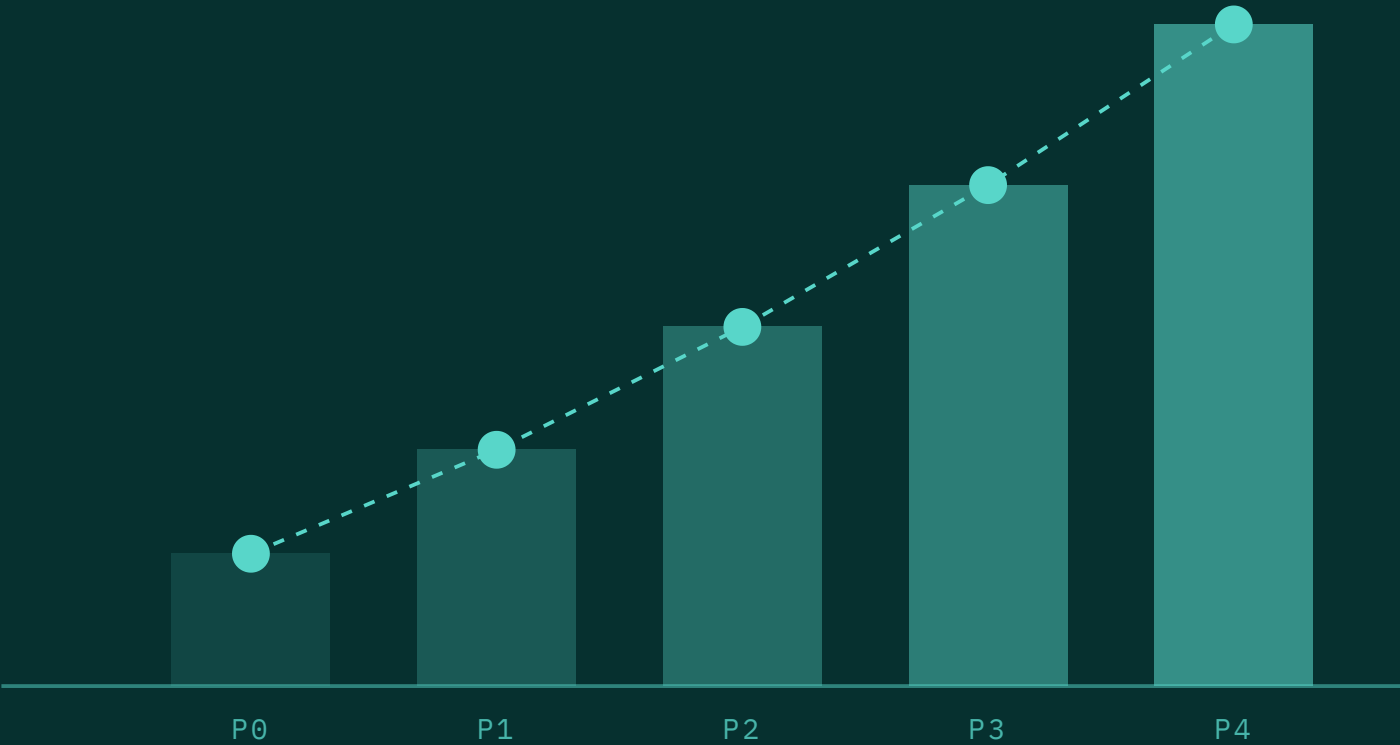




01 / 04

Adaptive MEL Frameworks

Harmonised indicators and continuous monitoring in emergency
EdTech

SUMMARY

In Education in Emergencies (EiE), monitoring, evaluation, and learning (MEL) systems face severe operational strain. Unstable security conditions, damaged infrastructure, rapid population displacement, and fragmented data collection across international NGOs, UN agencies, and government ministries routinely undermine data quality.

As established by Radford et al. (2026), evaluating educational technology (EdTech) in crisis settings requires moving away from rigid, multi-year static evaluations toward an **adaptive MEL framework**.

WHAT AN ADAPTIVE MEL FRAMEWORK DOES

It establishes harmonised indicator structures, uses lightweight data collection tools, disaggregates beneficiary metrics from day one, and evolves systematically across emergency response phases to balance immediate accountability with long-term national system integration.

5 emergency response phases, from preparedness to system integration	3 measurement foci: reach, engagement and outcomes	7 criteria in the VVOB scalability checklist	40%+ cut in per-learner delivery cost through sequential A/B testing
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ABOUT THIS BRIEF

Synthesised from Radford et al. (2026), Education in Emergencies EdTech guidance. Statistics, field evidence, and framework descriptions are reported as presented in that source. This is brief 01 of a four-part series; the others cover equity and inclusion, pedagogy in crisis settings, and cost-effectiveness.

01 Architecture of Crisis-Adaptive MEL Systems

A resilient MEL framework in emergency EdTech must serve dual imperatives: providing immediate, actionable feedback to programme operators while generating strong evidence to justify financial investment and institutional handover.

Four defining characteristics of adaptive MEL

As articulated by Radford et al. (2026), an effective crisis-adaptive MEL system exhibits four core operational characteristics.

01

Systemic accountability

Answering *what* was achieved, *for whom*, and *at what cost* across donors, ministries, and affected communities.

02

Near-real-time agility

Enabling rapid intervention adjustments during active conflict, environmental shocks, or security disruptions.

03

Participatory ownership

Involving local educators, community leaders, youth, and carers in tool design and data analysis to build local agency.

04

Institutional absorption capacity

Designing indicators and data pipelines that the Ministry of Education's National Education Management Information System (EMIS) can absorb directly.

The three core measurement foci

Adapting USAID's Roadmap for Measuring Distance Learning, Radford et al. (2026) structure emergency EdTech measurement across three interconnected domains.

DOMAIN 1

Reach

Access baselines and infrastructure availability

DOMAIN 2

Engagement

Implementation protocol fidelity and perceived quality

DOMAIN 3

Outcomes

Cognitive, academic, and socio-emotional gains

1. Reach metrics

Disaggregated beneficiary coverage

Unique counts of active learners, teachers, and administrators, fully disaggregated by gender, disability status (via the Washington Group Child Functioning Module), displacement status, and geography.

Infrastructure and access baselines

Measuring physical device availability, hardware functionality, household power access (grid, solar, generator), and network connectivity strength (cellular, broadband, offline).

2. Engagement and implementation metrics

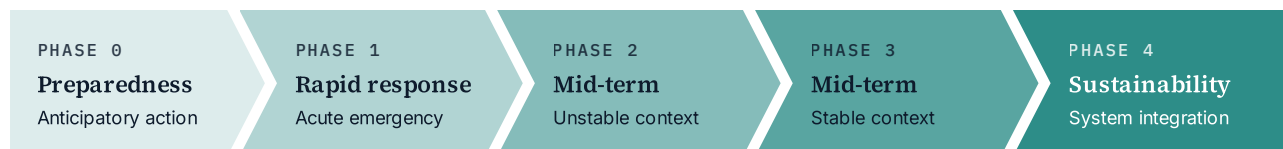
Implementation protocol adherence (fidelity)	Tracking whether learners receive the targeted dosage of instruction (for example active screen time hours, broadcast listenership frequency, or completed SMS modules per week).
Perceived relevance and satisfaction	Assessing how learners, teachers, and carers evaluate the cultural appropriateness, language accessibility, and practical utility of EdTech content.
Motivation and persistence	Monitoring retention rates, completion percentages, and dropout risk indicators across marginalised cohorts.

3. Outcome metrics

Academic learning gains	Measuring foundational literacy, numeracy, and subject-matter acquisition through validated formative and summative assessments.
Social and emotional learning (SEL) gains	Tracking changes in emotional self-regulation, resilience, coping strategies, and social connectedness.
Cost-outcome efficiency	Calculating unit costs per learner reached, unit costs per learner actively engaged, and cost per unit of learning gain achieved.

02 Phased MEL Priorities Across Emergency Lifecycles

Crises evolve through dynamic phases. A static MEL strategy fails because data needs in an acute crisis differ fundamentally from those in a stabilising recovery phase. Radford et al. (2026) establish a five-phase operational matrix for aligning MEL activities with emergency life cycles.



Emergency response phase	Core MEL focus & priority objectives	Primary data collection tools & methodologies
Phase 0: Preparedness & anticipatory action	Pre-positioning MEL frameworks, training data teams, establishing data privacy protocols, and embedding financial cost-capture markers in budgeting systems.	System capacity audits, pre-built rapid survey templates, baseline EMIS benchmarking.
Phase 1: Rapid emergency response	Monitoring immediate access continuity, verifying child safety and well-being, mapping excluded populations, and tracking emergency material distribution.	Lightweight message-based activity logs, attendance registers, rapid device and connectivity audits, initial Theory of Change draft.
Phase 2: Mid-term emergency (unstable context)	Tracking implementation fidelity across multiple delivery models, conducting full needs assessments, and identifying participation barriers.	Formative assessment registers, teacher implementation logs, stakeholder focus groups, disaggregated barrier mapping.
Phase 3: Mid-term emergency (stable context)	Measuring learning outcomes, evaluating causal impact, conducting cost-effectiveness analyses, and optimising software and pedagogy through iterative testing.	Summative assessments (EGRA, EGMA, HALDO), randomised controlled trials (RCTs), iterative A/B testing, cost-modelling tools.
Phase 4: Sustainability & system integration	Evaluating long-term learning retention, assessing national system absorption, closing equity gaps, and informing evidence-based policy advocacy.	Longitudinal cohort tracking, EMIS data pipeline integration, institutional scalability audits, policy cost-effectiveness briefs.

03 Advanced Evaluation Methodologies & Iterative Optimisation

To move beyond descriptive reporting, emergency EdTech frameworks must incorporate advanced evaluation methodologies capable of isolating causal impact and driving rapid product optimisation.

Determining causal impact: randomised controlled trials

Where contexts stabilise (Phase 3), RCTs represent the gold standard for measuring causal learning impact.

FIELD EVIDENCE / UGANDA

Can't Wait to Learn

An RCT evaluating tablet-based software for displaced children in Uganda demonstrated significant causal gains in foundational mathematics and literacy compared to control groups, establishing proof-of-concept for tablet-based self-paced learning.

FIELD EVIDENCE / BOTSWANA AND BANGLADESH

Low-tech SMS and phone interventions

Large-scale RCTs in Botswana and Bangladesh proved that simple, low-cost weekly phone calls and SMS maths problems generated substantial learning improvements during school closures, validating phone-based micro-learning as a highly scalable emergency solution.

Iterative optimisation: A/B testing models

While RCTs establish overall programme impact, they are expensive and slow. To optimise programme features without compromising learning, implementers should adopt iterative A/B testing.

40%+

lower per-learner
delivery cost, same
learning gains

FIELD EVIDENCE / REMOTE TUTORING

Tutoring programme optimisation

In a large-scale emergency remote tutoring initiative, implementers faced unsustainable per-learner costs that blocked national scaling. Teams executed twelve successive rounds of A/B testing, trying reduced tutoring session lengths, automated SMS motivational nudges, and modified carer engagement protocols. Rather than running parallel trials, each sequential test informed the next iteration.

The framework reduced per-learner delivery costs by over 40% while maintaining equivalent learning gains.

Evaluating scalability: the VVOB Scalability Checklist

To determine whether an EdTech intervention is ready for national institutionalisation, MEL teams should apply the VVOB User Guide to the Education Scalability Checklist, evaluating performance across seven criteria.

01

Strategy

Clear roadmap for transitioning from humanitarian management to public sector ownership.

02

Credibility

Strong evidence base demonstrating learning impact and cost-effectiveness.

03

Support

Active buy-in from teachers, parents, community leaders, and ministry officials.

04

Relative advantage

Demonstrated superiority in cost, reach, or learning gains compared to existing non-tech alternatives.

05

Transferability

Standardised documentation, open licensing, and simplified training modules allowing execution by public personnel.

06

Organisational fit

Alignment with existing Ministry of Education operational structures, school calendars, and teacher professional development frameworks.

07

Financing

Sustainable long-term budget commitments within public education expenditure ceilings.

04 System Harmonisation, Ethical Data Protection & Benchmark Standards

A critical failure in emergency education is data fragmentation. Radford et al. (2026) highlight that uncoordinated surveys by competing international agencies lead to duplicate reporting, severe data fatigue among teachers, and non-interoperable data silos.

Strengthening data coherence and system integration

To establish an integrated data ecosystem, implementers must apply the five core recommendations formulated by Radford et al. (2026) in Box 1 of the EdTech Guidance Document.

01 Prioritise evidence-driven resource allocation

Map numbers of crisis-affected children and disaggregated vulnerability profiles to guide funding allocation.

02 Harmonise indicator frameworks and assessment pipelines	Standardise indicator definitions, diagnostic assessment tools (such as EGRA/HALDO), and survey intervals between INGOs, the Global Education Cluster, and Ministries of Education. Establish shared monitoring dashboards and interoperable data pipelines.
03 Build sustainable ministry data capacity	Invest in ministry-led institutional information systems (EMIS) and train national officers on crisis-sensitive data analysis.
04 Embed protection-first data governance	Apply strict data minimisation principles, collecting only essential learner variables. Enforce informed consent pathways, secure encrypted cloud storage, and strict role-based access controls to protect vulnerable displaced children.
05 Promote cross-sectoral data use	Connect education data pipelines with child protection, health, nutrition, and displacement tracking platforms to address the full range of learner vulnerabilities.

Enforcing digital principles and quality assurance benchmarks

All emergency EdTech data practices must comply with the international **Principles for Digital Development**, which mandate user-centred design, open data practices, context sensitivity, and strict child safeguarding. Programme managers should also benchmark software quality against recognised standards, such as the UNICEF EdTech for Good Framework 2.0 and the EdTech Tulna Quality Standards, verifying pedagogical clarity, content accessibility, and data privacy before scaling.

DO NEXT

Implementation protocol for MEL specialists

01

Configure disaggregated data dashboards

Establish programme monitoring databases from Phase 0 with mandatory demographic fields for gender, Washington Group disability domains, displacement status, and geography.

02

Pre-position cost-capture markers

Integrate financial expense tracking tags into accounting software to calculate cost per learner reached and cost per learning gain.

03

Harmonise evaluation indicators with education clusters

Adopt standard INEE and Global Education Cluster indicator sets so data can be merged into national dashboards.

04

Execute sequential A/B testing rounds

Conduct lightweight A/B testing on software user interfaces, lesson lengths, and messaging frequencies to optimise delivery costs and engagement.

 05**Establish EMIS handover pipelines**

Transition data collection from standalone survey tools to public EMIS channels by Phase 4, securing institutional sustainability.