

03 / 04

Pedagogy in Crisis Settings

Cognitive load reduction, SEL, and structured learning for traumatised learners

SUMMARY

Children living in conflict, crisis, and displacement contexts face unprecedented psychological and environmental stressors. As synthesised in the Education in Emergencies guidance by Radford et al. (2026), acute stress, trauma, and interrupted schooling directly impair the neurobiological mechanisms governing learning.

Children affected by crises do not merely experience physical displacement; they experience a severe erosion of working memory, executive function, and emotional regulation. In these high-adversity environments, technology-mediated instruction cannot rely on discovery-based, high-bandwidth, or unstructured learning models. Translating educational science into emergency EdTech requires an explicit, highly structured pedagogical strategy built on three pillars.

1 Reduce cognitive load Strip out everything that spends working memory on anything other than the lesson.	2 Centralise SEL Treat social and emotional learning as a prerequisite for cognition, not enrichment.	3 Teach explicitly, at the right level Deliver targeted, explicit instruction tailored to individual learning levels.
--	---	---

3–5 min single-concept micro-modules	5 core SEL outcomes in emergency contexts	0.56 SD literacy gain in three months from tech-enabled TaRL in Punjab	329,063 primary learners reached by Education on Air, South Sudan
--	---	--	---

IN THIS BRIEF

01	Neurobiology of Trauma & Cognitive Load Reduction	3
02	Centralising Social and Emotional Learning (SEL)	4
03	Explicit Instruction & Differentiated Mastery (TaRL)	5
04	Context-Responsive Delivery & Educator Professional Development	6

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 03 of a four-part series.

01 Neurobiology of Trauma & Cognitive Load Reduction

Neuroscience and cognitive psychology establish that acute stress and trauma severely impair the brain's prefrontal cortex, which controls core executive functions, working memory capacity, and emotional self-regulation (Shields et al., 2016; Vogel & Schwabe, 2016). When children experience conflict or forced displacement, their working memory is frequently overwhelmed by hypervigilance and emotional distress, leaving minimal cognitive capacity for processing complex academic content.

Cognitive load theory in emergency contexts

As formulated by Sweller et al. (2011), cognitive architecture consists of a strictly limited working memory and an effectively unlimited long-term memory. Total cognitive load comprises three elements.



In crisis settings, extraneous cognitive load is exceptionally high because of external environmental chaos: ambient noise, overcrowding, safety concerns, and language barriers. Effective EdTech design must eliminate all unnecessary extraneous load so that traumatised learners can allocate their limited working memory toward germane processing.

FORMULA FOR LEARNING CAPACITY

Total Cognitive Load = Intrinsic Load + Extraneous Load + Germane Load

Minimising extraneous load through simplified design unlocks the limited working memory required for germane schema construction.

Concrete design rules for reducing cognitive load

Radford et al. (2026) translate cognitive load reduction into concrete interface and instructional design directives.

Design dimension	Practice to avoid	Inclusive EdTech best practice
Instructional chunking	Multi-step text-dense paragraphs; long continuous video lectures.	Break content into short reading passages and micro-learning modules (3–5 minutes), introducing one concept at a time.
Visual hierarchy	Busy screens, decorative graphics, flashing pop-ups, low contrast.	High-contrast, clean visual interfaces highlighting only essential focal concepts with simple diagrammatic representations.
Media and audio elements	Background music, sound effects, or decorative animations intended for “fun”.	Eliminate all non-instructional audio and visual noise; reserve multimedia strictly for explicit concept demonstration.
UI consistency	Shifting navigation layouts across lessons; complex menu hierarchies.	Maintain absolute interface predictability across all lessons so learners never spend cognitive energy navigating software.
Instructional guidance	Discovery-based exploration or minimal adult guidance.	Provide explicit, step-by-step worked examples with immediate visual and auditory feedback.

02 Centralising Social and Emotional Learning (SEL)

In crisis settings, academic instruction cannot be separated from emotional well-being. As emphasised by UNESCO (2019) and INEE (2016), integrating Social and Emotional Learning (SEL) is not an auxiliary enrichment activity; it is a prerequisite for cognitive functioning and academic acquisition. This integrated approach is termed “holistic learning”, addressing the learner’s cognitive, emotional, physical, and psychosocial needs simultaneously.

Core dimensions of emergency SEL

In conflict and displacement contexts, EdTech-supported SEL prioritises five core psychological outcomes.

01 Psychological stability and safety	Establishing predictable daily routines and safe learning environments that restore a sense of control.
02 Emotional self-regulation	Teaching actionable coping mechanisms to recognise, name, and manage acute anxiety, fear, and anger.
03 Coping and problem-solving skills	Developing adaptive resilience strategies to process stress and manage daily hardship.
04 Social connectedness	Strengthening positive peer relationships, collaborative learning, and carer-child bonds to counter isolation.

- 05 Building resilience and hope** Cultivating positive future orientations, self-efficacy, and a sense of personal agency.

Embedding SEL into digital delivery channels

Emergency EdTech interventions should weave SEL practices directly into instructional technology delivery.

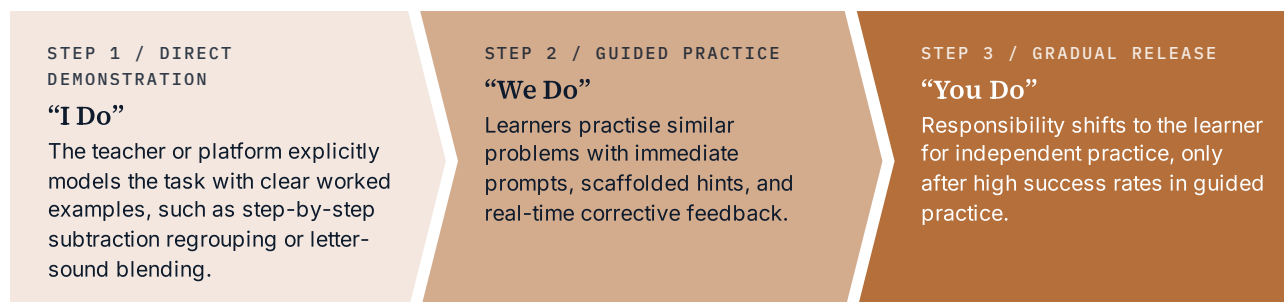
Structured daily check-ins	Opening every digital learning session with a brief, non-threatening emotional self-assessment (for example, selecting emotion icons) paired with guided breathing exercises.
Embedded SEL messaging	Incorporating age-appropriate life skills, trauma-coping narratives, and collaborative problem-solving scenarios into radio broadcasts, SMS quizzes, and digital storybooks.
Carer-child co-learning prompts	Sending structured audio or text prompts to carers encouraging positive reinforcement, joint storytelling, and supportive dialogue at home.

03 Explicit Instruction & Differentiated Mastery (TaRL)

Traumatised learners with interrupted schooling cannot thrive under discovery-based or unguided constructivist teaching models (Kirschner et al., 2006). Research overwhelmingly demonstrates that explicit, direct instruction is essential for foundational literacy and numeracy acquisition in low-resource emergency settings.

Rosenshine's principles of instruction

EdTech content and teacher training frameworks should strictly implement Rosenshine's (2012) evidence-based instructional sequence, with responsibility shifting steadily from instructor to learner.



Teaching at the Right Level (TaRL)

Crisis-affected children of the same age frequently exhibit vastly different learning levels because of varied periods of school disruption. Teaching strictly to age- or grade-level curricula guarantees that lagging students fall further behind. TaRL groups children according to their actual demonstrated learning level rather than age or nominal grade.

0.56 SD

literacy improvement in
three months

FIELD EVIDENCE / PAKISTAN

Tech-enabled TaRL in rural Punjab

During COVID-19 school closures, a tech-enabled TaRL intervention delivered personalised weekly learning problems, solution videos, and short quizzes via WhatsApp on basic mobile phones. Teachers provided weekly feedback and targeted video instruction.

A randomised trial showed that this low-tech, level-targeted approach generated a 0.56 standard deviation (SD) improvement in learners' literacy scores within three months.

Formative and summative diagnostic frameworks

To implement TaRL effectively, programmes must deploy validated assessment toolkits capable of capturing literacy, numeracy, and SEL levels.

EGRA and EGMA	Early Grade Reading Assessment and Early Grade Mathematics Assessment: diagnostic toolkits measuring foundational letter recognition, phonics, oral reading fluency, number identification, and basic arithmetic.
HALDO	Holistic Assessment of Learning and Development: a rapid, versatile assessment tool designed for emergency contexts that measures reading, mathematics, SEL, and executive function simultaneously.
IDELA	International Development and Early Learning Assessment: evaluates early childhood development across motor skills, emergent literacy, emergent numeracy, and social-emotional development.

04 Context-Responsive Delivery & Educator Professional Development

Instructional delivery channels should follow the Simplest Feasible Approach Principle: prioritise offline, low-tech, self-paced, and asynchronous delivery models before considering complex, high-bandwidth synchronous systems.

Low-tech delivery modalities in action

Interactive Radio Instruction (IRI) and audio on-demand	Broadcast radio remains one of the most cost-effective, wide-reaching emergency delivery channels available.
--	--

**Cellular micro-learning
(SMS, USSD, WhatsApp)**

Using basic feature phone protocols to deliver daily bite-sized quizzes, reading prompts, and audio lessons directly to households without requiring broadband infrastructure.

329,063

primary learners
reached, incl. 168,201
girls

FIELD EVIDENCE / SOUTH SUDAN

Education on Air

Following a 14-month school closure, during which 89% of the population lacked internet or mobile phone access, South Sudan's Ministry of General Education and Instruction, partnered with UNICEF, launched the Education on Air (EOA) interactive radio programme. Curriculum-aligned interactive lessons were paired with a toll-free teacher helpline.

EOA reached 329,063 primary learners, including 168,201 girls, and over 79% ranked the lessons as highly effective for learning continuity and well-being.

Teacher professional development and peer support networks

Teachers in crisis contexts face extreme personal and professional burnout. EdTech interventions must support educators through continuous, accessible professional development rather than adding administrative complexity.

FIELD EVIDENCE / THAILAND

One Teacher Thailand (OTT)

Launched by UNICEF Thailand to support educators in conflict-affected southern provinces, the network combined weekly Facebook Live training sessions, virtual talks, and peer learning groups. It gave teachers actionable blended learning strategies, trauma-informed pedagogy, and peer psychological support, significantly improving teacher well-being and instructional quality.

DO NEXT

Pedagogical checklist for content developers

01

Audit visual and cognitive interfaces

Remove all decorative animations, background audio, and non-essential visual elements from learning screens.

02

Chunk content into micro-modules

Limit digital lessons to 3–5 minute single-concept segments supported by clear visual worked examples.

03

Embed daily SEL and breathing routines

Open every digital learning session with a brief emotional check-in and self-regulation exercise.

04

Deploy level-targeted diagnostic tools

Use EGRA, EGMA, or HALDO diagnostic tools to group learners by competency rather than age.

 05**Implement direct Rosenshine sequences**

Structure software and lesson plans around explicit modelling ("I Do"), scaffolded practice ("We Do"), and independent application ("You Do").