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**EXPLAINING THE POST-PANDEMIC REVERSAL OF E-LEARNING  
PRACTICE IN ZIMBABWEAN SCHOOLS**

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**ABSTRACT**

During the COVID-19 school closures of 2020–2022, Zimbabwean schools rapidly took up e-learning. Teachers used WhatsApp groups, Google Classroom, and informal LMS platforms. Policymakers read this surge as evidence that a digital transformation had arrived. This paper argues that this reading was mistaken. The study uses a mixed-methods design involving 100 teachers, students, administrators, and district officers in Masvingo District. It also draws on document analysis of school records from 2019 to 2025. The findings show that the COVID-era digital engagement did not become sustained practice. By 2024–2025, e-learning engagement had fallen by about 78% from its pandemic peak. It had returned to a level only slightly above pre-crisis baselines. The study develops two analytical tools to explain this reversal. The first is the Crisis-Innovation Lifecycle model, which sets out a five-phase path for crisis-driven technology adoption. The second is a typology of Five Mechanisms of Innovation Decay: pedagogical path dependency, infrastructure contraction, skill atrophy, institutional de-prioritisation, and stakeholder fatigue. The paper argues that Zimbabwean education policy has mistaken crisis-era improvisation for lasting institutional change. This has produced complacency about a digital transition that did not in fact take hold. The paper concludes by proposing a counter-decay intervention matrix. This matrix sequences interventions by effort and expected impact on each decay mechanism. The findings matter for education systems across the Global South, where pandemic-era digital gains are eroding in the absence of deliberate consolidation.

**KEYWORDS:** *post-pandemic education; e-learning reversal; innovation decay; crisis-driven technology adoption; Zimbabwe; path dependency; education policy.*

## 1. INTRODUCTION

When Zimbabwe's schools closed in March 2020, an unusual improvisation took place. Within weeks, teachers who had never used a learning management system were sending lessons through WhatsApp groups. School administrators who had resisted digital communication were coordinating parent meetings over Zoom. Rural teachers with little ICT training were recording voice notes for learners. In many cases, those learners shared a single family smartphone. By mid-2021, a large share of Zimbabwean teachers were using digital learning platforms in some form. This level of use would have seemed unlikely only eighteen months earlier (Chigona & Maphosa, 2023; Mutsvanga, 2022).

Policymakers, donors, and education commentators treated this surge as proof that a long-awaited digital transformation had arrived. The Ministry of Primary and Secondary Education (MoPSE) accelerated the National E-Learning Strategy (2021–2025) partly on the strength of this shift (Government of Zimbabwe, 2021). Development partners scaled up Learning Passport deployments (UNICEF, 2024). POTRAZ expanded device distribution programmes on the assumption that a behavioural threshold had been crossed (POTRAZ, 2023). The common view, at home and abroad, was that COVID-19 had pushed education technology adoption forward for good.

This paper argues that this view was mistaken. It draws on data collected between 2023 and 2025 in Masvingo District schools. It also uses document analysis to reconstruct school-level e-learning engagement from 2019 to 2025. The study shows that the pandemic-era surge did not consolidate. Instead, it decayed. By 2024, regular e-learning platform use had fallen to 7.5% of teachers and students. This figure is barely different from the pre-crisis baseline. It represents a decline of about 78% from the 2021 peak. Schools that had required Google Classroom use during closures had returned to paper-based assessment. WhatsApp teaching groups that had been active in 2021 were inactive by 2024. Lesson plans that had briefly referred to multimedia resources had returned to the chalk-and-talk templates of the 2010s.

*The COVID-era surge was not a transition. It was a detour. It was an emergency response that Zimbabwean education policy mistook for transformation. Its reversal has gone largely unnoticed.*

This paper makes three contributions. First, it provides empirical evidence of the post-pandemic reversal of e-learning practice in Zimbabwean schools. This phenomenon has

received little scholarly attention, despite its policy implications. Second, it develops two analytical tools. These are the Crisis-Innovation Lifecycle model and the typology of the Five Mechanisms of Innovation Decay. Together they explain why crisis-driven technology adoption often fails to consolidate in resource-constrained contexts. Third, it proposes a counter-decay intervention matrix. This matrix sequences policy responses by their effort-impact profile and by the decay mechanisms they target.

The central argument is that education systems across the Global South face a narrowing window. The human capacity and institutional familiarity built during the pandemic are perishable. Without deliberate, sequenced, and mechanism-aware interventions, they will erode within a decade. This would leave behind education systems that have had, and lost, their main chance for digital change in a generation.

## **2. Theoretical Framing: Crisis, Innovation, and Decay**

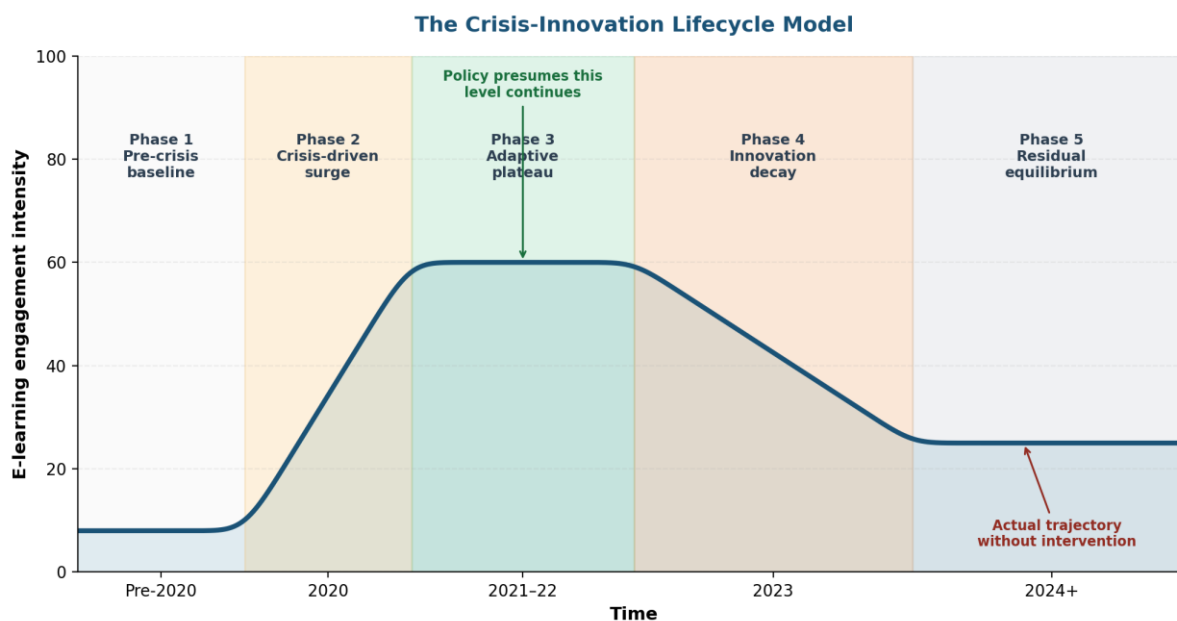
### **2.1 Beyond the Adoption Narrative**

Most scholarship on e-learning adoption draws on the Technology Acceptance Model (Davis, 1989; Venkatesh & Bala, 2008) or the Diffusion of Innovation Theory (Rogers, 2003). Both treat adoption as a progressive, cumulative process. They assume innovations spread, deepen, and become embedded over time. The assumption is that, once an innovation clears initial acceptance thresholds, it continues to diffuse and embed. This view fits established innovations in stable institutional contexts. It fits poorly with crisis-driven innovations in fragile ones.

The dominant adoption literature says little about reversal. Rogers (2003) acknowledged the possibility of discontinuance. However, he treated it as a minor issue affecting laggard adopters rather than as a system-wide pattern. Later e-learning research has continued to focus on forward-motion questions. These include what accelerates adoption, what predicts continued use, and what increases perceived usefulness (Al-Emran & Salloum, 2023; Boateng et al., 2022; Sanga et al., 2021). The possibility that an entire education system might go through a sustained digital surge and then reverse, returning to pre-innovation levels, has received little theoretical attention.

### **2.2 The Crisis-Innovation Lifecycle**

This paper proposes the Crisis-Innovation Lifecycle model as an alternative framing. The model was derived inductively from the Zimbabwean evidence. It is intended as a general analytical tool. It identifies five phases in crisis-driven technology adoption (Figure 1).



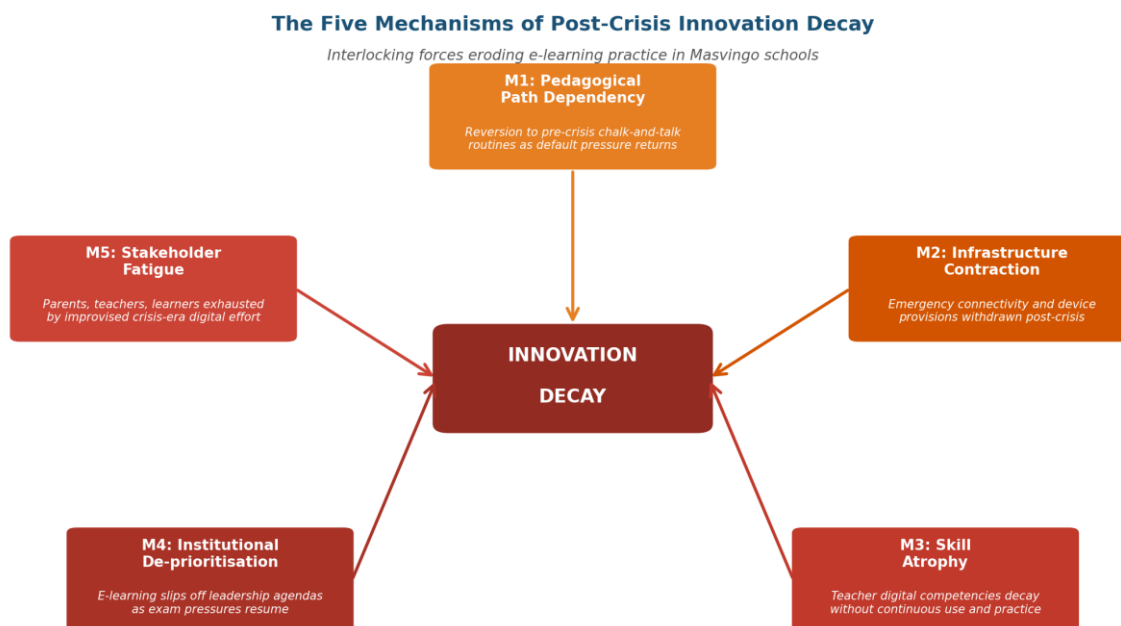
*Figure 1. The Crisis-Innovation Lifecycle model, showing five phases of crisis-driven technology adoption and the divergence between policy-presumed trajectories and actual outcomes.*

Phase 1 is the pre-crisis baseline. It is marked by low-level adoption confined to early adopters and elite institutions. Phase 2 is the crisis-driven surge. An external shock disrupts conventional practice and forces rapid, often improvised, uptake of the innovation. Phase 3 is the adaptive plateau. During this phase, the surge stabilises as users develop workable routines. Phase 4 is the innovation decay phase. The removal of crisis conditions releases pressure for reversion and erodes the gains made during the surge. Phase 5 is the residual equilibrium. This is usually a modestly elevated baseline. It keeps some memory of the crisis adoption but sits well below the plateau peak.

The model's value lies in distinguishing three trajectories that policymakers often conflate. The policy-presumed trajectory assumes that the Phase 3 plateau continues indefinitely. The actual trajectory without intervention follows the full lifecycle, including Phase 4 decay. The durable-transformation trajectory is the one policy should aim to produce. It requires active consolidation during Phases 3 and 4 to prevent reversion.

### 2.3 The Five Mechanisms of Innovation Decay

There is no single explanation for why Phase 4 decay occurs. The data from this study, triangulated across questionnaires, interviews, and document analysis, suggest that decay is driven by five interlocking mechanisms (Figure 2).



**Figure 2. The Five Mechanisms of Innovation Decay, showing the interlocking forces that erode crisis-era e-learning practice once acute pressure eases.**

Mechanism 1 (M1) is pedagogical path dependency. This refers to the tendency of teachers and schools to return to pre-crisis routines once conventional pressures resume. Chalk-and-talk practices persisted because they were embedded in teacher training, inspection regimes, examination structures, and institutional memory. When emergency conditions lifted, these embedded structures reasserted themselves.

Mechanism 2 (M2) is infrastructure contraction. This captures the withdrawal of emergency connectivity subsidies, donated devices, and data bundles that had supported the crisis surge. As these provisions ended, the material basis for continued engagement eroded.

Mechanism 3 (M3) is skill atrophy. This describes the decline of teacher and learner digital competencies without continued practice. ICT skills, like any skills, fade without use. The pandemic produced a burst of competence, but no pipeline to maintain it.

Mechanism 4 (M4) is institutional de-prioritisation. This refers to the disappearance of e-learning from school leadership agendas. Examination pressures, staffing concerns, and building maintenance reclaimed attention. ICT committees that had met weekly during closures met quarterly by 2023. By 2024, many did not meet at all.

Mechanism 5 (M5) is stakeholder fatigue. This captures the exhaustion of teachers, learners, and parents after the improvised crisis-era digital effort. Many participants in this study

described the pandemic-era digital work as draining, unsustainable, and at times resented. The lifting of closures was experienced in part as relief from digital burdens. This disposed stakeholders towards disengagement rather than continued practice.

### 3. METHODOLOGY

The study used a mixed-methods design within the pragmatist paradigm (Creswell & Plano Clark, 2018; Morgan, 2014). It combined contemporary survey and interview data with retrospective document analysis. The aim was to reconstruct the 2019–2025 trajectory of e-learning engagement.

Contemporary data collection followed a three-stage sampling approach. Three sub-districts (Masvingo Urban, Chiredzi, Zaka) were purposively selected. Ten schools (five primary, five secondary) were randomly selected within them. One hundred participants were drawn through stratified random sampling (teachers and students) and purposive sampling (administrators and district officers). The sample included 50 teachers, 30 students, 15 administrators, and 5 district education officers. The urban-rural split was 45% urban and 55% rural. Questionnaires captured current ICT availability, usage, and perceptions. Semi-structured interviews explored institutional dynamics and crisis-era memories. Document analysis examined ICT inventories, lesson-plan files, school development plans, staff training records, SDC meeting minutes, and financial statements.

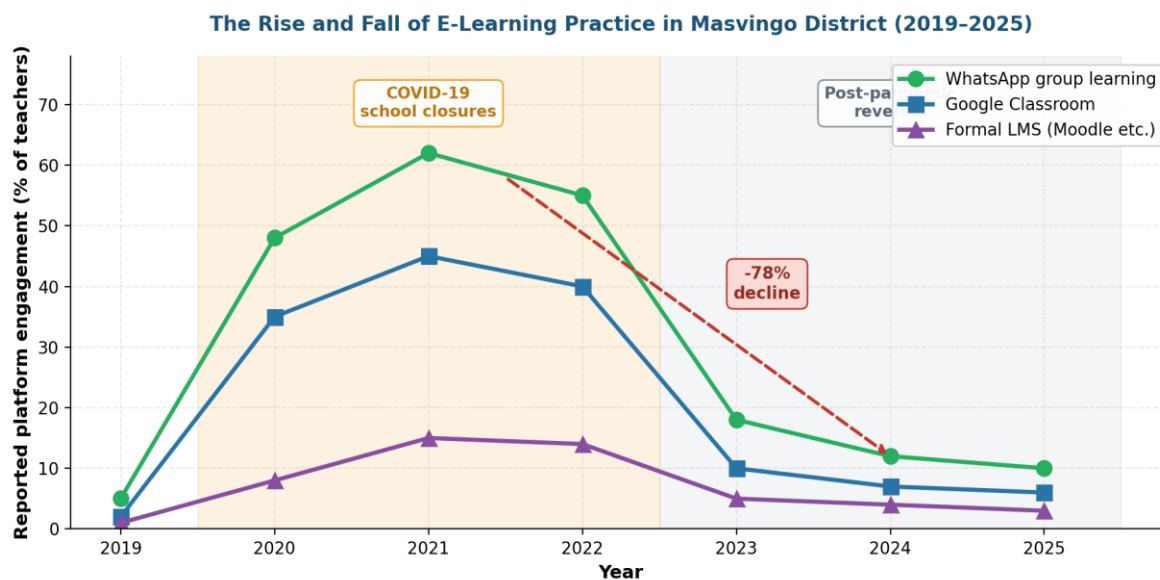
Retrospective engagement patterns were reconstructed by coding documents by year. Lesson-plan files were examined for references to digital tools across 2019–2025 archives where available. SDC minutes were coded for e-learning mentions. Internal circulars and training attendance registers were analysed longitudinally. Interview participants were asked to reflect on year-by-year changes in practice. These data were triangulated to produce the 2019–2025 trajectory presented in Figure 3. The retrospective reconstruction has limitations. These include memory recall bias, incomplete document archives, and uneven record-keeping across schools. However, the convergence of evidence across sources supports a defensible directional account.

Quantitative data were analysed in SPSS using descriptive statistics. Qualitative data were analysed thematically following Braun and Clarke (2006). Ethical clearance was obtained from Reformed Church University. Informed consent was secured from all participants, with parental consent for minors.

## 4. The Reversal Documented

### 4.1 The 2019–2025 Trajectory

Figure 3 presents the reconstructed trajectory of three forms of e-learning engagement across Masvingo District schools between 2019 and 2025. The pattern is clear. There is a steep rise between 2020 and 2021, a brief plateau, and then a sharp decline from 2023 onwards.



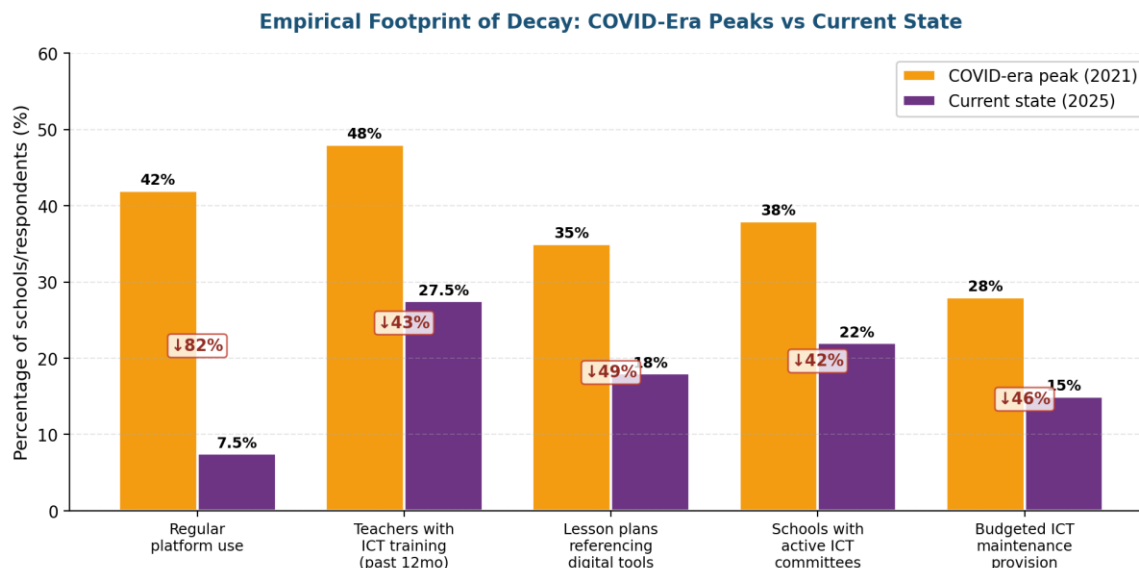
**Figure 3. Reconstructed trajectory of e-learning engagement in Masvingo District schools, 2019–2025, showing the COVID-era surge, brief plateau, and post-pandemic reversal.**

WhatsApp-based group learning was the most accessible and widely adopted pandemic modality. It rose from about 5% of teachers in 2019 to 62% at its 2021 peak. It then declined to about 10–12% by 2024–2025. Google Classroom use rose from 2% to 45% and then fell to 6–7%. Formal LMS use (Moodle and equivalents) rose from 1% to 15% and then fell to 3–4%. The overall drop from peak to current state is about 78%. This is well beyond what could be attributed to measurement error or normal post-crisis adjustment.

Document analysis produced supporting evidence. Lesson-plan files from 2021 contained about 35% digital-tool references. The 2024 files contained about 18%. SDC meeting minutes from 2021 mentioned e-learning in most monthly cycles. By 2024, mentions had fallen to occasional references, often in the context of unfulfilled plans. School development plans written in 2021–2022 contained ambitious ICT targets. The 2024–2025 plans examined in this study contained fewer, vaguer, and less well-resourced ICT commitments.

## 4.2 Empirical Footprint of Decay

Figure 4 compares five indicators of digital engagement at their 2021 COVID-era peak with their 2025 current state. The comparison shows the cross-domain footprint of decay.



**Figure 4. Empirical footprint of decay: comparison of COVID-era peak values (2021) against current state (2025) across five indicators of e-learning practice in Masvingo District schools.**

Regular platform use dropped from 42% to 7.5% (−82%). Teachers with recent ICT training fell from 48% to 27.5% (−43%). Lesson plans referring to digital tools declined from 35% to 18% (−49%). Schools with active ICT committees fell from 38% to 22% (−42%). Budgeted ICT maintenance provision dropped from 28% to 15% (−46%). The reductions vary in size but are uniform in direction. Every indicator examined shows a substantial decline.

The reversal is not uniform across schools. Urban schools in this sample retained more of their COVID-era gains than rural schools. This reflects their stronger underlying infrastructure, institutional capacity, and community resources. Rural schools experienced near-complete reversal on most indicators. Some institutions reported zero current e-learning engagement, despite having used WhatsApp-based teaching widely during closures. The reversal therefore widens rather than narrows the urban-rural digital divide. This pattern is consistent with broader literature on how crises can temporarily reduce inequalities before they reassert themselves (UNICEF, 2023; World Bank, 2024).

## **5. The Anatomy of Decay: Mechanism-Level Evidence**

### **5.1 M1: Pedagogical Path Dependency**

Interview evidence repeatedly identified examination-driven pedagogy as the main force pulling teachers back to pre-crisis routines. One secondary school head explained that, once ZIMSEC examinations resumed their normal calendar, teachers under pressure to cover syllabi returned to the densest and most familiar delivery method. That method was chalk-and-talk. A district education officer observed that inspection regimes continued to reward traditional lesson plans. Inspectors showed limited familiarity with digital-tool integration. The net effect was that teachers who had experimented with digital tools during closures faced professional risk in continuing to do so. They therefore abandoned them.

This mechanism is particularly influential because it operates invisibly. Unlike infrastructure contraction, which is visible as withdrawn devices, path dependency appears as gradual drift. No one decided to stop using Google Classroom. Teachers simply stopped opening it as examination preparation intensified. The decay was cumulative, unmarked, and socially sanctioned by a return to familiar norms.

### **5.2 M2: Infrastructure Contraction**

The crisis-era surge was supported by a patchwork of emergency provisions. These included donated devices from Higherlife Foundation and UNICEF, subsidised data bundles from telecommunication partners, POTRAZ equipment distributions, and improvised solar arrangements in rural schools (UNICEF, 2024; POTRAZ, 2023). When schools reopened, these provisions were progressively withdrawn or used up. Donated devices broke down and were not replaced. Subsidised data rates ended. Solar arrays experienced battery degradation without maintenance budgets. Interviewed administrators described a gradual contraction of infrastructure that reduced the material basis for continued digital engagement.

Document analysis supported this pattern. Financial statements from 2021–2022 showed ICT-related expenditure lines that disappeared from 2023–2024 budgets. Inventory records tracked declining counts of functional devices. The contraction was rarely announced as a policy decision. It unfolded as a result of unreplaced provisions, uncosted maintenance, and partnerships that were not sustained.

### **5.3 M3: Skill Atrophy**

Digital competencies acquired during the pandemic were not sustained through continuous use. Teachers interviewed in 2024 who had confidently used Google Classroom in 2021 described losing familiarity with its interface. Some had forgotten how to upload materials. Others found that their account access had been lost. Learners who had developed

smartphone-based learning habits drifted away from them as traditional exercise books reasserted dominance. Continuous professional development pipelines remain under-resourced, as MoPSE (2023) acknowledges. Without them, the skills built during the crisis decayed through disuse.

Skill atrophy has compounding effects. As individual skills decline, peer learning networks lose their reinforcing function. As peer networks thin, institutional memory of digital practice fades. As institutional memory fades, the normal expectation of digital teaching dissolves. Skill atrophy is therefore not only an individual phenomenon but a collective unlearning.

#### **5.4 M4: Institutional De-prioritisation**

Survey data showed that 62.5% of respondents reported no documented ICT policy at their school. Only 31.2% believed current e-learning initiatives were sustainable. These figures point to a broader pattern of institutional disengagement. School leaders interviewed for this study consistently described e-learning as ‘something we wanted to continue’. They then cited competing demands that had displaced it from the active agenda. These demands included examination pressures, infrastructural repairs, teacher shortages, and economic challenges. E-learning kept symbolic value but lost operational priority.

District-level patterns mirrored school-level ones. District education officers described a sharp decline in central guidance on e-learning after 2022. There were fewer circulars, fewer monitoring visits focused on ICT, and fewer training interventions. The National E-Learning Strategy (2021–2025) remained on paper but lost force in practice. It became a reference document rather than an active implementation agenda (Government of Zimbabwe, 2021).

#### **5.5 M5: Stakeholder Fatigue**

Perhaps the least-recognised decay mechanism is fatigue. The pandemic-era digital effort was intensive, improvised, and emotionally taxing. Teachers described juggling WhatsApp groups late into evenings. They fielded learner questions at all hours and navigated unreliable connectivity while also managing personal pandemic stresses. Parents reported the strain of sharing smartphones among multiple children and funding data bundles from already-stretched budgets. Learners experienced digital learning as isolating, uneven, and often frustrating.

When physical classrooms reopened, stakeholders experienced relief. For many, that relief included relief from digital burdens. The post-pandemic resistance to resuming e-learning was therefore not only a pedagogical preference. It was also a reaction against a period of exhausting improvisation. This fatigue is now beginning to ease. This creates a narrow

window in which re-engagement is possible. However, the window is closing as fatigue shades into active aversion.

## **6. DISCUSSION: Reframing Zimbabwean E-Learning Policy**

### **6.1 The Illusion of Transformation**

The most important finding of this study is that Zimbabwean education policy has operated under an illusion. The COVID-era digital surge was read as evidence that a digital transformation was under way. Policy was calibrated accordingly. Resources were committed to strategies that assumed the surge would continue. Progress was reported against baselines that assumed the plateau was sustainable. In reality, the system was already entering Phase 4 decay by 2023. The governance and monitoring systems were not designed to detect it.

This illusion is not unique to Zimbabwe. Education systems across Sub-Saharan Africa and the broader Global South interpreted COVID-era digital improvisation as transformation. Many are now experiencing similar reversals (UNESCO, 2023; MDPI, 2024). The phenomenon needs systematic scholarly attention and a policy response. Without such attention, the scholarly record will continue to describe a transformation that did not consolidate. Policy will continue to be built on eroding foundations.

### **6.2 The Consolidation Window**

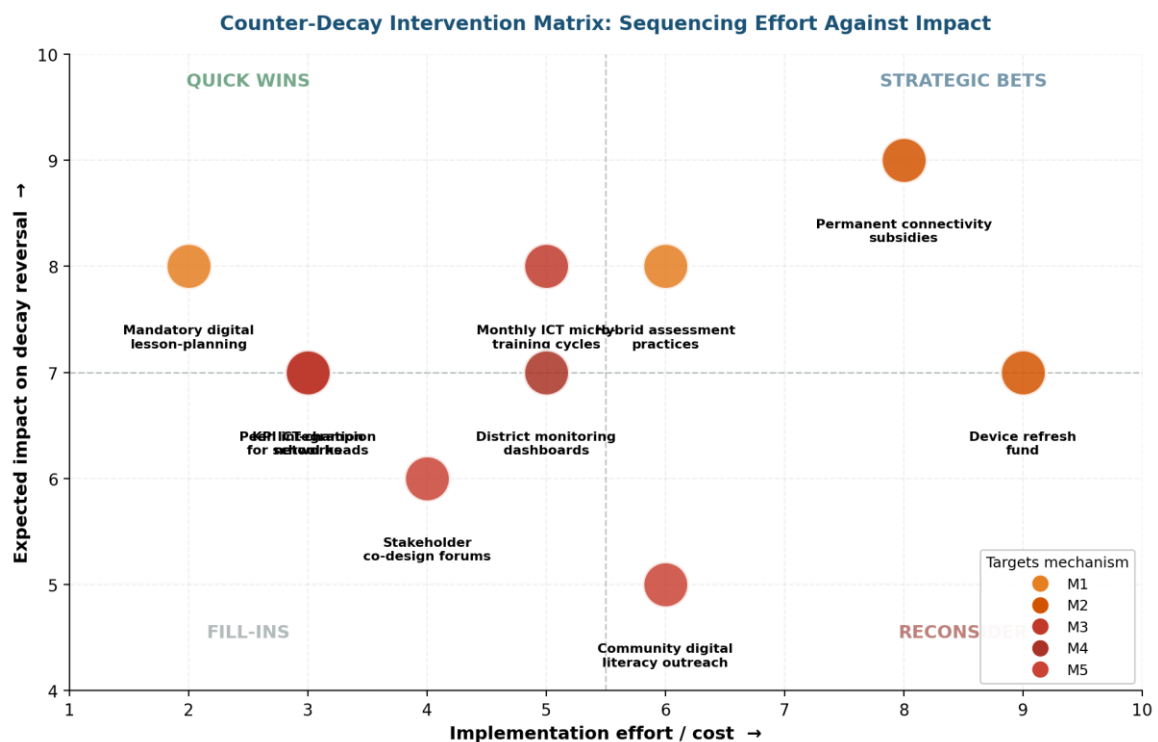
The paper's central policy argument is that crisis-driven adoption creates a consolidation window. This window typically spans the two to four years following the crisis. During this period, the newly acquired capacities can be locked in or allowed to erode. Zimbabwe is currently at the tail end of this window. The pandemic generated teacher familiarity, administrator awareness, and institutional memory that are genuinely valuable. These assets have not yet decayed completely. They can still be consolidated. However, the window is closing. Each year of inaction allows further decay.

Consolidation requires deliberate intervention targeting each decay mechanism. It cannot be produced by policy documents alone, nor by formal commitments. It requires operational changes in teacher incentives, infrastructure maintenance, training pipelines, school leadership KPIs, and stakeholder engagement. The intervention must be sequenced, resourced, and monitored. It must also be launched before the consolidation window closes.

### **6.3 A Counter-Decay Intervention Matrix**

Figure 5 presents a counter-decay intervention matrix. It positions ten candidate interventions by their implementation effort and expected impact on decay reversal. Interventions in the 'quick wins' quadrant (low effort, high impact) should be launched immediately. 'Strategic

bets' (high effort, high impact) require careful preparation but offer significant potential. 'Fill-ins' may be useful but should not crowd out higher-priority work. The matrix is coloured by the decay mechanism targeted. This enables policymakers to ensure their portfolio addresses all five mechanisms rather than concentrating on one or two.



*Figure 5. Counter-decay intervention matrix: sequencing ten candidate interventions according to implementation effort and expected impact, colour-coded by the decay mechanism each targets.*

Three interventions deserve particular emphasis. Mandatory digital lesson-planning targets M1. It re-embeds digital tools in the routine instruments of pedagogical governance. This addresses path dependency at its institutional root. Monthly ICT micro-training cycles target M3. They maintain skills through continuous practice rather than episodic workshops. KPI integration for school heads targets M4. It ensures e-learning remains operationally present on leadership agendas rather than drifting into symbolic status. Together, these three interventions address the most influential decay mechanisms at relatively modest cost. They should form the core of any consolidation strategy.

## 6.4 Theoretical Implications

Beyond its Zimbabwean policy relevance, this study contributes to theoretical debates about crisis-driven innovation. The dominant adoption literature treats adoption as progressive. This

study shows that, in fragile institutional contexts, adoption can be episodic. It can rise and fall with crisis conditions rather than advancing cumulatively. The Crisis-Innovation Lifecycle model offers a framework for studying such episodic patterns. The typology of decay mechanisms offers a language for analysing why they occur.

The study also raises wider questions about how education systems across the Global South should interpret their own pandemic-era digital experiences. If Zimbabwe's trajectory is representative, then much scholarly and policy analysis has been reporting short-term change as durable transformation. Researchers working on post-pandemic education should therefore apply explicit temporal lenses to their data. They should distinguish surge-phase engagement from consolidated practice. They should also take seriously the possibility that the transformation they documented has already begun to reverse.

## 7. CONCLUSIONS

This paper set out to examine what happened to the COVID-era e-learning surge in Zimbabwean schools. It found that the surge did not consolidate into sustained practice. Instead, it underwent a systematic reversal. Engagement declined by about 78% from its 2021 peak to its 2025 current state. The study attributes this reversal to five interlocking mechanisms. These are pedagogical path dependency, infrastructure contraction, skill atrophy, institutional de-prioritisation, and stakeholder fatigue. Together they produce the innovation decay phase of the Crisis-Innovation Lifecycle.

The findings have important policy implications. Zimbabwe's e-learning strategy has been calibrated on the assumption that the pandemic produced a durable transformation. In fact, the transformation was always an improvised response to crisis conditions. Its preservation required consolidation work that has not been done. A narrow consolidation window remains open. During this window, mechanism-aware interventions could still lock in genuine digital change. Without such interventions, the window will close. Zimbabwe's main recent opportunity for educational digitalisation will have passed.

More broadly, the paper suggests that education systems across the Global South should audit their own post-pandemic trajectories. They should distinguish surge-phase engagement from consolidated practice. They should also develop sequenced counter-decay strategies before residual pandemic capacities erode completely. The question is not whether to revisit the COVID-era digital experience. That experience is already receding into memory. The question is whether that receding can be arrested before the lessons it offered are lost.

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