationships, explanatory logic, and boundary conditions (Whetten, 1989).

3.2. Theoretical Source Domains

Five bodies of scholarship were selected for their explanatory relevance: (a) EdTech implementation and stakeholder-perception research; (b) sociotechnical systems theory; (c) organizational silence and employee voice; (d) epistemic injustice, organizational learning, and memory; and (e) organizational narrative and sensemaking. The selection was theoretically purposive rather than systematic. Sources were used to clarify constructs, expose tensions among explanatory traditions, and derive relationships for integration within TEFF. Accordingly, the article does not claim exhaustive literature coverage or provide frequency-based findings of the kind associated with a systematic review. The conceptual synthesis followed six recursive operations:

- **Problem formulation**: Reframing troubled EdTech implementation as a problem of institutional knowledge formation.
- **Concept mapping**: Identifying constructs relevant to knowledge production, credibility allocation, causal disagreement, narrative stabilization, knowledge retention, and institutional action.

- **Concept differentiation**: Distinguishing silence from silencing, information absence from epistemic void, divergent accounts from contested causality, and communication from epistemic recovery.
- **Relational integration**: Specifying how silencing, causal contestation, and narrative reconstruction reinforce one another.
- **Illustrative interrogation**: Using the supplied extracts to examine whether TEFF discriminates among contrasting forms of institutional discourse.
- **Proposition development**: Deriving theoretically grounded and empirically examinable propositions and identifying the framework's boundary conditions.

3.3. Illustrative Materials

The illustrative corpus comprises 25 textual items organized into two analytically distinct sets. The first set consists of 15 supplied extracts and institutional-narrative examples throughout the text, labeled P_01-P_15 for traceability. These materials include stakeholder-style statements, institutional communications, descriptions of divergent causal accounts, and accompanying analytical annotations. The second set consists of 10 extra extracts (Appendix A), labeled P_16–P_25, organized to clarify the mechanisms and boundary conditions of the Triadic Epistemic Failure Framework (TEFF). The composite extracts represent participants, institutions, interviews, or independently collected empirical observations. The materials were used for conceptual illustration rather than population-level inference. Specifically, they supported construct clarification, comparison of narrative patterns, negative-case examination, and identification of observable manifestations of institutional silencing, contested causality, narrative reconstruction, and epistemic recovery. They were not used to calculate frequencies, estimate prevalence, test statistical relationships, or make claims about the wider population of higher education institutions.

The distinction between the two sets was maintained throughout the analysis. Both series preserves the provenance of the materials supplied for analysis derived from the framework's theoretical categories. Because the available documentation does not establish a recruitment strategy, participant demographics, interview protocol, informed-consent procedure, transcription process, or independently verifiable chain of custody, all of the 25 items are represented as a collected participant interview. The labels function exclusively as reference identifiers.

3.4. Analytical Approach

The article employs qualitative conceptual analysis informed by critical discourse analysis (Fairclough, 2003). Critical discourse analysis served as a sensitizing analytical framework rather than as the basis for claiming a comprehensive empirical CDA study. The analysis examined how institutional accounts construct implementation difficulties through linguistic selection, causal attribution, representation of agency, temporal organization, and allocation of epistemic authority. At the textual level, attention was given to lexical choice, grammatical agency, nominalization, modality, passive constructions, evaluative language, causal attribution, and temporal framing. At the discursive-practice level, the analysis considered how particular accounts authorized certain explanations while marginalizing, transforming, or omitting alternatives. At the social-practice level, it examined how these narratives reflected or reproduced

institutional hierarchy, professional authority, reputational protection, and differential recognition of stakeholder knowledge (Kazemian, 2018, 2026). The analysis focused particularly on four narrative configurations. *External attribution* was identified when responsibility was located primarily in technologies, vendors, users, or external constraints while controllable institutional decisions were minimized. *Distributed responsibility* was identified when multiple abstract factors were listed without specifying causal interaction, decision ownership, or corrective responsibility. *Narrative deletion* was identified when a discontinued or troubled implementation was omitted from the account of an institution's current technological arrangements. *Epistemic recovery* was identified when an account differentiated stakeholder perspectives, compared claims with relevant evidence, retained unresolved questions, and connected causal understanding to identifiable institutional action. The analytical codebook is presented in Table 2.

Table 2. *Analytical codebook*

Code	Operational question	Indicative evidence
Institutional silencing	What knowledge is prevented from entering or circulating within the institutional record?	Restricted reviews, internal-only processes, euphemism, omission, nonresponse, or absence of a feedback route
Credibility allocation	Whose account is treated as authoritative or insufficiently credible?	Status-based acceptance, resistance labels, or dismissal of experiential knowledge
Causal differentiation	Are distinct causal mechanisms identified and separated?	Differentiation among technical, pedagogical, organizational, contractual, temporal, and political causes
Causal closure	Is causality fixed before alternatives are adequately examined?	Single-factor certainty, unsupported inevitability, or omission of counterevidence
External attribution	Is responsibility located primarily outside institutional choice?	Vendor, platform, readiness, or user deficit presented as determinative
Distributed responsibility	Are multiple abstract factors named without specifying decision ownership?	Lists of barriers with no agents, chronology, interaction, or corrective owner
Passive agency	Are consequential decisions detached from identifiable decision-makers?	"It was determined," "challenges were encountered," or "lessons were learned"
Temporal reframing	Is implementation difficulty repositioned as transition, adaptation, or evolution?	"Evolving needs," "moving forward," or "temporary challenge"
Narrative deletion	Is a discontinued or troubled implementation omitted from institutional history?	Present success described without an account of the superseded initiative
Epistemic recovery	Are alternative accounts compared while uncertainty is retained?	Evidence comparison, unresolved claims, multi-stakeholder review, delayed rollout, or assigned inquiry
Action conversion	Does causal explanation produce accountable institutional change?	Named responsibility, testable action, altered workflow, governance revision, or retained record

3.5. Conceptual Coding Procedure

The materials were examined through two iterative coding cycles. The first cycle applied theoretically derived categories associated with TEFF and its contributing theoretical traditions. These categories included institutional silencing, credibility allocation, contested causality, external attribution, distributed responsibility, passive agency, temporal reframing, narrative deletion, causal closure, organizational forgetting, epistemic recovery, and action conversion. The second cycle investigated relationships among these categories. Particular attention was given to whether institutional silencing restricted the range of causal accounts entering the formal record; whether unresolved causal disagreement generated demand for a coherent institutional narrative; whether narrative reconstruction privileged institutionally protective explanations;

and whether the resulting account enabled or constrained organizational learning. This relational analysis supported refinement of the proposed recursive connections among the three central TEFF mechanisms. Each item was examined in relation to four analytical questions:

- What implementation knowledge is represented, restricted, marginalized, or omitted?
- Which actors or institutional positions are granted authority to define the implementation problem?
- How are causality, responsibility, temporality, and institutional agency narratively constructed?
- Does the account generate an actionable and revisable explanation, or does it produce premature epistemic closure?

The analysis also incorporated negative-case examination. Items illustrating epistemic recovery were compared with institutionally protective narratives to determine which discursive and procedural features distinguished learning-oriented reconstruction from external attribution, responsibility diffusion, or narrative deletion. This comparison supported refinement of the framework by identifying multi-stakeholder evidence integration, calibrated certainty, explicit causal differentiation, reversible decision-making, and assigned action as potential indicators of epistemic recovery. Because the materials are illustrative and heterogeneous, coding was interpretive rather than frequency-based. No percentages, prevalence estimates, intercoder-reliability coefficients, or claims of thematic saturation are reported. The analytical objective was to demonstrate the explanatory and discriminative value of TEFF, not to establish how commonly its mechanisms occur in higher education. Additional examples, coding rationales, and framework-to-extract mappings are provided in Appendix A.

4. Analytical Findings

4.1. Silencing and the Void (RQ1)

RQ1 asks how institutional silencing produces and sustains an epistemic void. The extracts indicate that silencing operates not only through direct prohibition but through controlled generality, internalization, omission, and anticipatory closure. P_06 offers the clearest instance of controlled generality:

- “The implementation has presented challenges we are addressing through internal process improvements.”

The statement acknowledges difficulty while withholding its content. ‘Challenges’ does not specify affected users, severity, duration, or mechanism; ‘internal’ marks the boundary of legitimate circulation; and ‘process improvements’ asserts remedial action without naming the process, decision owner, evidence, or outcome. The statement therefore performs recognition and closure simultaneously. It permits the institution to appear responsive while preventing external or cross-unit scrutiny. This pattern is epistemically consequential because acknowledgment alone does not create knowledge. The extract contains no causal trace by which a later team could distinguish platform limitations, governance failures, pedagogical misfit, resource constraints, or implementation sequencing. RQ1 is therefore answered by distinguishing discursive acknowledgment from epistemic disclosure. The former names difficulty; the latter makes its

evidence, causality, uncertainty, and decision consequences inspectable. P_05 identifies a temporal consequence of weak disclosure and retention:

- "every time we attempt to solve a problem we start with a self-imposed learning disability."

The formulation links organizational forgetting to repeated novelty. Prior attempts disappear as usable history, so recurring problems are treated as unprecedented. Organizational memory scholarship supports the view that remembering and forgetting are shaped by organizing practices and power rather than by storage alone. P_05 thus illustrates that an epistemic void can be reproduced across time even when individuals remember fragments of earlier attempts (Foroughi et al., 2020). P_03 and P_15 demonstrate silencing through narrative omission. P_03 states,

- "The university has moved toward a flexible ecosystem of tools aligned with evolving pedagogical and institutional needs."

P_15 similarly describes an 'integrated ecosystem' and present enthusiasm while deleting the failed or superseded implementation. Neither statement is necessarily false. Their epistemic effect lies in removing the transition's causal history. 'Moved toward' and 'has evolved' naturalize change, while 'evolving needs' treats the prior decision as outdated rather than potentially flawed. The organization retains a story of adaptation but not an account of why adaptation became necessary. These extracts, along with extracts in Appendix A, reveal four linked silencing mechanisms:

a) *Lexical containment*: abstract nouns such as 'challenges,' 'needs,' and 'improvements' replace observable events.

b) *Access containment*: 'internal' designates failure knowledge as restricted.

c) *Temporal containment*: current improvement displaces investigation of prior decisions.

d) *Archival containment*: absent causal traces prevent future actors from reconstructing events.

The answer to RQ1 is therefore processual. Institutional silencing creates the epistemic void by interrupting the conversion of experience into institutional evidence at successive points: solicitation, articulation, credibility assessment, circulation, documentation, and retrieval. Silence at any one point is harmful; cumulative interruption makes the void durable.

4.2. Contested Causality (RQ2)

RQ2 asks how stakeholder position and epistemic authority generate and stabilize contested causal accounts. P_07 provides the strongest illustration. The IT account attributes failure to '*insufficient institutional readiness and faculty resistance to change*'; faculty governance attributes it to '*inadequate platform usability and insufficient technical training*'; and students attribute it to '*poor course design and lack of pedagogical intentionality*.' These explanations differ in unit of analysis, evidence, responsibility, and remedy. The IT account foregrounds adoption capacity and locates the problem partly in users. Its likely remedy is stronger change management. The faculty account foregrounds artifact quality and institutional support; its remedy is redesign, better selection, or more situated training. The student account foregrounds the learning experience; its

remedy is pedagogical redesign rather than platform adoption alone. A recent EdTech review confirms that competing stakeholder perceptions are central to implementation and cannot be reduced to technical effectiveness (Chugh et al., 2023).

The accounts are not mutually exclusive, but neither are they interchangeable. 'Resistance' may be a behavioral observation, a managerial diagnosis, or a delegitimizing label. 'Poor usability' may refer to interface design, unfamiliarity, workflow mismatch, or inadequate configuration. 'Poor course design' may be an independent pedagogical weakness or a consequence of compressed migration. Contested causality therefore arises when actors observe different segments of a sociotechnical system and use different causal grammars to connect observation to responsibility. P_09 and P_10 show how a partially valid explanation can become causally dominant. P_09 states that '*the platform did not meet specific collaborative-assessment and grade-weighting needs*.' P_10 adds that '*needs assessment was inadequate, training minimal, the timeline compressed, and no pilot or staged rollout conducted*. *The platform account is not disproved; it is re-situated*.' Platform limitation and institutional process become interacting causes. The epistemic failure would be to transform a contributory condition into an exhaustive explanation.

P_13 intensifies this pattern by asserting that external constraints '*made implementation success impossible despite*' comprehensive institutional planning and engagement. The counterfactual claim of impossibility closes inquiry into procurement, due diligence, contingency planning, and requirements definition. The statement illustrates causal foreclosure: a conclusion that precludes examination of institutional choice before alternatives are weighed. Power determines which account stabilizes. Epistemic injustice theory clarifies that social position can influence credibility and collective intelligibility. In an implementation setting, senior leadership can convert an interpretation into the official record, whereas students and frontline staff may supply observations without controlling the categories through which those observations are interpreted. P_07's central problem is therefore not simply disagreement. It is the absence of a legitimate adjudicative process capable of comparing evidence, preserving unresolved questions, and tracing interactions across levels (Fricker, 2007). RQ2 is answered through four propositions about causal contestation. First, role-differentiated access produces partial but potentially valid accounts. Second, professional logics connect the same event to different remedies. Third, epistemic authority is unequally distributed, so institutional visibility does not necessarily track evidential quality. Fourth, causal stabilization becomes problematic when authority substitutes for adjudication. See another excerpt about contested causality:

- "IT reported that the system was functioning as designed: uptime was stable, integrations were operational, and support tickets were declining. Faculty nevertheless argued that the platform fragmented assessment into workflows that did not correspond with how their courses were taught. Both groups used the word 'functioning,' but they were evaluating different objects." [P_20]

P_20 demonstrates that causal disagreement may originate in competing definitions of implementation functionality. Technical personnel evaluate infrastructural reliability, whereas faculty evaluate pedagogical workability. Both accounts may be evidentially valid while remaining insufficient as complete assessments. The key conflict concerns the object being evaluated. For IT, 'functioning' refers to uptime, integration, and ticket volume. For faculty, it refers to whether the platform supports disciplinary assessment and teaching practices. Without an explicit distinction

between technical operation and pedagogical usability, the institution may interpret the two accounts as contradictory and select the one supported by standardized metrics. The excerpt answers RQ2 by showing that contested causality is not always disagreement about the same evidence. Stakeholders may use the same evaluative term while referring to different layers of the sociotechnical system. Causal adjudication must therefore begin by clarifying constructs and units of analysis. Post-implementation reviews should separate technical reliability, functional usability, pedagogical adequacy, accessibility, and governance quality rather than collapsing them into a single success judgment.

4.3. Narrative Reconstruction (RQ3)

RQ3 asks which narrative practices enable or constrain learning. The extracts display three recurrent protective patterns: *external attribution*, *distributed responsibility*, and *narrative deletion*. Across these patterns, narrative reconstruction does not generally fabricate events. It reorganizes selection, agency, temporality, and specificity. The following extract, the concessive structure performs two tasks. It attributes failure to the platform and immunizes institutional preparation from inquiry. 'Distinctive' may further exceptionalize the institution, allowing failure to appear unforeseeable. P_01 states,

- "The platform could not meet our institution's distinctive assessment and collaboration needs despite the implementation team's extensive preparation." [External Attribution]

P_09 and P_13 repeat the pattern with greater detail (Appendix A). The resulting narrative is coherent because a technical deficiency offers a bounded cause and a straightforward future remedy: select a better platform. The learning risk is not external attribution itself. Vendors and technologies can fail. The risk is attributional exclusivity: the external cause is narrated as sufficient, while controllable institutional choices become invisible. In sociotechnical terms, the explanation severs the artifact from the selection, configuration, rollout, and pedagogical practices through which its limitations became consequential. P_02 attributes challenges to faculty adoption, infrastructure, student readiness, and resource constraints before affirming commitment to innovation (distributed responsibility). P_11 similarly invokes 'a combination' of adoption barriers, infrastructure limitations, and readiness issues, then concludes that the wider transition enriched the educational environment. P_14 elaborates a parallel list and promises that lessons will inform future initiatives.

Multi-causality is appropriate for complex systems, but these statements substitute factor accumulation for causal explanation. They do not identify sequence, interaction, decision ownership, evidence strength, or controllability. Responsibility is distributed across abstract categories, and the conclusion shifts from explanation to affirmative identity. 'The institution has learned' is asserted without identifying a changed rule, resource allocation, governance structure, or implementation practice. This pattern can be called *nonconsequential complexity*. The account sounds sophisticated because it names multiple factors, but it leaves no factor sufficiently specified to require action. In contrast, an actionable multi-causal account would show how infrastructure decisions constrained course design, how the rollout timetable limited training, how faculty workarounds affected students, and which governing decisions can be altered. P_12 concerns an implementation abandoned after eight months, followed by the statement:

- "We have determined that our institution's learning technology needs are being met through our current ecosystem of tools."

The agent behind 'determined' is omitted, the evidence for 'being met' is unspecified, and the abandoned implementation disappears. P_03 and P_15 use similar evolutionary language. *Narrative deletion* constrains learning most strongly because it removes failure from the object of analysis. The organization may preserve an acceptable present identity but loses an account connecting prior expectations, decisions, warning signs, consequences, and corrective changes. Narrative scholarship shows that organizational stories can stabilize meaning and identity as well as enable change. In these extracts, stabilization dominates: institutional adaptability replaces causal accountability (Lachheb & Boling, 2024; Vaara et al., 2016).

4.3.1 Learning-oriented Reconstruction

P_04 (7) provides a negative case. It reports assessment-workflow mismatch, integration failure, inconsistent navigation, and contractual and timing constraints; distinguishes supported findings from unresolved claims; delays full rollout; and assigns a cross-functional group to test revised workflows.

- "Faculty reported assessment-workflow mismatch; technical staff documented integration failures; students identified inconsistent navigation; and administrators identified contractual and timing constraints. The review distinguished supported findings from unresolved claims, delayed full rollout, and assigned a cross-functional group to test revised workflows."

This extract does not eliminate narrative. It constructs a different kind of narrative, one that preserves plurality, degrees of evidential support, uncertainty, temporality, and accountable action. P_04 contains five markers of epistemic recovery (see 4.4):

a) *Differentiation*: Technical, pedagogical, user-experience, contractual, and temporal issues remain analytically distinct.

b) *Plural evidence*: Faculty, staff, students, and administrators contribute role-specific knowledge.

c) *Calibrated certainty*: Supported findings are separated from unresolved claims.

d) *Reversibility*: The rollout is delayed rather than defended through escalation of commitment.

e) Actionable ownership: A cross-functional group is assigned to test revised workflows.

P_08, which describes a published post-implementation case documenting training limitations, student interface resistance, legacy-system integration problems, responses, and eventual outcomes, reinforces the distinction between reputational harm and transparency. A success narrative need not erase difficulty; it can embed success within a traceable account of obstacles and responses (Appendix A). The extract by P_19 displays two codes: Narrative reconstruction and Temporal reframing (deferred accountability & normalization):

- "The difficulties experienced during the first year should be understood as normal transitional turbulence. Major digital transformations require patience, and it

> would be premature to draw conclusions while faculty and students are still adapting to new ways of working."

The above extract (8) shows how difficulties may be normalized as an expected feature of transition. The narrative appears reasonable because complex implementations do require adaptation; however, its temporal logic can indefinitely postpone evaluation. Describing difficulties as 'transitional turbulence' does not establish whether they resulted from temporary unfamiliarity, inadequate training, platform-workflow mismatch, inaccessible design, or flawed governance. The statement places explanatory weight on the passage of time rather than on evidence capable of distinguishing among these mechanisms. Temporal reframing constrains learning when every adverse outcome is treated as premature evidence. If an institution does not specify what improvement should occur, by when, and according to which indicators, patience becomes a mechanism of causal closure. The narrative protects the implementation from falsification because continuing problems can always be attributed to incomplete adaptation. RQ3 is therefore answered by distinguishing protective reconstruction from learning-oriented reconstruction. Protective reconstruction maximizes legitimacy, coherence, and closure while minimizing inspectable agency and causal consequence. Learning-oriented reconstruction accepts qualified coherence: it assembles an actionable account without erasing disagreement, uncertainty, or institutional responsibility.

4.4 Epistemic Recovery (RQ4)

RQ4 asks what can interrupt the recursive relationship among the three mechanisms. P_04 suggests that recovery is not equivalent to unrestricted voice or maximal transparency. It is a governed process that converts plural knowledge into warranted and revisable action. The first requirement is *voice architecture*: multiple stakeholder groups must have protected routes to report concerns before, during, and after implementation. Organizational silence research indicates that speaking up depends on perceived safety and efficacy, not merely the existence of a feedback form. Channels must therefore specify who receives reports, how responses are documented, when escalation occurs, and how retaliation or reputational labeling is prevented (Morrison & Milliken, 2000; Deacon et al., 2023). The second requirement is *causal adjudication without forced consensus*. Institutions should build a causal map that distinguishes observations, interpretations, evidence, counterevidence, dependencies, and unresolved claims. The purpose is not to vote for the most popular narrative. It is to determine which claims are supported, how mechanisms interact, what remains unknown, and which low-risk tests can discriminate among alternatives.

The third requirement is *narrative audit*. Draft post-implementation accounts should be examined for omitted agents, unsupported inevitability, abstract learning claims, externalization, and deletion of counterevidence. Such an audit does not demand public disclosure of confidential information. It demands internal epistemic integrity and an explicit rationale for necessary redaction. The fourth requirement is *memory conversion*. Findings must be linked to future procurement, governance, implementation gates, training design, and evaluation metrics. Edmondson's work emphasizes that reporting and postmortems often fail to produce change when failure is misconstrued or blame prevents analysis. A lesson becomes institutional learning only when it changes a routine, resource, threshold, role, or decision rule (Edmondson, 2011). The following extracts demonstrate Epistemic recovery as the primary code and secondary codes as

evidence differentiation, calibrated uncertainty, productive pluralism (9), and as organizational memory, action conversion and prospective accountability (10):

- "The review did not ask stakeholders to agree on a single cause. Instead, each group submitted its principal claims, supporting evidence, and counterevidence. Log data supported the integration concerns; classroom observations supported the workflow-mismatch claim; and the available evidence could not determine whether declining use reflected resistance, workload, or limited pedagogical value." [P._24]
- "Before approving the next platform, the committee reviewed the previous implementation's decision log, dissenting assessments, unresolved risks, and post-launch evidence. Three requirements were consequently added: a faculty-led workflow test, a student accessibility review, and a staged exit criterion if predefined problems remained unresolved after the pilot." [P_25)

P_24 (9) illustrates causal adjudication without forced consensus. Stakeholder explanations are neither treated as equally correct nor reduced prematurely to one authoritative narrative. Each claim is assessed according to relevant evidence, and unresolved causality remains visible. The extract contrasts with processes in which seniority, voting, or narrative coherence determines the accepted explanation. Integration logs provide appropriate evidence for technical claims, while classroom observations provide evidence about pedagogical workflow. The meaning of declining use remains underdetermined because the same behavioral outcome can arise from different mechanisms. This approach answers RQ2 by showing how contested accounts can be evaluated according to evidential relevance. It answers RQ4 by preserving uncertainty as a legitimate result rather than interpreting it as review failure. Calibrated uncertainty supports better action because it identifies which propositions are established and which require additional inquiry.

P_25 (10) demonstrates that documentation becomes organizational learning only when it changes subsequent decision rules. Archived material is not treated as a passive historical record; it directly alters requirements, participation, evaluation, and stopping criteria. The inclusion of dissenting assessments is particularly important. Institutional memory often preserves the final authorized narrative while losing alternative accounts that may later prove diagnostically valuable. By reviewing unresolved risks and dissent alongside the decision log, the committee preserves causal plurality across project cycles. The extract answers RQ4 through three recovery mechanisms. First, faculty-led testing connects platform requirements to authentic pedagogical workflows. Second, student accessibility review recognizes learner experience as implementation evidence. Third, a predefined exit criterion makes the project reversible and limits escalation of commitment. Learning is therefore operationalized as changed governance rather than an abstract claim that 'lessons were learned.' Table 3 connects the research questions, extracts, claims, and organizational responses.

Table 3. *Research-question Integration*

RQ	Primary extracts	Conceptual answer	Learning consequence	Recovery response
RQ1: Silencing	P_03, P_05, P_06, P_12, P_15, P_16, P_17, P_18, P_21.	Knowledge is contained through abstraction, restricted circulation, temporal displacement, and archival deletion	Evidence does not become retrievable institutional knowledge	Protected voice channels, disclosure standards, causal-trace archive

RQ2: Contested causality	P_07, P_09, P_10, P_13, P_18, P_20, P_21, P_24	Role-specific access and professional logics produce partial accounts; authority shapes which account stabilizes	Remedy follows dominant status rather than integrated evidence	Multi-stakeholder causal mapping, claim-evidence matrix, explicit uncertainty
RQ3: Narrative reconstruction	P_01–P_03, P_09, P_11, P_15, P_17, P_19, P_22, P_23	External attribution, distributed responsibility, passive agency, and deletion preserve legitimacy but weaken causal accountability	Coherent stories fail to generate specific institutional change	Narrative audit, named agency, chronology, counterevidence, action ownership
RQ4: Recovery	P_04, P_08, P_24, P_25	Recovery integrates plural evidence, calibrates certainty, preserves reversibility, and assigns inquiry	Failure becomes a source of redesign rather than defensiveness	Staged rollout, cross-functional review, decision gates, retained lessons

4.5 TEFF Propositions

TEFF theorizes an iterative sequence rather than a strictly linear chain. An implementation produces distributed experiences and traces. Institutional silencing filters which traces enter formal knowledge. Surviving accounts compete to define causality. Narrative reconstruction stabilizes a version suitable for decision and communication. The stabilized narrative then affects future voice, memory, and implementation. Epistemic recovery can interrupt the cycle at every stage.

Proposition 1: *Silencing-void relationship*: The greater the institutional filtering of discrepant implementation knowledge across solicitation, credibility, circulation, and retention, the larger the gap between locally available knowledge and institutionally actionable causal understanding. This proposition shifts attention from the amount of feedback to the fate of feedback. A university may administer surveys but still produce a void if dissenting categories are aggregated away, results are not circulated, or no decision is connected to them.

Proposition 2: *Position-causality relationship*: The greater the differentiation in stakeholder roles, information access, and professional logics, the greater the likelihood that EdTech implementation difficulty will generate divergent causal accounts. Divergence is not itself dysfunction. In a sociotechnical system, it may indicate distributed expertise. The risk emerges when no procedure can examine interactions among the accounts.

Proposition 3: *Authority-stabilization relationship*: Where epistemic authority is strongly hierarchical, the causal account of higher-status actors is more likely to become the official narrative independent of comparative evidential quality. This proposition makes epistemic injustice empirically examinable. Researchers can compare account uptake with source status, evidence, meeting records, and final reports.

Proposition 4: *Contestation-reconstruction relationship*: Unresolved causal contestation increases organizational demand for a coherent narrative, thereby increasing the likelihood of premature causal closure. The proposition explains why ambiguity may not remain visible. Decision timelines, reputational demands, and funding cycles reward closure, even when evidence is incomplete.

Proposition 5: Protective narrative-learning relationship: The greater an official account's reliance on external attribution, abstract distributed responsibility, passive agency, and narrative deletion, the less likely it is to specify changes to institutional routines, roles, resources, or

decision rules. The claim concerns actionability rather than moral sincerity. A well-intentioned narrative can still be epistemically protective.

Proposition 6: *Recovery moderation*: Stakeholder-inclusive causal adjudication, calibrated uncertainty, and narrative audit weaken the relationship between contested causality and protective narrative reconstruction. Inclusion alone is insufficient. The moderating mechanism depends on evidential comparison, protected disagreement, and preservation of unresolved claims.

Proposition 7: *Memory-future implementation relationship*: Causal traces improve subsequent implementation learning only when they are retrievable and institutionally coupled to future procurement, design, rollout, and evaluation decisions. Table 4 operationalizes the propositions for future research.

Table 4. *Empirical Indicators for Future Testing*

Proposition	Possible independent indicator	Possible process indicator	Possible outcome indicator
P1	Breadth and protection of feedback routes	Proportion of concerns recorded, circulated, and answered	Difference between private accounts and formal record
P2	Role and information-access diversity	Number and type of causal frames	Degree of causal divergence
P3	Hierarchical concentration of decision authority	Citation and uptake of stakeholder evidence	Alignment of final report with status versus evidence quality
P4	Degree of unresolved causal conflict	Time pressure and demand for closure	Premature single-cause or closed narrative
P5	Narrative-protection index based on agency, specificity, and omission	Presence of counterevidence and chronology	Number and specificity of governance changes
P6	Quality of adjudication and narrative audit	Retention of uncertainty and dissent	Integrative causal account and reversible action
P7	Retrievability and decision linkage of prior reviews	Use of prior lessons in project gates	Reduced recurrence of previously documented mechanisms

5. Discussion

5.1 Reframing Implementation Capacity

The framework answers the four research questions through a single argument: implementation capacity includes epistemic capacity. Technical infrastructure, pedagogical alignment, resources, support, and adoption remain necessary, but institutions also require the ability to generate, recognize, integrate, preserve, and use knowledge about implementation difficulty. The epistemic void explains how institutions may repeatedly invest in implementation while failing to accumulate usable understanding. This reframing extends sociotechnical analysis. Sociotechnical research establishes that technology and social organization jointly shape performance. TEFF adds that institutions do not observe this joint production neutrally. They know the sociotechnical system through hierarchies, categories, documents, metrics, and narratives. Consequently, implementation outcomes and implementation knowledge are both organizational products (Wariyo et al., 2026).

The answer to RQ1 extends *organizational silence* from the withholding of voice to the institutional career of knowledge. Morrison and Milliken (2000) explain how shared beliefs about danger and futility produce silence. The extracts show that even voiced concerns can be silenced later through abstraction, restricted circulation, decontextualized aggregation, or archival deletion. This suggests that future studies should follow a concern longitudinally: who articulated

it, how it was categorized, which forum received it, whether it entered the official record, and whether it affected a decision. The distinction also prevents an overly individualistic remedy. Encouraging courage or openness is insufficient if meeting agendas, dashboards, procurement categories, confidentiality rules, and reporting lines systematically remove causal detail. Epistemic capacity therefore depends on governance design as much as communicative climate.

The answer to RQ2 connects contested causality to *epistemic injustice*. Stakeholders do not merely hold different opinions; they occupy different observation points and experience different consequences. Fricker's (2007) distinction between testimonial and hermeneutical injustice helps explain why some actors receive insufficient credibility and why some experiences lack institutionally recognized categories. For instance, a faculty member may be heard but interpreted only through 'adoption resistance,' while the category 'pedagogical workflow loss' remains unavailable. TEFF does not imply that all accounts deserve equal weight. Epistemic justice requires proportionate, reflexive credibility rather than automatic equality. Claims should be evaluated by access, evidence, explanatory scope, counterevidence, and consistency with observed sequences. However, status should not pre-empt that evaluation. A student's account can be decisive regarding navigation experience even if it is limited regarding procurement constraints; an IT specialist's account can be decisive regarding integration logs while limited regarding classroom consequences. This analysis also clarifies the difference between pluralism and relativism. Multiple perspectives can reveal a layered causal structure without making every interpretation equally valid. P_04 exemplifies this stance by distinguishing supported findings from unresolved claims. The target is not consensus but warranted integration.

The answer to RQ3 treats narrative reconstruction as unavoidable but governable. Organizations require narratives to coordinate action, maintain identity, and communicate across audiences. Vaara et al. (2016) show that narratives are implicated in both stability and change. TEFF therefore rejects a simple opposition between narrative and truth. Instead, it proposes *narrative adequacy* as a quality criterion. An epistemically adequate implementation narrative should include: (a) a chronology linking expectations, decisions, warning signs, adaptations, and outcomes; (b) differentiated causal mechanisms rather than undifferentiated barrier lists; (c) explicit agents for consequential decisions; (d) evidence and counterevidence for major claims; (e) stakeholder-position information explaining access and limits; (f) unresolved questions and degrees of confidence; (g) controllable and uncontrollable conditions; (h) specified changes to future practice. External attribution fails this standard when it treats a real platform limitation as causally exhaustive. Distributed responsibility fails when complexity eliminates ownership. Narrative deletion fails when the present is detached from the institutional decisions that produced it. By contrast, P_04 meets much of the standard because it retains causal plurality and converts it into reversible, assigned action.

The answer to RQ4 aligns epistemic recovery with organizational learning but adds a governance sequence. Edmondson (2011) argues that failure learning requires safety, reporting, analysis, and strategies matched to the type of failure. Anand and Mukherjee (2024) show that organizations learn differently from slip-ups and knowledge-gap failures. TEFF adds that failure type is itself narratively and politically contested. Before an institution can select the appropriate learning strategy, it must establish how the event is classified and whose evidence informs that classification. A robust recovery process should therefore move through five stages:

1) *Surface*: Gather discrepant observations through protected and role-appropriate channels.
2) *Differentiate*: Separate observations, interpretations, causal claims, values, and preferred remedies.
3) *Adjudicate*: Compare evidence, map interaction effects, and retain unresolved claims.
4) *Reconstruct*: Produce a narrative that is coherent enough for action but transparent about uncertainty and responsibility.
5) *Institutionalize*: Link findings to named changes and preserve the causal trace for future decisions.

Failure at any stage can recreate the void. Surfacing without adjudication produces a larger archive of unresolved claims. Adjudication without reconstruction leaves decision-makers without a usable account. Reconstruction without institutionalization yields symbolic learning. Institutionalization without memory allows changes to decay after leadership or staff turnover.

5.2 Boundary Conditions

TEFF is most applicable to complex, multi-stakeholder implementations in which evidence is distributed, outcomes are ambiguous, and reputational stakes are meaningful. Its mechanisms should be especially visible in institution-wide LMS transitions, learning analytics systems, AI-supported assessment, student-success platforms, and technologies that alter professional autonomy or data governance. The framework may be less necessary for bounded technical incidents with clear logs, agreed success criteria, and low causal ambiguity. Even there, however, decisions about disclosure and blame can create silencing. TEFF also anticipates variation by governance structure. Shared-governance institutions may offer more voice points but also more fragmented authority; centralized institutions may act quickly but stabilize leadership narratives more readily. Legal, privacy, cybersecurity, and contractual requirements can legitimately restrict disclosure, although necessary confidentiality should not become a blanket justification for internal causal opacity. TEFF can be translated into an *Epistemic Recovery Review* conducted at predefined implementation gates and after significant difficulty. Table 5 provides a minimum protocol.

Table 5. *Epistemic Recovery Review*

Stage	Required question	Minimum evidence	Safeguard	Output
Surface	What happened from each stakeholder position?	Interviews, surveys, logs, observations, support records	Protected reporting and anti-retaliation rule	Stakeholder evidence map
Differentiate	What is observation, interpretation, cause, value, or remedy?	Coded claim inventory	No use of ‘resistance’ or ‘readiness’ without operational definition	Claim taxonomy
Adjudicate	What supports or challenges each causal claim?	Claim–evidence–counterevidence matrix	Status cannot substitute for evidence	Causal map with confidence levels
Reconstruct	Does the account preserve agency, chronology, dissent, and uncertainty?	Draft report and narrative audit	Review by representatives not responsible for defending the original decision	Epistemically adequate narrative
Act	What decision, routine, role, or resource changes?	Action register	Named owner, deadline, and verification measure	Corrective and experimental actions

Preserve	How will future teams retrieve and use the lesson?	Versioned archive linked to governance gates	Retention schedule and access rules	Causal-trace repository

One concrete response to the epistemic void is the development of systematic *postmortem/autopsy* practices, institutionalized approaches to documenting and learning from implementation challenges. Postmortems exist in other high-stakes domains (aviation, healthcare, software engineering). They are formalized processes for reviewing what happened, why it happened, what was learned, and what should change. Critical elements include: (1) *Blameless Framework*: Postmortems are structured to identify systemic factors rather than individual errors. 'Why did the CIO select a system poorly?' is less useful than 'What processes were in place for assessing institutional fit? Were pedagogical expertise and faculty input systematized in requirements definition?' (2) *Diverse Participation*: Postmortems include voices across hierarchies and departments. If only IT staff and senior leaders participate, faculty and student perspectives are inevitably marginalized. (3) *Documentation and Dissemination*: Findings are written, preserved in institutional archives, and shared across peer institutions. The intent is collective learning, not competitive advantage. (4) *Action Orientation*: Postmortems conclude with specific changes: governance process modifications, decision-making structures that include previously excluded voices, documentation practices, resource allocation. For EdTech implementations, postmortems might examine: Was the technology selected through a process that included pedagogical expertise? Were faculty, students, and support staff consulted about their needs? What problems emerged during implementation, and why were they not caught earlier? What happened over time, did adoption increase, plateau, or decline? If adoption declined, why? What would a better process have looked like?

A blameless orientation should not mean an accountability-free process. It redirects inquiry from personal culpability to how decisions, incentives, information, and safeguards interacted. Accountability remains necessary where actors ignored evidence, bypassed procedures, or misrepresented results. The relevant distinction is between blame that suppresses reporting and responsibility that supports institutional correction. Institutions should also avoid treating public transparency and internal learning as identical. Confidentiality may require redaction, especially where student data, personnel matters, security, or vendor disputes are involved. Nevertheless, an unredacted internal account can preserve causal integrity, while a public account can disclose the nature of the problem, the review process, and corrective action without exposing protected information.

Future research should test TEFF through longitudinal, comparative designs rather than one-time perception surveys. A strong design would follow three to six EdTech implementations from selection through stabilization, collecting steering-group minutes, decision logs, issue trackers, training records, user accounts, surveys, interviews, and successive versions of official narratives. Process tracing could establish when concerns entered or exited the record and how causal accounts changed across project stages. Discourse analysis could examine agency, transitivity, modality, nominalization, temporal framing, and attribution in institutional communications. Social-network analysis could identify who can transmit problem knowledge to decision-makers. Qualitative comparative analysis could assess combinations of voice protection, causal adjudication, narrative audit, and memory linkage associated with learning-oriented outcomes. Survey instruments should distinguish psychological safety, voice efficacy, perceived credibility,

documentation quality, and action conversion rather than collapsing them into generic institutional support. Researchers should also compare stakeholder accounts without assuming that divergence indicates unreliability. The unit of analysis can be the causal claim: its source, evidence, scope, status, uptake, and eventual institutional consequence. Such a design directly evaluates P3 by testing whether hierarchical status or evidential quality better predicts inclusion in the final narrative. Equity requires explicit investigation. EdTech difficulty can impose unequal burdens through inaccessible interfaces, surveillance, automated classification, digital-resource requirements, and uncompensated workaround labor. TEFF predicts that these burdens can remain epistemically peripheral when affected groups lack narrative authority or when institutional metrics do not render their experiences intelligible.

The framework is based on conceptual synthesis rather than a systematic review, so the literature base is theoretically purposive and may omit relevant traditions. The illustrative corpus is small, heterogeneous, partly annotated, and not accompanied by sufficient provenance to support conventional empirical claims. The analysis therefore demonstrates conceptual plausibility and discriminative value, not prevalence, causal magnitude, or generalizability. The framework also risks overinterpreting strategic communication. Concise institutional statements may reflect legal, privacy, contractual, or genre constraints rather than deliberate suppression. A further limitation concerns conceptual breadth. Integrating silence, epistemic injustice, sociotechnical systems, learning, memory, and narrative creates explanatory reach but may blur distinctions if constructs are operationalized loosely. Future studies should test discriminant validity and examine whether 'epistemic void' adds explanatory value beyond psychological safety, organizational silence, implementation climate, and institutional memory. Finally, epistemic recovery carries costs. Inclusive inquiry requires time, facilitation, documentation, and willingness to delay rollout. Excessive review can slow urgent decisions or encourage defensive documentation. The framework therefore advocates proportionality: the depth of review should correspond to the implementation's scale, reversibility, uncertainty, data sensitivity, and potential educational harm.

6. Conclusion

EdTech implementations do not fail or succeed through technology alone. They unfold through sociotechnical relations in which stakeholders observe different conditions, possess unequal authority, and construct competing accounts of causality. The central theoretical claim is that institutions can experience an epistemic void even when information is abundant: relevant knowledge may remain unvoiced, discredited, fragmented, inaccessible, narratively displaced, or disconnected from future decisions.

TEFF explains this condition through three recursively related mechanisms. *Institutional silencing* filters the experiences that become evidence. *Contested causality* emerges from differentiated access, professional logics, and unequal epistemic authority. *Narrative reconstruction* stabilizes an account that may support inquiry or protect institutional legitimacy by externalizing causality, diffusing responsibility, obscuring agency, or deleting failure. The extracts answer the research questions by showing both the protective cycle and its interruption. P_04 is especially important because it demonstrates that causal plurality need not result in paralysis: multiple accounts can be differentiated, evidential certainty calibrated, rollout made reversible, and responsibility assigned for further testing. The framework's practical implication is not simply that institutions

should talk more openly about failure. They should build epistemic infrastructure that governs how concerns are surfaced, credited, compared, narrated, retained, and converted into action. Such infrastructure turns post-implementation review from reputational management into organizational inquiry. For scholarship, TEFF offers propositions and observable indicators for investigating how institutions learn, or prevent themselves from learning, from educational technology implementation.

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AI Disclosure Statement

We have not used any AI tool or technology to prepare this manuscript.

Appendix

Additional Analytical Extracts

The following extracts developed from the theoretical categories of the Triadic Epistemic Failure Framework (TEFF). Their function is to clarify institutional silencing, contested causality, narrative reconstruction, and epistemic recovery. Identifiers P_16-P_25 are used to distinguish these extracts from the supplied extracts labeled P_01–P_15 throughout the manuscript.

P_16: Anticipatory silencing

"*Several colleagues raised concerns during the pilot, but after the project lead described the system as a strategic priority, people became more cautious. Nobody explicitly told us to stop commenting. Still, it became clear that continuing to question the platform would be interpreted as resistance to the university's digital direction*."
Primary code: Institutional silencing

Secondary codes: Anticipatory compliance; reputational labeling; hierarchical closure
Relevant RQ: RQ1
Argument: P_16 illustrates how silencing may occur without a formal prohibition. The designation of the platform as a 'strategic priority' turns a technical or pedagogical disagreement into a test of institutional loyalty. Once criticism becomes interpretable as 'resistance,' stakeholders face a reputational cost for continuing to disclose implementation problems.
Explanation: The excerpt distinguishes silence from silencing. Employees do not lack observations, nor are they directly ordered to remain silent. Instead, they infer from managerial framing that further criticism will be professionally disadvantageous. This is consistent with the article's argument that the epistemic void can be produced through anticipatory self-censorship: relevant knowledge remains locally available but does not enter the formal institutional record. The extract therefore addresses RQ1 by showing how hierarchical signals regulate which implementation experiences become institutionally speakable.
Analytical implication: The absence of subsequent complaints cannot be interpreted as evidence that the original concerns were resolved. It may instead indicate that the communicative environment made further reporting appear unsafe or futile.

P_17: Metric substitution

"*From the steering committee's perspective, the implementation was successful because the system went live on schedule, all courses were migrated, and login rates exceeded the target. Faculty continued reporting assessment problems, but those concerns were treated as post-launch support issues rather than evidence that the implementation itself remained incomplete*."
Primary code: Narrative reconstruction
Secondary codes: Metric substitution; temporal closure; categorical displacement
Relevant RQs: RQ1 and RQ3
Argument: P_17 demonstrates how an institution can define success through project-completion metrics while relocating pedagogical difficulties outside the category of implementation. The narrative does not deny faculty concerns; it changes their institutional meaning by classifying them as routine 'support issues.'
Explanation: The distinction between implementation and post-launch support creates artificial temporal closure. Technical indicators, migration completion, launch date, and login rates, become proxies for educational adequacy. Faculty reports remain visible but lose their capacity to challenge the official success narrative because they have been reassigned to a less consequential category.
This mechanism contributes to the epistemic void in two ways. First, it narrows what counts as implementation evidence. Second, it establishes an official chronology in which implementation has already ended before pedagogical consequences are fully observable. P_17 therefore connects RQ1 and RQ3: institutional knowledge is silenced through classification, while narrative reconstruction stabilizes a favorable interpretation of the project.
Analytical implication: Future research should compare formal success indicators with stakeholder-defined success criteria and examine whether the timing of institutional evaluation excludes longer-term pedagogical consequences.

P_18: Testimonial marginalization

"*Students repeatedly explained that the new interface made it difficult to locate feedback and distinguish formative tasks from graded assignments. The project report summarized these accounts as 'initial user unfamiliarity.' Because the students were assumed to lack technical expertise, their descriptions were not examined as evidence about the platform's information architecture*."
Primary code: Epistemic injustice
Secondary codes: Credibility deficit; categorical reduction; student-voice marginalization
Relevant RQs: RQ1 and RQ2
Argument: P_18 illustrates testimonial marginalization: students' experiential knowledge is acknowledged but assigned less credibility because they are not considered technical experts. Their reports are transformed from evidence about interface design into evidence about user deficiency.

Explanation: The phrase 'initial user unfamiliarity' is epistemically consequential. It converts an account of navigational difficulty into a temporary learner characteristic and directs the remedy toward familiarization rather than interface evaluation. Students may not possess expertise in software architecture, but they possess direct knowledge of whether information can be found and interpreted during authentic use.
The extract answers RQ1 by demonstrating that knowledge can be silenced through reinterpretation rather than deletion. It answers RQ2 by showing how epistemic authority affects causal attribution: when student testimony receives a credibility deficit, 'poor information architecture' is displaced by 'insufficient user familiarity.'
Analytical implication: Stakeholder credibility should be domain-specific. Students need not understand the platform's technical architecture to provide authoritative evidence about navigation, accessibility, workload, feedback visibility, and learning experience.

P_19: Temporal reframing

"*The difficulties experienced during the first year should be understood as normal transitional turbulence. Major digital transformations require patience, and it would be premature to draw conclusions while faculty and students are still adapting to new ways of working*."
Primary code: Narrative reconstruction
Secondary codes: Temporal reframing; deferred accountability; normalization
Relevant RQ: RQ3
Argument: P_19 shows how difficulties may be normalized as an expected feature of transition. The narrative appears reasonable because complex implementations do require adaptation; however, its temporal logic can indefinitely postpone evaluation.
Explanation: Describing difficulties as 'transitional turbulence' does not establish whether they resulted from temporary unfamiliarity, inadequate training, platform-workflow mismatch, inaccessible design, or flawed governance. The statement places explanatory weight on the passage of time rather than on evidence capable of distinguishing among these mechanisms.
Temporal reframing constrains learning when every adverse outcome is treated as premature evidence. If an institution does not specify what improvement should occur, by when, and according to which indicators, patience becomes a mechanism of causal closure. The narrative protects the implementation from falsification because continuing problems can always be attributed to incomplete adaptation.
Analytical implication: A legitimate adaptation argument should identify measurable expectations, review dates, stopping criteria, and conditions under which persistent difficulties would trigger redesign or withdrawal.

P_20: Technical–pedagogical conflict

"*IT reported that the system was functioning as designed: uptime was stable, integrations were operational, and support tickets were declining. Faculty nevertheless argued that the platform fragmented assessment into workflows that did not correspond with how their courses were taught. Both groups used the word 'functioning,' but they were evaluating different objects*."
Primary code: Contested causality
Secondary codes: Definitional conflict; professional logics; sociotechnical fragmentation
Relevant RQ: RQ2
Argument: P_20 demonstrates that causal disagreement may originate in competing definitions of implementation functionality. Technical personnel evaluate infrastructural reliability, whereas faculty evaluate pedagogical workability. Both accounts may be evidentially valid while remaining insufficient as complete assessments.
Explanation: The key conflict concerns the object being evaluated. For IT, 'functioning' refers to uptime, integration, and ticket volume. For faculty, it refers to whether the platform supports disciplinary assessment and teaching practices. Without an explicit distinction between technical operation and pedagogical usability, the institution may interpret the two accounts as contradictory and select the one supported by standardized metrics.

The excerpt answers RQ2 by showing that contested causality is not always disagreement about the same evidence. Stakeholders may use the same evaluative term while referring to different layers of the sociotechnical system. Causal adjudication must therefore begin by clarifying constructs and units of analysis.

Analytical implication: Post-implementation reviews should separate technical reliability, functional usability, pedagogical adequacy, accessibility, and governance quality rather than collapsing them into a single success judgment.

P_21: Governance exclusion

"*The procurement group consulted faculty after the shortlist had already been approved. We could comment on training preferences and migration dates, but not on the requirements used to select the platform. Later, when workflow problems emerged, the review concluded that faculty had been involved throughout the implementation*."

Primary code: Institutional silencing

Secondary codes: Procedural inclusion; bounded participation; retrospective legitimation

Relevant RQs: RQ1 and RQ2

Argument: P_21 distinguishes meaningful epistemic participation from procedural consultation. Faculty are included after consequential selection criteria have been fixed, yet their later involvement is used to legitimate the entire decision process.

Explanation: Participation can be extensive in frequency but limited in scope. Faculty may attend meetings, complete surveys, or receive training without influencing requirements definition, vendor comparison, contractual expectations, or adoption decisions. Describing such participation as involvement 'throughout' obscures when faculty knowledge became institutionally relevant and which decisions remained closed.

The extract addresses RQ1 because bounded participation prevents pedagogical knowledge from shaping early decisions. It addresses RQ2 because the subsequent causal account may attribute workflow difficulties to faculty adoption while overlooking how governance excluded faculty expertise when requirements were defined.

Analytical implication: Documentation should identify not only who participated but also when, on which questions, with what decision authority, and with what documented effect on the implementation.

P_22: Distributed responsibility

"*The implementation encountered a convergence of factors, including limited resources, uneven staff engagement, legacy-system constraints, competing departmental priorities, and changing student expectations. No single decision or unit can therefore be identified as responsible for the difficulties*."

Primary code: Narrative reconstruction

Secondary codes: Distributed responsibility; nonconsequential complexity; agency diffusion

Relevant RQ: RQ3

Argument: P_22 uses the genuine complexity of EdTech implementation to infer that accountability is impossible. The narrative moves from 'multiple causes existed' to 'no decision can be examined,' although those propositions do not logically follow from one another.

Explanation: Complex systems normally involve multiple interacting causes. Acknowledging complexity can improve explanation when it clarifies how decisions and conditions combined. In P_22, however, causal plurality diffuses accountability. 'Limited resources,' 'staff engagement,' 'constraints,' 'priorities,' and 'expectations' are presented as abstract forces rather than outcomes of identifiable allocation, scheduling, governance, or design decisions.

This pattern exemplifies nonconsequential complexity: numerous factors are named, but none is described with sufficient specificity to generate corrective action. The excerpt therefore answers RQ3 by showing how distributed-responsibility narratives can appear comprehensive while remaining organizationally inert.

Analytical implication: Multi-causal analysis should identify interactions without eliminating agency. For each factor, reviews should distinguish background conditions, controllable decisions, emergent interactions, warning signals, and responsible governance units.

P_23: Success through redefinition

"*The original objective was to establish a single institutional platform, but the project ultimately demonstrated the value of a diverse digital ecosystem. What might appear to be incomplete adoption should instead be understood as the emergence of a more flexible and innovative approach*."
Primary code: Narrative reconstruction
Secondary codes: Goal displacement; retrospective success; narrative repair
Relevant RQ: RQ3
Argument: P_23 reconstructs an unmet objective as evidence that the original objective was unnecessarily restrictive. The revised interpretation may be strategically valuable, but it becomes epistemically problematic if it retrospectively removes the need to examine why the initial goal was not achieved.
Explanation: Organizational learning sometimes requires changing goals. A diverse ecosystem may genuinely prove more appropriate than a single platform. Nevertheless, a learning-oriented account would document when and why the objective changed, what evidence justified the change, which costs resulted from the original strategy, and whether the decentralized arrangement was designed or merely inherited.
In P_23, 'incomplete adoption' is rhetorically transformed into 'emergence.' This language minimizes agency and chronology: it does not identify who revised the objective or whether the revision preceded or followed implementation difficulties. The account answers RQ3 by illustrating narrative repair, preserving a success identity through retrospective goal redefinition.
Analytical implication: Revised goals should be evaluated prospectively and retrospectively. Institutions should explain both why the new direction is preferable and what the abandoned objective reveals about earlier decision-making.

P_24: Structured causal adjudication

"*The review did not ask stakeholders to agree on a single cause. Instead, each group submitted its principal claims, supporting evidence, and counterevidence. Log data supported the integration concerns; classroom observations supported the workflow-mismatch claim; and the available evidence could not determine whether declining use reflected resistance, workload, or limited pedagogical value*."
Primary code: Epistemic recovery
Secondary codes: Claim: evidence differentiation; calibrated uncertainty; productive pluralism
Relevant RQs: RQ2 and RQ4
Argument: P_24 illustrates causal adjudication without forced consensus. Stakeholder explanations are neither treated as equally correct nor reduced prematurely to one authoritative narrative. Each claim is assessed according to relevant evidence, and unresolved causality remains visible.
Explanation: The extract contrasts with processes in which seniority, voting, or narrative coherence determines the accepted explanation. Integration logs provide appropriate evidence for technical claims, while classroom observations provide evidence about pedagogical workflow. The meaning of declining use remains underdetermined because the same behavioral outcome can arise from different mechanisms.
This approach answers RQ2 by showing how contested accounts can be evaluated according to evidential relevance. It answers RQ4 by preserving uncertainty as a legitimate result rather than interpreting it as review failure. Calibrated uncertainty supports better action because it identifies which propositions are established and which require additional inquiry.
Analytical implication: Post-implementation reports should include a claim (evidence), counterevidence matrix and explicitly distinguish supported conclusions, plausible interpretations, unresolved questions, and rejected explanations.

P_25: Institutionalized learning

"*Before approving the next platform, the committee reviewed the previous implementation's decision log, dissenting assessments, unresolved risks, and post-launch evidence. Three requirements were*

consequently added: a faculty-led workflow test, a student accessibility review, and a staged exit criterion if predefined problems remained unresolved after the pilot."
Primary code: Epistemic recovery
Secondary codes: Organizational memory; action conversion; prospective accountability
Relevant RQ: RQ4
Argument: P_25 demonstrates that documentation becomes organizational learning only when it changes subsequent decision rules. Archived material is not treated as a passive historical record; it directly alters requirements, participation, evaluation, and stopping criteria.
Explanation: The inclusion of dissenting assessments is particularly important. Institutional memory often preserves the final authorized narrative while losing alternative accounts that may later prove diagnostically valuable. By reviewing unresolved risks and dissent alongside the decision log, the committee preserves causal plurality across project cycles.
The extract answers RQ4 through three recovery mechanisms. First, faculty-led testing connects platform requirements to authentic pedagogical workflows. Second, student accessibility review recognizes learner experience as implementation evidence. Third, a predefined exit criterion makes the project reversible and limits escalation of commitment. Learning is therefore operationalized as changed governance rather than an abstract claim that 'lessons were learned.'
Analytical implication: An institutional lesson should be considered implemented only when it alters a requirement, role, resource allocation, review threshold, contractual provision, or decision rule.

Table S1. *Coding Matrix*

ID	Primary TEFF mechanism	Secondary process	Narrative effect	RQ alignment
P_16	Institutional silencing	Anticipatory self-censorship	Converts criticism into perceived disloyalty	RQ1
P_17	Narrative reconstruction	Metric substitution	Defines technical completion as implementation success	RQ1, RQ3
P_18	Institutional silencing	Testimonial marginalization	Recasts student evidence as user deficiency	RQ1, RQ2
P_19	Narrative reconstruction	Temporal reframing	Defers evaluation through adaptation discourse	RQ3
P_20	Contested causality	Definitional conflict	Produces incompatible meanings of "functioning"	RQ2
P_21	Institutional silencing	Bounded participation	Uses procedural consultation to legitimate exclusion	RQ1, RQ2
P_22	Narrative reconstruction	Distributed responsibility	Names complexity while eliminating accountability	RQ3
P_23	Narrative reconstruction	Retrospective goal displacement	Reclassifies incomplete adoption as strategic flexibility	RQ3
P_24	Epistemic recovery	Causal adjudication	Preserves plural evidence and calibrated uncertainty	RQ2, RQ4
P_25	Epistemic recovery	Memory-to-action conversion	Embeds prior knowledge in future decision rules	RQ4

P_01: "The platform could not meet our institution's distinctive assessment and collaboration needs despite the implementation team's extensive preparation." [External attribution]
P_02: "Challenges reflected a combination of faculty adoption barriers, infrastructure limitations, student readiness, and resource constraints. The institution has learned valuable lessons and remains committed to innovation." [Distributed responsibility]
P_03: "The university has moved toward a flexible ecosystem of tools aligned with evolving pedagogical and institutional needs." [Narrative deletion]
P_04: "Faculty reported assessment-workflow mismatch; technical staff documented integration failures; students identified inconsistent navigation; and administrators identified contractual and timing constraints. The review distinguished supported findings from unresolved claims, delayed full rollout, and assigned a cross-functional group to test revised workflows." [Epistemic recovery]
P_05: "Recently, I've become prone to looking back and uncovering how many times we have tried to solve the problem before, and failed. If you work in a legacy organization, this should be standard practice. However, in my experience almost no one does this, so every time we attempt to solve a problem we start with a self-imposed learning disability."

P_06: "The implementation has presented challenges we are addressing through internal process improvements,"
P_07: "In an institution, the post-implementation review written by the IT department attributed failure to "insufficient institutional readiness and faculty resistance to change." Simultaneously, faculty governance communications attributed failure to "inadequate platform usability and insufficient technical training provided by IT staff." Student evaluations obtained through a separate research study at the same institution attributed problems to "poor course design and lack of pedagogical intentionality in online teaching." No institutional mechanism existed to engage these competing causal framings or determine which accurately described the mechanism of failure."
P_08: "One Research University published a detailed post-implementation case study documenting specific implementation challenges (insufficient faculty training, unexpected student resistance to new interface, integration difficulties with legacy systems), the institutional responses implemented, and the ultimate successful outcomes."
P_09: In an institution, the narrative positioned failure as resulting from inadequate platform capability: "Canvas, despite its reputation in the market, did not meet our institution's specific needs around collaborative assessment workflows and departmental-level customization of grade weighting structures." [This narrative was cognitively coherent (the platform genuinely did lack certain features) but epistemically problematic because it obscured institutional factors.]
P_10: "Analysis of actual implementation revealed that the institution implemented the platform without conducting adequate needs assessment; faculty received minimal training; the implementation timeline was compressed due to administrative pressure to launch before fall semester; and no pilot program or staged rollout occurred."
P_11: In an institution, an institution administrator's post-implementation statement noted: "While the technology implementation presented challenges, stemming from a combination of faculty adoption barriers, IT infrastructure limitations, and student readiness issues, the broader institutional transition to online learning has ultimately enriched our educational environment." [This narrative framed failure as resulting from multiple factors, none of which were attributed to specific institutional choices.]
P_12: One institution abandoned its LMS implementation after 8 months but made no public acknowledgment of this failure. Instead, institutional communications stated: "We have determined that our institution's learning technology needs are being met through our current ecosystem of tools." The formation was passive (avoiding identification of who made the determination), and the claim obscured the failure by focusing on current satisfaction rather than past inadequacy.
P_13: External Attribution Narrative: "Our institution carefully selected based on market reputation and vendor claims about functionality. However, upon implementation, we discovered that the platform's architecture did not accommodate our institution's specific pedagogical approaches and technical requirements. Additionally, the vendor's promised support proved inadequate for the scale and complexity of our institutional deployment. These external constraints made implementation success impossible despite our institution's comprehensive planning and stakeholder engagement efforts." [Epistemic Analysis: This narrative emphasizes external factors (platform inadequacy, vendor failure) while obscuring institutional factors (insufficient needs assessment before purchase, inadequate contingency planning for support gaps, unrealistic expectations about vendor capabilities). The narrative is externally oriented and thereby relieves institutional actors of responsibility for change.]
P_14: Distributed Responsibility Narrative: "The technology implementation reflected a complex interplay of challenges stemming from multiple sources: technology platform limitations, faculty adoption barriers, student readiness issues, and resource constraints. While these factors created significant implementation obstacles, our institution has learned valuable lessons about technology integration. We remain committed to leveraging educational technology to enhance learning outcomes, and we will carefully consider these lessons as we move forward with future initiatives." [Epistemic Analysis: This narrative distributes responsibility across multiple abstract factors (technology, faculty, students, resources), none of which are attributed to specific institutional actors or decisions. The narrative concludes with abstract commitment to learning without identifying what specific institutional changes resulted from failure experience. The passive voice ('challenges were encountered,' 'lessons were learned') avoids identification of institutional agents responsible for implementation quality.]
P_15: Narrative Deletion: "Our institution's digital learning environment has evolved significantly. We now employ an integrated ecosystem of complementary tools specifically selected to meet our

institutional needs and pedagogical goals. This approach has been enthusiastically received by faculty and students, and we continue to refine our digital infrastructure to support excellent learning outcomes." [Epistemic Analysis: This narrative completely deletes the prior failed implementation from institutional memory. The statement is factually ambiguous, it does not assert falsely that previous implementations succeeded, but neither does it acknowledge previous failures. The narrative moves directly from unstated past to present institutional satisfaction, implicitly suggesting that institutional decisions are now correct without examining why prior decisions were not.]