



International Journal of Multidisciplinary Research and Growth Evaluation.

Feedback for Double-Loop Learning: Shifting Students' Mindsets in War Zones

Kongkiti Phusavat ^{1*}, Mohamed Buheji ²

¹ Department of Industrial Engineering, Kasetsart University, Thailand

² Founder, International Institute of Inspiration Economy, Bahrain

* Corresponding Author: **Kongkiti Phusavat**

Article Info

ISSN (Online): 2582-7138

Impact Factor (RSIF): 8.04

Volume: 07

Issue: 03

May-June 2026

Received: 11-03-2026

Accepted: 09-04-2026

Published: 07-05-2026

Page No: 481-493

Abstract

Prolonged military conflict creates profound psychological barriers to learning, chief among them a sense of hopelessness, uncertainty, and cognitive disengagement. Traditional feedback mechanisms, focused on performance correction (single-loop learning), prove inadequate in war zones where students question the very purpose of education. This paper explores how double-loop learning feedback—narrative, indirect, and psychologically attuned—can shift students' governing mindsets from helplessness to adaptive resilience.

Drawing on self-determination theory, situated cognition, problem-based learning, and recent evidence from the 2026 US-Israeli-Iran war, we synthesize findings from conflict-affected regions including Gaza, Sudan, Ukraine, Iran, and GCC. We propose a framework of indirect feedback practices: relational safety cues, narrative coherence tools, peer solidarity structures, and non-verbal gestures that communicate care.

The authors see that the 2026 US-Israeli-Iran war despite the massive role of the sophisticated e-learning platforms in GCC, this does not replace the student engagement and psychological readiness for learning. Digital systems operate in single-loop feedback paradigms, providing procedural correction without addressing the governing assumptions of hopelessness and uncertainty that pervade war-zone classrooms. The paper demonstrates that e-learning modules, however technologically advanced, cannot deliver the relational presence, narrative coherence, or emotional regulation modeling required for double-loop learning. The research propose a hybrid model in which e-learning serves single-loop functions (content delivery, skill practice) while face-to-face and small-group interactions—informed by situated cognition and problem-based learning—carry the double-loop work of mindset transformation.

The study concludes that double-loop feedback, when embedded in daily pedagogical routines, can restore students' sense of autonomy, competence, and relatedness, thereby sustaining learning motivation under the most adverse conditions. The paper shows that living through crisis generation is not merely learning to survive; it is learning to build, and feedback is the bridge between survival and construction.

Keywords: US-Israel-Iran War 2026, Impact of 2026 Conflict on GCC, Double-loop Learning, Feedback, Displacement, War Zones, Student Motivation, Situated Cognition, Hopelessness, Self-Determination Theory, Indirect Feedback, Narrative Therapy

1. Introduction

Effective learning and development require continuity, care, engagement, and a psychologically safe environment (Cook & Artino, 2016) ^[16]. Historically, disruptions to student development have stemmed from uncontrollable factors such as economic migration, natural disasters, and pandemics (Diab & Schultz, 2021; Iwo *et al.*, 2024) ^[17, 21]. However, armed conflict represents a uniquely devastating form of disruption—one that attacks not only infrastructure but also the fundamental

assumptions that make learning meaningful.

The 2026 US-Israeli-Iran war has inflicted catastrophic damage on educational systems across the region. Over thirty universities and nine hundred schools in Iran have been damaged or destroyed by airstrikes (Mirzaie, 2026; Shankar, 2026; UNESCO, 2026) ^[23, 29, 32]. More than twelve million students have been affected by nationwide school closures. Even where online learning is technically possible, frequent power outages and unstable internet access render it inaccessible for nearly seventy percent of students. In Gaza, similar patterns of educational destruction have been documented, with schools serving as shelters and learning reduced to informal, survival-oriented activities (Phusavat & Buheji, 2024) ^[26]. As Buheji (2026c) ^[11] observes, “the crisis has fundamentally altered daily existence, transforming lives from a narrative of stability and opportunity to one of uncertainty and vulnerability.”

The Gulf Cooperation Council (GCC) states Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates entered the 2026 war with what appeared to be an educational advantage. Within weeks of the conflict’s onset, e-learning platform engagement stayed on, however students attended online classes mechanically. As Buheji (2026c) ^[11] observes, “the conflict has fundamentally altered daily existence for GCC citizens and residents, transforming their lives from a narrative of stability and opportunity to one of uncertainty and vulnerability. E-learning modules designed for stability could not adapt to vulnerability.

E-learning modules operate almost exclusively within what Argyris (1993) ^[3] terms single-loop learning: they provide feedback on content mastery, task completion, and procedural correctness. They assume that the student’s governing mindset—their fundamental belief about whether learning is worthwhile—is already conducive to education. In a war zone, this assumption is false. Students facing missile strikes, displacement, family loss, and economic collapse do not ask “How can I improve my grade?” They ask “Why should I learn at all when my future is being destroyed?”

The GCC’s experience thus presents a critical lesson for conflict-zone education worldwide. Advanced digital infrastructure is not sufficient. What matters is not the speed of the connection but the quality of the feedback—and specifically, whether that feedback addresses the student’s

governing assumptions. This paper argues that double-loop feedback—relational, narrative, emotionally attuned, and often indirect—is the missing component in GCC educational continuity plans. Without it, e-learning becomes not a solution but a source of further alienation.

Yet the most insidious damage is psychological. Students in war zones experience what researchers have termed a prevailing mindset of hopelessness—a conviction that effort is futile, that the future is closed, that learning has no reward (El-Khodary & Samara, 2020; Tareke *et al.*, 2026) ^[18, 30]. This mindset does not respond to traditional feedback. Telling a traumatized student to “study harder” or “focus on your grades” misses the point entirely. The student’s governing assumption is not “I am not trying hard enough” but rather “Why should I try at all when my world is collapsing?”

This is the central problem that this paper addresses. We argue that war-zone education requires a shift from single-loop to double-loop feedback. Single-loop feedback corrects actions within existing goals and assumptions. Double-loop feedback questions the assumptions themselves—the “why” behind disengagement (Argyris, 1993; Argyris & Schön, 1996) ^[3, 4]. For a student who believes education is meaningless in a war zone, feedback must first rebuild the belief that learning can be meaningful. This is not a technical pedagogical adjustment; it is a psychological and existential intervention. Buheji (2026b) ^[28] frames this as a matter of “semantic sovereignty”—the capacity to produce one’s own frameworks of significance rather than consuming those manufactured by chaos and fear.

Figure (1) shows a comparative framework for single-loop and double-loop learning across four key dimensions. Primary Focus distinguishes between performance and procedural correction in single-loop learning versus mindset and existential purpose in double-loop learning. The Core Question shifts from “How do I improve my score?” to the more profound “Why does this matter amidst chaos?” Modality contrasts direct, digital, and scripted feedback with indirect, relational, and attuned approaches. Finally, the ultimate goal moves from content mastery to restoring agency and hardiness. This framework captures the central argument of the paper: that war-zone education requires feedback that addresses not just what students do but why they believe learning matters at all.

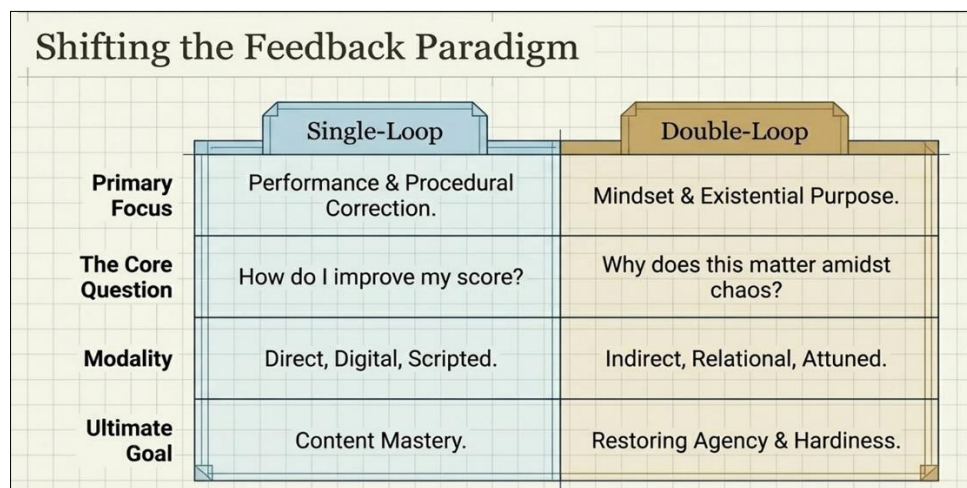


Fig 1: Generated by the author using NotebookLM

2. Literature Review

2.1. The Psychological Toll of War on Learning

Military conflict undermines student learning through multiple interconnected mechanisms. The most visible is infrastructure destruction: schools converted to shelters, universities bombed, libraries burned. But beneath this lies a deeper layer of psychological damage. Post-traumatic stress disorder (PTSD), anxiety, depression, and sleep deprivation are endemic among war-affected students (Assefa *et al.*, 2022; Batool *et al.*, 2026; Mohammadi & Khaleghi, 2025) [5, 7, 24]. These conditions directly impair concentration, memory retrieval, and emotional regulation—the cognitive foundations of learning.

Equally damaging is the erosion of future orientation. Students who have experienced prolonged violence often develop what Hadi, Lai, and Llabre (2014) [19] call “learned helplessness”—a generalized expectation that their actions cannot influence outcomes. When combined with collapsed labor markets, sanctions, and economic uncertainty, this produces a rational calculation: why invest in education if there are no jobs, no safety, no future? (Alfadul *et al.*, 2025;

Ivanov *et al.*, 2025) [1, 20]. Buheji (2026e) [13] documents that the economic spillovers of the 2026 conflict have already pushed millions into poverty, reinforcing the perception among youth that educational investment yields no return.

Figure (2) presents a comparative framework titled “Redefining the Classroom for Conflict,” contrasting stable educational contexts with war zone contexts across four key dimensions. Under Relevant Goals, stable contexts prioritize academic success, grades, and graduation, whereas war zones focus on survival, emotional regulation, and hardiness. The Form of Learning shifts from curricular, abstract, and formal instruction to situated cognition and problem-based learning (PBL) that embeds education in the learner’s immediate reality. The Role of the Educator transforms from content deliverer and evaluator to emotional regulator and relational anchor. Finally, the Role of Peers moves from classmates or competitors to horizontal solidarity networks and mutual aid. This framework captures the paper’s central argument that wartime education requires a fundamental redefinition of classroom priorities, with psychological survival taking precedence over academic achievement.

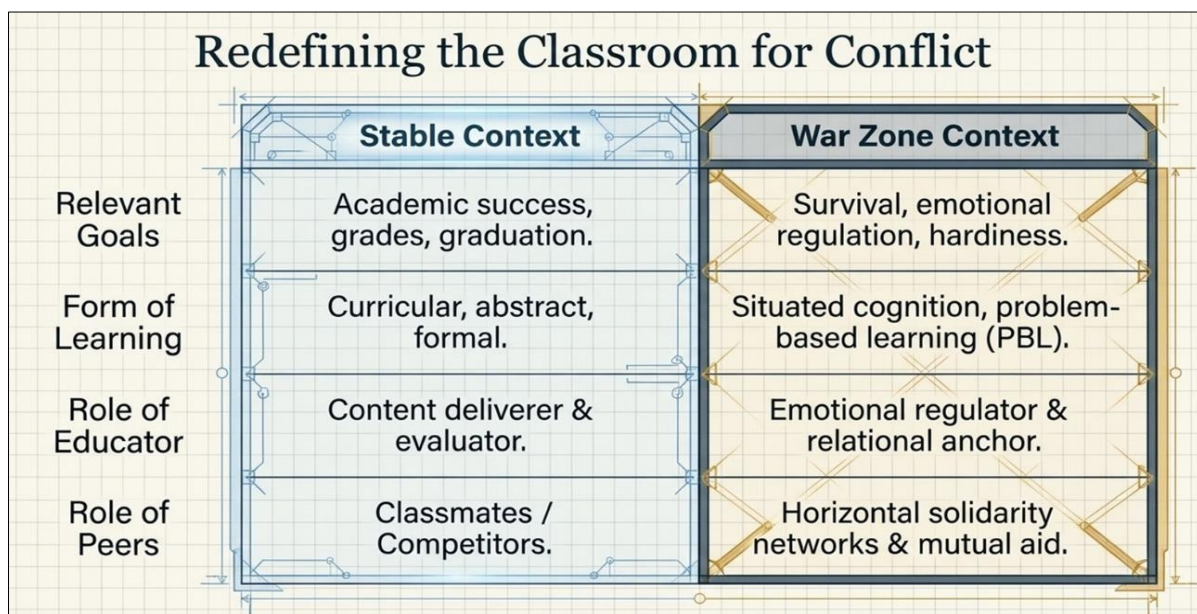


Fig 2: Generated by the author using NotebookLM

2.2. Self-Determination Theory as a Diagnostic Lens

Self-determination theory (SDT) provides a powerful framework for understanding how war disrupts learning motivation (Rosli *et al.*, 2022) [27]. SDT posits three basic psychological needs: autonomy (the sense of volition and choice), competence (the sense of mastery and effectiveness), and relatedness (the sense of connection and belonging).

War zones systematically frustrate all three needs. Autonomy is destroyed by externally imposed constraints: curfews, closures, forced displacement, surveillance. Competence is undermined by disrupted schooling, lack of resources, and the sheer unpredictability of daily life—students cannot plan, cannot practice, cannot improve when every day brings new emergencies (Pavlova *et al.*, 2020) [25]. Relatedness is severed when teachers are killed or displaced, when peers are scattered, when the normal social fabric of school life is torn apart (Alotaibi, 2021) [2]. Buheji (2026c) [11] notes that “the feeling of being trapped between two larger, more powerful forces” creates a profound sense of alienation that directly

undermines the relatedness need.

When these three needs are chronically unmet, intrinsic motivation collapses. Students may continue to attend classes (if classes exist), but their engagement is extrinsic, forced, and fragile. The result is what Diab and Schultz (2021) [17] term “academic underachievement in war and conflict”—not a failure of ability but a rational adaptation to an irrational environment.

2.3. Situated Cognition and Informal Learning in Displacement

Phusavat and Buheji (2024) [26] argue that formal education in war zones is often impossible, but informal learning—grounded in situated cognition—remains possible and essential. Situated cognition emphasizes that learning is most effective when embedded in the learner’s actual social, cultural, and physical context. For displaced students, this means learning survival skills, emotional regulation, and practical competencies that are immediately relevant, rather

than abstract curricular content. As Buheji (2026b) ^[10] argues in the context of Inspiration Labs, “learning is to help them survive in the real world.”

This insight is critical for feedback design. In stable environments, feedback focuses on academic performance: “Your essay needs a stronger thesis,” “Your algebra solution missed step three.” In war zones, such feedback is irrelevant. The student’s immediate context is not the classroom but the shelter, the air-raid warning, the queue for food. Feedback must address what matters now: “You stayed calm during the siren—that was competence,” “You helped your younger sibling find safety—that was relatedness,” “You chose to read rather than panic—that was autonomy.”

2.4. Double-Loop Learning: Questioning the Governing Mindset

Argyris (1993) ^[3] distinguished between two levels of learning. Single-loop learning involves detecting and correcting errors while keeping existing goals and assumptions unchanged. Double-loop learning involves questioning and modifying the governing variables themselves—the values, strategies, and assumptions that define the system.

In educational terms: single-loop feedback asks, “How can you improve your performance on this task?” Double-loop feedback asks, “Why do you believe this task matters—or doesn’t matter?” For war-zone students whose governing assumption is “education is futile,” single-loop feedback is useless. Double-loop feedback first challenges that assumption, offering evidence that learning can produce safety, meaning, or connection even amidst chaos (Argyris & Schön, 1996) ^[4]. Buheji (2026d) ^[12] frames this as the transition “from passive entitlement to active contribution”—a shift that requires feedback to address identity, not just action.

Double-loop feedback is inherently indirect. It does not lecture or command. Instead, it provides experiences, narratives, and relational cues that allow the student to discover for themselves that their governing assumption might be incomplete. A teacher who maintains a regular schedule despite bombings does not say “predictability is valuable”; they demonstrate it. A visitor who sits at an appropriate distance and speaks softly does not say “you are safe”; they enact safety. These are forms of feedback—non-verbal, narrative, experiential—that speak directly to the student’s mindset.

3. The Context of the 2026 War: Amplified Vulnerabilities

The 2026 US-Israeli-Iran war has created what Buheji (2026c) terms a “paralyzing geopolitical vise” for students and their families. Iranian missile and drone strikes have targeted civilian infrastructure across all six GCC states, including educational facilities. The closure of the Strait of Hormuz has severed supply chains for food, medicine, and educational materials. Economic losses in the first month alone reached approximately \$186 billion, with 3.7 million jobs lost and 4 million people pushed into poverty (UNDP, 2026; Buheji, 2026e).

For students, this translates into multiple compounded stressors: displacement from homes, loss of family income, interrupted schooling, exposure to violence, and a pervasive sense of uncertainty about the future. As Buheji (2026c)

observes, “children who are experiencing missile strikes, sirens, and family fear during this crisis will carry these memories into adulthood.” The psychological burden is not temporary; it threatens to become an intergenerational legacy of trauma and educational disengagement.

In this context, double-loop feedback is not a pedagogical luxury but a psychological necessity. Students who cannot answer the question “Why learn?” will not learn, regardless of the quality of instruction or the availability of resources. Feedback must first restore the why.

4. Methodology

This study employs an exploratory, qualitative design. Given the sensitivity and fluidity of active war zones, primary data collection is often impossible. Instead, we synthesize findings from multiple secondary sources: peer-reviewed articles (2014–2026), reports from UNESCO, the International Crisis Group, and Al Jazeera, observational accounts from field practitioners, and the author’s own research conducted through the International Institute of Inspiration Economy, including 29 global Inspiration Labs since 2015 (Buheji, 2026b) ^[10].

The analysis is guided by a thematic synthesis approach. We extracted recurring themes related to: (a) manifestations of hopelessness among displaced students, (b) existing feedback practices that appear effective, (c) characteristics of double-loop learning interventions, and (d) lessons from the 2026 war specifically. Themes were iteratively refined through discussion between the authors.

We acknowledge limitations. Exploratory studies cannot provide definitive causal claims. The contexts reviewed—Gaza, Ukraine, Iran, Ethiopia, Sudan—vary significantly in culture, conflict dynamics, and educational infrastructure. However, recurring patterns across contexts suggest transferable principles, which we present as propositions for future confirmatory research.

5. Results: Characteristics of Double-Loop Feedback in War Zones

Our synthesis identifies six characteristics of feedback that appear to shift students’ governing mindsets from hopelessness toward engagement. These are illustrated with examples from the 2026 war where available.

5.1. Feedback as Relational Presence

The most powerful feedback in war zones is often non-verbal: presence, posture, tone, and gesture. Students who have experienced violence are hypervigilant to threat cues. An educator who maintains calm, who sits at an appropriate distance, who speaks softly and slowly, communicates safety without a single word of instruction. This is feedback about the fundamental question: “Is this environment dangerous or safe?”

Studies of displaced learners in Gaza (Phusavat & Buheji, 2024) ^[26] and Ukraine (Ivanov *et al.*, 2025) ^[20] both emphasize that regular visits from educators and international experts—even when no formal teaching occurs—are interpreted by students as “someone cares.” This challenges the governing assumption of being abandoned and invisible. Buheji (2026c) ^[11] notes that during the 2026 war, “the spontaneous mutual aid that emerged in the crisis’s immediate aftermath” demonstrated how relational presence can counteract isolation

5.2. Feedback as Narrative Coherence

Uncertainty and unpredictability are core drivers of hopelessness. One powerful response is narrative: helping students construct a coherent life story that includes both traumatic events and moments of agency, survival, and hope. This aligns with Narrative Exposure Therapy protocols used with war-affected populations.

In educational settings, teachers can incorporate personal objects—diaries, photographs, toys—as lesson starting points. Students are invited to associate objects with specific emotions and events, then to sequence these into a timeline. The act of narrating imposes order on chaos, restoring a sense of temporal coherence. The feedback here is implicit: “Your life is not a random series of horrors; it is a story you can tell.” Senoussi, Choubani, and Buheji (2026) call this “strategic meaning engineering”—the capacity to construct coherent narratives that render crisis experiences comprehensible and actionable.

5.3. Feedback as Routine and Predictability

When external conditions are violently unpredictable, small acts of routine become powerful feedback. A teacher who starts every lesson with the same greeting, who follows the same schedule despite disruptions, who maintains consistent expectations—these communicate “some things remain stable.” This challenges the governing assumption of total chaos.

Martyniuk (2023) ^[22] documented that Ukrainian teachers who maintained regular online class schedules during active shelling reported significantly higher student retention and engagement than those who taught sporadically. The schedule itself was feedback: “Learning still matters. Time still has structure. You still belong here.” Buheji (2026a) ^[9] similarly found that Gulf families who maintained structured daily routines during missile attacks reported lower anxiety and higher functional capacity.

5.4. Feedback as Shift from Performance to Relational Goals

In war zones, traditional academic goals (grades, test scores, graduation) may be unattainable or meaningless. Effective double-loop feedback shifts the goal framework entirely: from performance outcomes to relational and survival outcomes.

Examples include: “Did you help a classmate today?” “Did you take three deep breaths when you felt afraid?” “Did you complete one page of your journal?” These feedback questions redefine success. They challenge the governing assumption that “education is about grades” and replace it with “education is about staying human, staying connected, staying capable” (Buheji & Buheji, 2020) ^[15]. Buheji (2026d) ^[12] describes this as the transition from “passive entitlement to active contribution”—a shift that feedback can catalyze.

5.5. Feedback as Peer Solidarity

Isolation is a major driver of hopelessness. Peer-to-peer

learning structures, where students support each other, provide feedback not through evaluation but through shared activity. When a student explains a concept to a peer, both receive feedback: “You are competent enough to teach,” and “You belong to a community of learners.”

In Gaza, Phusavat and Buheji (2024) ^[26] observed that displaced students who participated in peer learning circles reported significantly lower feelings of isolation and higher motivation than those who learned alone. The feedback was horizontal rather than vertical—from equals rather than authorities—which challenged the assumption that learning depends on external validation. Buheji (2026c) ^[11] notes that “the shared experience of being targeted” can forge stronger collective identity, and peer learning leverages this dynamic educationally.

5.6. Feedback as Emotional Regulation Modelling

Students in war zones often lack models for how to regulate fear, anger, and despair. Educators who explicitly name their own emotions (“I felt scared during the siren too, and here’s what I did”) provide indirect feedback about emotional competence. This challenges the governing assumption that “my feelings are abnormal or shameful” and replaces it with “feelings are manageable, and I can learn strategies.”

Buheji and Ahmed (2020) ^[14] demonstrated that simple mindfulness exercises—three deep breaths before starting a lesson—significantly improved concentration among students in conflict-affected classrooms. The feedback was embedded in practice: “You can control your body, and controlling your body helps control your mind.” Buheji (2026a) ^[9] extended this to family contexts, showing that the “SURVIVE” checklist (Stop, Understand, Rank, Verify, Improve, Venture, Evaluate) provides a cognitive operating system for emotional regulation under fire.

Figure (3) constitute the core practical framework of the paper. Relational Presence involves communicating safety through non-verbal cues, posture, and proximity, signaling to traumatized students that the environment is secure. Narrative Coherence refers to strategic meaning engineering—helping students sequence traumatic experiences into a coherent timeline of agency, moving from chaos to comprehensibility. Unyielding Routine imposes temporal structure to challenge the governing assumption of total chaos, with predictable schedules signaling that some things remain stable. Goal Reframing redefines success from academic metrics (grades, completion rates) to relational and survival milestones (attendance, peer support, emotional regulation). Emotional Regulation involves explicitly modeling strategies to manage physiological fear, giving students a cognitive operating system for anxiety. Finally, Peer Solidarity shifts feedback from vertical (teacher-to-student) to horizontal (student-to-student), eradicating isolation and rebuilding relatedness through mutual aid. Together, these six pillars operationalize double-loop learning in war-zone classrooms.

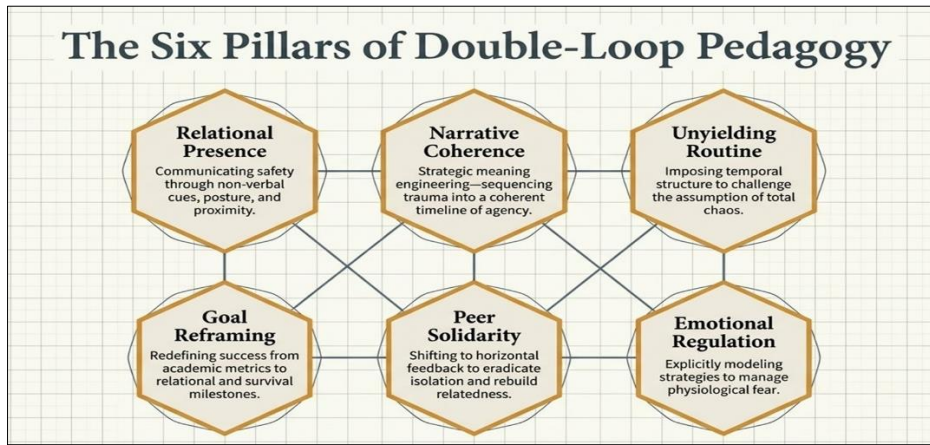


Fig 3: Generated by the author using NotebookLM

6. Discussion: Toward a Pedagogy of Double-Loop Feedback

6.1. Integrating Double-Loop Feedback into Daily Routines

The characteristics identified above are not separate techniques; they form an integrated pedagogical orientation. Double-loop feedback is not a “tool” to be deployed occasionally. It is a framework for every interaction between educator and student in a war zone.

The authors propose a practical model: the CARE feedback cycle (Calm, Attend, Relate, Engage).

1. **Calm:** The educator regulates their own nervous system first, then models calm through voice, posture, and routine. This is feedback about safety.
2. **Attend:** The educator notices the student’s state—not just academic performance but affect, energy, relational connection. This is feedback about visibility.
3. **Relate:** The educator connects the lesson content to the student’s lived experience, however tangentially. A math problem about counting supplies, a history lesson about past resilience, a writing prompt about “a time I helped someone.” This is feedback about relevance.
4. **Engage:** The educator invites active participation, even minimal: “Point to the correct answer,” “Read one sentence aloud,” “Draw one thing you feel.” This is feedback about competence—small achievable successes.

because each step implicitly challenges a hopeless governing assumption: “I am not safe” (Calm), “I am invisible” (Attend), “Learning has nothing to do with my life” (Relate), “I cannot succeed” (Engage). Buheji (2026b) would recognize this as an “Inspiration Lab” at the classroom scale—a psychologically safe space for questioning assumptions and co-creating solutions.

Figure (4) shows a four-step operational framework, summarised by the word CARE for implementing double-loop feedback in war-zone classrooms. Calm requires the educator to regulate their own nervous system first, using voice, posture, and routine to communicate physiological safety—directly challenging the student's governing assumption of "I am in danger." Attend involves noticing the student's affect and energy, not just their academic output, thereby challenging the assumption of "I am invisible" by demonstrating that the student's emotional state matters. Relate connects content to lived, situated experience through problem-based learning (e.g., purifying water, comforting a sibling), challenging the assumption of "This is irrelevant" by anchoring learning in survival-relevant problems. Engage invites micro-participation to rebuild competence through small, achievable successes, directly challenging the assumption of "I cannot succeed" by providing repeated evidence of efficacy. The CARE engine thus operationalizes the six pillars of double-loop pedagogy into a sequential, actionable process that any educator can apply, regardless of formal training or available resources.

The CARE cycle operationalizes double-loop learning

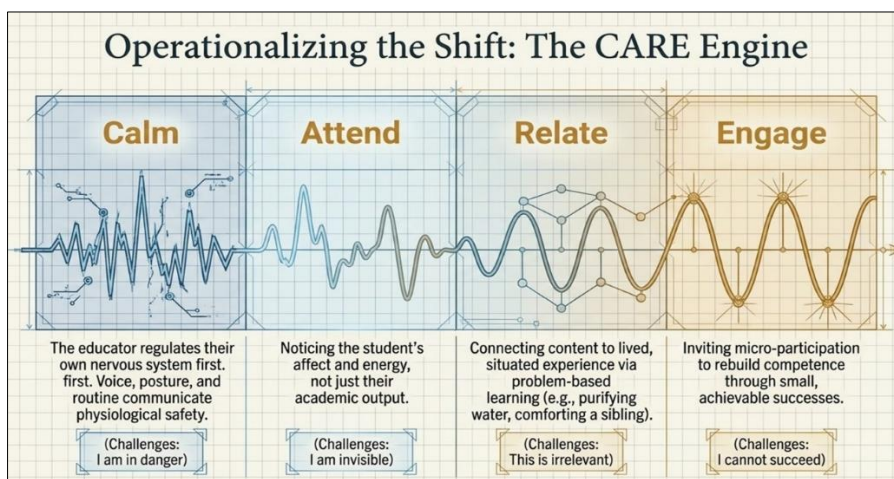


Fig 4: Generated by the author using NotebookLM

6.2. The Role of Problem-Based Learning in Resilience Building

Buheji and Buheji (2020) ^[15] demonstrated that problem-based learning (PBL) is particularly effective in post-crisis contexts because it centers learners as active problem-solvers rather than passive recipients of information. In war zones, PBL can be adapted to focus on survival-relevant problems: “How do we purify water with limited materials?” “How do we communicate safely when networks are down?” “How do we comfort a younger child who is afraid?”

The feedback in PBL is intrinsic: the problem itself provides the feedback. If the water is still dirty, try again. If the child is still crying, adjust your approach. This challenges the governing assumption of helplessness (“I cannot affect my environment”) by providing direct evidence of efficacy. Phusavat and Buheji (2024) ^[26] found that situated cognition approaches—learning by doing in one’s actual context—were particularly effective for displaced learners because the feedback was immediate, relevant, and undeniable.

6.3. Flipped Classrooms and Digital Adaptation Under Constraints

Buheji and Ahmed (2020) ^[14] explored the implications of digital platforms like Zoom for flipped classrooms in the “new normal” of pandemic and conflict. In war zones, where internet access is unreliable, “flipped” models must be radically simplified. Pre-recorded lessons (distributed via USB drives or local networks) allow students to learn offline, then attend brief synchronous sessions for discussion and feedback.

Even under severe constraints, the principle holds: feedback should be anticipatory rather than reactive. Rather than waiting for students to fail and then correcting them, educators can provide narrative, relational, and routine-based feedback that prevents the hopeless mindset from taking root. As Buheji (2026c) ^[11] notes, “the most effective social engineering might be the most subtle: creating the conditions for active citizenship to emerge organically.” The same is true for active learning.

6.4. Lifelong Learning as an Antidote to Displacement

Bahzad *et al.* (2015) ^[6] studied lifelong learning in the context of Bahraini women and found that the inspiration to learn—the intrinsic drive that sustains learning across a lifetime—is closely tied to a sense of purpose and meaning. In war zones, where formal education may be interrupted for years, fostering a lifelong learning identity becomes a protective factor.

Double-loop feedback that emphasizes “you are someone who learns, regardless of circumstances” rather than “you are a student who needs to pass this exam” builds a more durable identity. This identity survives school closures, displacement,

and even years of disruption. The feedback is not about performance but about being: “You are a learner. That is who you are.” Buheji (2026b) ^[28] calls this “semantic sovereignty”—the capacity to define oneself rather than being defined by external circumstances.

6.5. The Hardiness Connection: From Feedback to Mindset

The ultimate goal of double-loop feedback is to cultivate psychological hardiness—the capacity to view stressors as challenges rather than threats, to maintain a sense of control, and to deepen commitment to one’s community (Kobasa, 1979; Maddi, 2002). Buheji (2023) ^[8] extended this concept to war zones, identifying the “4Cs” of hardiness: Commitment, Control, Challenge, and Countermeasure.

Double-loop feedback directly cultivates each of these. Feedback that demonstrates relational presence builds Commitment (“I am not alone”). Feedback that reinforces small achievable successes builds Control (“My actions matter”). Feedback that reframes obstacles as problems to be solved builds Challenge (“This is difficult but I can learn from it”). Feedback that invites active problem-solving builds Countermeasure (“I can do something”). Thus, double-loop feedback is not merely a pedagogical technique but a psychological intervention for building hardiness in the most adverse circumstances.

Below is the new section to be inserted into the expanded paper (after Section 6 or before Section 7).

It directly addresses the GCC context and explains why e-learning modules during war or security threats fail to achieve double-loop learning.

Figure (5) illustrates how double-loop pedagogical inputs cultivate psychological hardiness and ultimately produce semantic sovereignty. Specific double-loop inputs—relational presence, unyielding routine, and problem-based learning—feed into each of the 4Cs. Commitment is fostered by relational presence, challenging the assumption of isolation with the implicit feedback “I am not alone.” Control is fostered by small, achievable successes, reinforcing “My actions matter.” Challenge is fostered by reframing obstacles as learning opportunities, embedding the belief that “I can learn from difficulty.” Countermeasure is fostered by problem-based learning, providing concrete strategies to act, communicated through “I have strategies to act.” These four outputs then converge into the ultimate goal: Semantic Sovereignty—defined as the capacity to produce one’s own frameworks of meaning rather than consuming those manufactured by chaos (Buheji, 2026b) ^[28]. This framework captures the paper’s thesis that double-loop feedback is not merely a pedagogical technique but a psychological intervention for building hardiness in the most adverse circumstances.

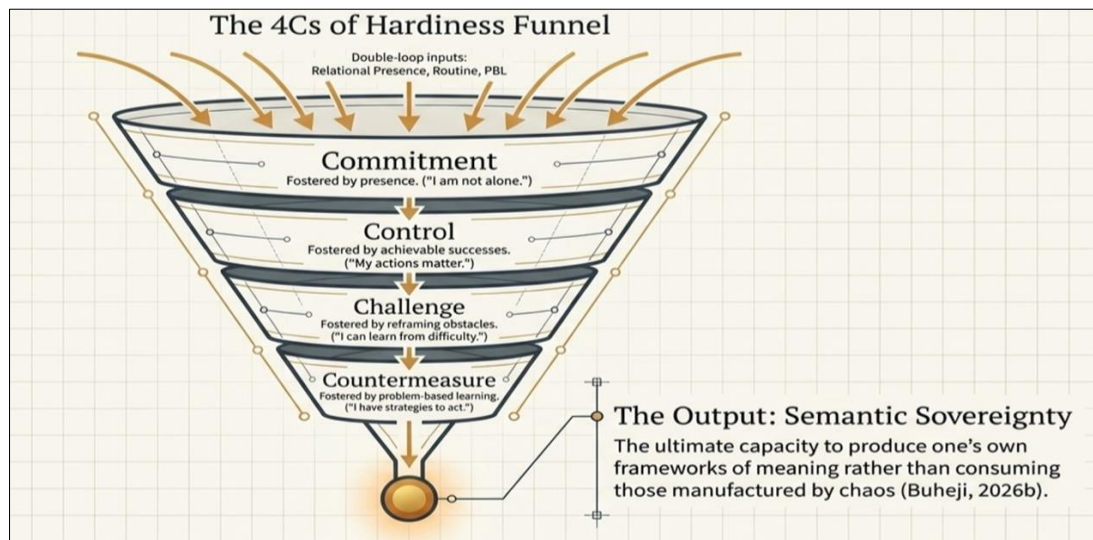


Fig 5: Generated by the author using NotebookLM

6.6. The GCC Case: Why E-Learning Modules Alone Cannot Achieve Double-Loop Learning

The Gulf Cooperation Council (GCC) states have invested heavily in digital education infrastructure over the past decade. Saudi Arabia's unified education platform (Madrasati), the UAE's Mohammed bin Rashid Smart Learning Program, Qatar's Al-Fanar digital portal, and Bahrain's EduNet represent some of the most sophisticated e-learning systems in the developing world. During the 2026 US-Israeli-Iran war, these platforms were rapidly mobilized to maintain educational continuity. On paper, this was a success: millions of students shifted to online learning within days, recorded lectures were made available, and digital assignments replaced paper-based assessments.

Yet, as Buheji (2026c) ^[11] observes, "the shift to remote work and school closures disrupts productivity and job security"—but more profoundly, it disrupts the psychological conditions necessary for learning. E-learning modules, however well-designed, operate almost exclusively within the single-loop learning paradigm. They assume that the student's governing mindset is already conducive to learning. They provide feedback on content mastery, on task completion, on procedural correctness. They do not and cannot address the fundamental question that haunts every student in a war zone: Why should I learn at all when my city is under missile attack, my family is displaced, and my future is obliterated?

6.6.1. The Structural Limitations of E-Learning in Conflict Zones

E-learning modules, by their very architecture, are ill-suited to double-loop learning for several interconnected reasons.

First, e-learning lacks relational presence. The most powerful double-loop feedback identified in Section 5—relational presence, non-verbal cues, calm posture, gentle tone—cannot be transmitted through a screen, especially under conditions of intermittent connectivity and power outages. A pre-recorded video lecture cannot adjust its distance, cannot soften its voice in response to a student's visible distress, cannot sit in silence with a grieving child. As Buheji (2026a) ^[9] documents in the context of family hardiness, "the Emotional Bank Account" requires real-time, embodied interaction. E-learning has no emotional bank account.

Second, e-learning cannot provide narrative coherence in real time. Narrative feedback—helping a student construct a

coherent life timeline from traumatic events—requires an adaptive interlocutor who can respond to the student's unique story, ask clarifying questions, validate emotions, and gently challenge distorted assumptions. A digital module, no matter how sophisticated, follows a script. It cannot deviate when a student suddenly mentions that their school was bombed yesterday. It cannot hold space for silence, for tears, for the unpredictable emergence of trauma. Phusavat and Buheji (2024) ^[26] emphasized that situated cognition—learning embedded in the learner's actual context—is essential for displaced students. E-learning is, by definition, de-situated. It abstracts learning away from the very context that makes it meaningful or meaningless.

Third, e-learning modules reinforce rather than challenge hopeless governing assumptions. Consider the implicit message of a digital assignment delivered during a war: "Complete this quiz. Submit by midnight. Your grade matters." For a student who has just spent hours in a shelter, who has lost a family member, who has no guarantee of electricity tomorrow, this message is not motivating—it is insulting. It signals that the system does not see their reality, does not care about their survival, and is detached from their suffering. This reinforces the governing assumption of hopelessness: "They don't understand. My life doesn't fit their system. Learning is not for people like me."

Fourth, e-learning cannot model emotional regulation in a conflict-relevant way. A pre-recorded teacher speaking calmly in a studio is not modeling how to regulate fear during a missile strike. A discussion forum moderated by an exhausted teaching assistant cannot convey the non-verbal safety cues that a physically present educator can. Buheji (2026b) ^[28] argues that in VUCA (Volatile, Uncertain, Complex, Ambiguous) environments, learning must be "situated in actual activity"—not abstracted from it. E-learning abstracts; double-loop feedback requires immersion.

6.6.2. The GCC's Digital Paradox: High Investment, Low Resilience

The GCC's heavy reliance on e-learning during the 2026 war exposed a fundamental strategic paradox. The region has some of the world's most advanced digital education infrastructure, yet this infrastructure proved almost irrelevant to the psychological needs of students under fire. As Buheji (2026c) ^[11] notes, "the conflict has fundamentally altered

daily existence for GCC citizens and residents, transforming their lives from a narrative of stability and opportunity to one of uncertainty and vulnerability.” E-learning modules designed for stability cannot serve students in vulnerability. Data from the war illustrates this gap. In Bahrain, while the National Volunteer Platform registered over 60,000 volunteers within weeks (Ahmed & Buheji, 2026), e-learning platform engagement dropped precipitously. Teachers reported that students who attended online classes did so mechanically, with cameras off, participation minimal, and assignments submitted without evidence of genuine engagement. The feedback loops built into these platforms—grades, quiz scores, completion certificates—simply did not address what students were actually experiencing.

Moreover, the digital divide within the GCC, while narrower than in many regions, became a chasm under war conditions. Students in areas with reliable electricity and high-speed internet could technically access e-learning; those in targeted neighborhoods, or those displaced to shelters with no connectivity, could not. This created a two-tier educational system that further demoralized already vulnerable students. As Buheji (2026e) ^[13] documents, the conflict pushed 4 million people into poverty within the first month; impoverished students cannot suddenly acquire high-speed internet.

6.6.3. What E-Learning Misses: The Tacit Dimensions of Feedback

Drawing on Polanyi’s concept of tacit knowledge, we can identify what e-learning systematically excludes. Double-loop feedback relies heavily on tacit communication: the teacher’s intuitive assessment of a student’s emotional state, the unspoken reassurance of a steady presence, the implicit permission to be afraid and still be valued. These tacit dimensions cannot be coded into learning modules.

Buheji (2026d) ^[12] argues that behavioral change in crisis contexts requires “visible reserve displays” and “social norm messaging”—mechanisms that depend on shared physical or real-time social space. E-learning, particularly asynchronous modules, has no visible reserve and minimal social norm transmission. A student watching a recorded lecture alone in a damaged home receives no social feedback that “others are also struggling, and we are learning together.”

Furthermore, the double-loop feedback mechanism of peer solidarity (Section 5.5) is severely attenuated online. While digital discussion forums and group chats exist, they lack the embodied, co-present quality that builds genuine relatedness. Students in war zones need to see each other’s faces, to sit in the same room (even a shelter), to share the same physical space of fear and learning. E-learning atomizes; double-loop learning requires community.

6.6.4. Toward Hybrid Models: E-Learning as a Tool, Not a Solution

This critique is not a rejection of educational technology. E-learning modules have value in war zones for specific purposes: delivering content when no teacher is available, providing practice exercises, administering assessments, and maintaining some continuity of curriculum. However, e-learning cannot replace the relational, narrative, emotionally attuned feedback that shifts governing mindsets.

A hybrid model is necessary. In such a model, e-learning handles the single-loop functions: content delivery, skill practice, procedural feedback. Face-to-face (or small-group real-time virtual) interactions handle the double-loop functions: relational presence, narrative coherence building, emotional regulation modeling, and peer solidarity cultivation. During active conflict when physical gathering is impossible, small-group video calls with cameras required (when bandwidth permits) or even radio-based interactive sessions can provide minimal double-loop feedback. But these require trained educators who understand the pedagogy of double-loop learning, not merely the operation of digital platforms.

Buheji (2026b) ^[28] proposes the Inspiration Lab model as a framework for such hybrid learning: a psychologically safe space—physical or virtual—where participants can question assumptions, co-create meaning, and receive feedback that addresses not just their actions but their governing mindsets. In the GCC context, scaling this model to reach displaced students would require investment not in more e-learning modules but in training educators as double-loop facilitators. Figure (6) synthesizes the paper’s argument into a two-layer model for wartime education. The Technology Layer operates within the single-loop paradigm, handling curriculum continuity by delivering content, providing offline or asynchronous practice, and administering procedural correction. Critically, technology is “demoted from Savior to Tool”—recognized as necessary for maintaining basic educational function but insufficient for psychological transformation. The Human Layer operates within the double-loop paradigm, handling psychological continuity through the CARE cycle (Calm, Attend, Relate, Engage), modeling emotional regulation, and facilitating peer solidarity. This layer addresses the governing assumptions of hopelessness that e-learning modules cannot reach. The image concludes with a decisive statement: “E-learning is necessary for maintaining function, but it is fundamentally incapable of replacing the relational feedback required to shift governing mindsets.” This synthesis captures the paper’s central policy implication: hybrid models are essential, but the human layer must lead.

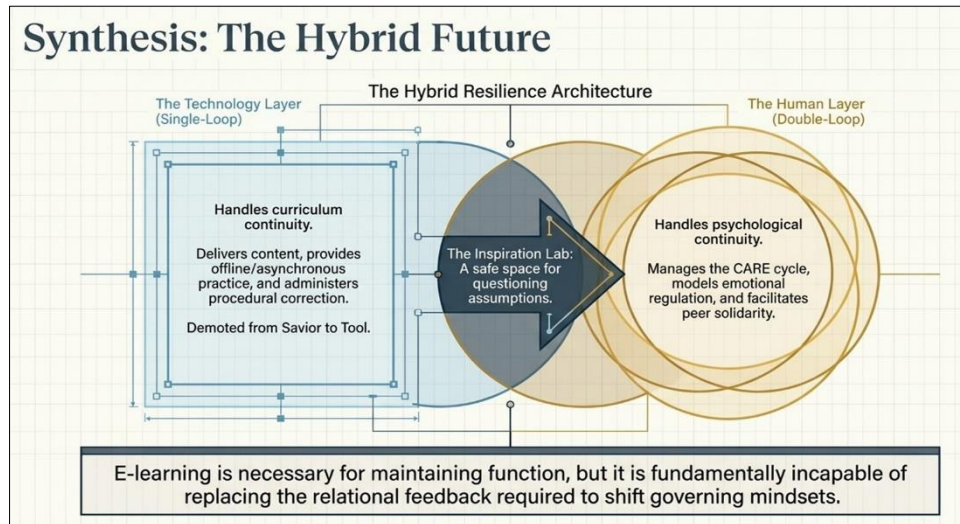


Fig 6: Generated by the author using NotebookLM

6.6.5. Implications for GCC Educational Policy

The failure of e-learning alone to achieve double-loop learning has direct policy implications for GCC states. First, educational continuity plans must distinguish between curriculum continuity and psychological continuity. E-learning can provide the former; it cannot provide the latter. Second, teacher training must prioritize double-loop feedback skills—relational presence, narrative techniques, emotional regulation modeling—over digital platform proficiency. Third, infrastructure investment should favor resilient, low-tech solutions (radio, print materials, local learning pods) alongside high-tech platforms. A solar-powered radio reaches more displaced students than a 5G-connected tablet.

Fourth, assessment during conflict must be radically reformed. As long as e-learning modules are tied to performance-based grades, they will reinforce hopelessness. Assessment should shift to resilience metrics: attendance, participation in peer support, completion of narrative exercises, demonstration of emotional regulation strategies. These can be tracked without sophisticated digital platforms. Fifth, GCC states should establish “Inspiration Labs for Education”—dedicated spaces (physical and virtual) where educators, students, and policymakers co-design double-loop feedback strategies tailored to conflict conditions. As Buheji (2026b) [28] demonstrates across 29 global labs, structured, multidisciplinary problem-solving can generate context-specific solutions that generic e-learning modules cannot.

In summary, e-learning is a necessary tool for maintaining some educational function during war, but it is not—and cannot be—a substitute for the relational, narrative, and emotionally intelligent feedback that shifts students’ governing mindsets. The GCC’s investment in digital

education is commendable, but without parallel investment in double-loop pedagogy, that infrastructure will remain cognitively and psychologically incomplete. As Buheji (2026c) [11] warns, “the most effective social engineering might be the most subtle”—and the subtlety of double-loop feedback cannot be coded into a module.

Figure (7) outline four actionable recommendations derived from the paper’s hybrid resilience architecture. First, Bifurcate Continuity Planning requires formally distinguishing and independently funding curriculum continuity (handled by technology) from psychological continuity (requiring human intervention), ensuring that the relational dimension of learning is not sacrificed to technical efficiency. Second, Retrain for Double-Loop mandates pivoting teacher training away from mere digital proficiency toward psychological first aid, narrative coherence building, and the CARE cycle—skills that enable educators to shift students’ governing mindsets rather than simply deliver content. Third, Invest in Low-Tech Resilience calls for diversifying infrastructure, noting that solar-powered radios and printed local learning pods reach displaced populations more effectively than 5G tablets, which require connectivity and electricity that war zones cannot guarantee. Fourth, Redefine Assessment urges suspending performance-based grading entirely during active conflict, replacing it with resilience metrics such as attendance, peer support participation, and demonstrated use of emotional regulation strategies. These mandates collectively operationalize the paper’s central argument that wartime education policy must prioritize psychological survival over academic measurement.



Fig 7: Generated by the author using NotebookLM

7. Recommendations and Future Research

7.1. For Educators and Practitioners

Educators in war zones must prioritize relational feedback over transactional instruction. In the first weeks of displacement, academic content should take a secondary role to establishing safety, routine, and consistent presence. As Buheji (2026c) ^[11] notes, "the ultimate resource is meaning itself"—and meaning begins with relationship, not worksheets. Teachers should embed narrative practices such as drawing, storytelling, and object-based activities to help students construct coherent timelines of their traumatic experiences, a process Senoussi *et al.* (2026) ^[28] call "strategic meaning engineering." Traditional performance metrics (grades, completion rates) must shift to resilience metrics: attendance, peer support, and demonstrated use of emotional regulation strategies. Educators should also explicitly model emotional regulation by naming their own strategies for managing fear and uncertainty, using tools such as the SURVIVE checklist (Buheji, 2026a) ^[9] as a classroom cognitive operating system.

Finally, peer learning structures are essential for distributing the burden of support when educators themselves are overwhelmed or displaced. Small, stable groups where students review material, share resources, and check in on one another provide feedback that is horizontal rather than vertical, reinforcing both competence and belonging. Phusavat and Buheji (2024) ^[26] found that displaced students in peer learning circles reported significantly lower isolation and higher motivation than those learning alone. These structures reduce dependence on any single adult, creating a distributed network of mutual support that can survive the absence of individual teachers. In a war zone, resilience is not built in isolation but in relationship—and peer learning makes relationship the curriculum.

7.2. For Policymakers and Aid Organizations

Policymakers must integrate double-loop feedback competencies into teacher training programs, recognizing that relief curricula have historically focused almost exclusively on content delivery while neglecting the psychological dimensions of education in crisis. Educators deployed to war zones need training in psychological first aid, narrative techniques, and relational feedback—skills that

enable them to address students' governing assumptions of hopelessness rather than merely delivering lessons. Furthermore, the psychosocial role of schools must be protected even when formal teaching is impossible. Schools should remain open as safe spaces for routine, connection, and structured activities, providing displaced students with a consistent point of reference in an otherwise chaotic existence. The building itself, even when damaged, can signal continuity and care.

Aid organizations must also fund rigorous research on feedback effectiveness in conflict zones, as current evidence remains largely exploratory and context-specific. Comparative field studies examining different feedback modalities—narrative versus non-verbal, peer-led versus teacher-led, routine-based versus responsive—are urgently needed to establish evidence-based guidelines for wartime education. Finally, feedback must be recognized as a legitimate form of aid. Humanitarian budgets typically prioritize food, shelter, and medicine, yet a student who is fed and housed but believes that learning is futile will not learn. Educational psychosocial support—including the training and deployment of educators skilled in double-loop feedback—should be a standard line item in emergency response budgets, equivalent in priority to other forms of life-sustaining assistance.

7.3. For Future Research

Future confirmatory research should prioritize longitudinal tracking of students exposed to double-loop feedback compared to those receiving traditional feedback, measuring not only academic outcomes but also mental health indicators such as PTSD symptoms, hopelessness scales, and social connectedness over extended periods. Such studies would determine whether the psychological benefits of double-loop feedback persist beyond the immediate crisis or fade once the intervention ends. Additionally, comparative studies across diverse conflict contexts—including Gaza, Ukraine, Sudan, Ethiopia, and Iran—are needed to identify context-specific adaptations of the CARE cycle (Calm, Attend, Relate, Engage). What works in a Ukrainian classroom with intermittent internet may not transfer directly to a Gazan shelter with no connectivity or a Sudanese displacement camp with extreme resource scarcity. Experimental studies

examining specific feedback modalities, such as whether narrative timeline construction produces measurable reductions in hopelessness compared to unstructured talking, would provide evidence for which techniques are most effective and under what conditions.

Research must also attend to educator well-being, as teachers providing double-loop feedback are themselves exposed to trauma, displacement, and chronic stress. Studies are needed to identify what support structures—psychological supervision, rotation policies, peer debriefing, material compensation—enable educators to sustain this demanding work without burning out or becoming secondarily traumatized. Finally, investigations into feedback delivery in digitally constrained environments are essential. The GCC's experience with e-learning during the 2026 war demonstrated that sophisticated digital platforms cannot replace relational presence, but many conflict zones lack even basic connectivity. How can double-loop principles be applied when only radio broadcasts, printed materials, or oral traditions are available? Answering this question is not a technical afterthought but a moral imperative, as the most vulnerable students are precisely those with the least access to technology.

8. Conclusion

War destroys not only buildings but also the assumptions that make learning meaningful. Students who have experienced prolonged violence often conclude that education is futile, that effort is pointless, that the future is closed. This governing mindset of hopelessness does not respond to traditional, performance-focused feedback.

Double-loop feedback addresses the mindset itself. Through relational presence, narrative coherence, routine, goal reframing, peer solidarity, and emotional regulation modeling, educators can communicate—without explicit instruction—that learning still matters, that the student still matters, that the future, however uncertain, is still worth preparing for.

The evidence from Gaza, Ukraine, Iran, and the 2026 GCC war is consistent: students who receive such feedback maintain engagement, preserve cognitive function, and sustain hope even under continuous threat. They are not merely surviving; they are learning to learn again.

The GCC states stand at a critical educational crossroads. Their substantial investments in digital infrastructure have produced platforms that are technically impressive but pedagogically incomplete. The 2026 war has revealed that e-learning modules, without the scaffolding of double-loop feedback, cannot sustain student motivation under conditions of existential threat. As Buheji (2026b) argues, “learning is to help them survive in the real world”—and e-learning modules that ignore the real world of missile strikes, displacement, and uncertainty fail this test.

For GCC policymakers, several urgent actions follow. First, educational continuity plans must formally distinguish between curriculum continuity (which e-learning can partially provide) and psychological continuity (which it cannot). The latter requires trained educators capable of delivering relational presence, narrative coherence, and emotional regulation modeling. Second, teacher training must prioritize double-loop feedback competencies—skills that are currently neglected in favor of digital platform proficiency. Third, assessment during conflict must shift from performance metrics to resilience metrics: attendance,

peer support participation, completion of narrative exercises, demonstrated use of emotional regulation strategies. Fourth, the Inspiration Lab model (Buheji, 2026b) should be scaled for educational contexts, creating psychologically safe spaces where educators, students, and communities can co-design double-loop feedback strategies tailored to their specific conflict conditions.

The GCC also has much to teach other conflict-affected regions. Unlike Gaza, Ukraine, or Sudan, the GCC entered the war with functioning institutions, substantial financial reserves, and advanced technological infrastructure. If double-loop learning cannot be achieved under these relatively favorable conditions, the prospects for more resource-constrained settings are grim. Conversely, if the GCC successfully integrates double-loop feedback into its wartime educational response, it will provide a replicable model for the world.

Double-loop feedback offers a pathway to the latter. By addressing not just what students do but why they believe learning matters, educators can help students reconstruct the governing assumptions that war has destroyed. This is not a technical pedagogical adjustment. It is a psychological and existential intervention—one that recognizes that in a war zone, the most important learning outcome is not a test score but a restored belief in the possibility of a future.

In the GCC, where the rentier social contract has long produced passive educational expectations, the war may paradoxically create an opportunity for transformation. As Buheji (2026d) notes, the crisis is forcing a shift “from passive entitlement to active contribution.” Double-loop feedback is the mechanism that can make this shift educational—teaching students not only that they can contribute, but that their learning itself is a form of contribution to their families, their communities, and their nation’s resilience.

References

1. Alfadul E, Alrawa S, Hemmeda L, *et al.* Effect of military conflict on mental health: a cross-sectional study among medical students at Khartoum governmental universities, Sudan. *BMJ Open.* 2025;15(3):e086495.
2. Alotaibi N. Future anxiety among young people affected by war and armed conflict: Indicators for social work practice. *Front Sociol.* 2021;6:729811.
3. Argyris C. *Knowledge for action: A guide to overcoming barriers to organizational change.* San Francisco: Jossey-Bass; 1993.
4. Argyris C, Schön D. *Organizational learning II: Theory, method and practice.* Reading (MA): Addison Wesley; 1996.
5. Assefa Y, Tilwani S, Moges B, Shah M. The impact of armed violence on students’ educational attainment and the role of parents in resilience schooling. *Heliyon.* 2022;8(12):e12192.
6. Bahzad H, Buheji M, Thomas B, Alhasan S. A study of lifelong learning in relation to inspiration in the context of Bahraini women. *J Educ Soc Policy.* 2015;2(3).
7. Batool A, Syed Z, Zaheer S, Batool A. Mental well-being under crisis: Examining the effects of the US-Iran conflict on school attendance among students in Gilgit-Baltistan. *Phys Educ Health Soc Sci.* 2026;4(1):503-20.
8. Buheji M. Redefining the meaning of hardiness – Gaza Lab. *Int J Manag.* 2023;14(7):77-95.

9. Buheji M. Building hardiness in GCC families during regional crisis: A case study during US-Israeli-Iran War (2026). *Int J Multidiscip Res Growth Eval.* 2026;7(2):245-57.
10. Buheji M. Navigating sustainability in a VUCA world through Inspiration Labs. *Int J Multidiscip Res Publ.* 2026;8(8):184-91.
11. Buheji M. Deconstructing the complexity of the situation for GCC citizens during the US-Israeli War on Iran. *Int J Soc Sci Except Res.* 2026;5(2):183-98.
12. Buheji M. Behavioural change opportunities of GCC citizen during US-Israeli-Iran War 2026. *Int J Sociol Civics Res.* 2026;2(2):41-55.
13. Buheji M. US-Israeli-Iran conflict spillover on GCC & global poverty – A systemic analysis. *IJMRA.* 2026;8(10):162-81.
14. Buheji M, Ahmed D. Implications of Zoom and similar apps on ‘flip-class’ outcome in the new normal. *Int J Learn Dev.* 2020;10(3):1-10.
15. Buheji M, Buheji A. Characteristics of ‘problem-based learning’ in post-COVID-19 workplace. *Hum Resour Manag Res.* 2020;10(2):33-9.
16. Cook D, Artino A. Motivation to learn: An overview of contemporary theories. *Med Educ.* 2016;50(10):997-1014.
17. Diab S, Schultz J. Factors contributing to student academic underachievement in war and conflict: A multilevel qualitative study. *Teach Teach Educ.* 2021;97:103211.
18. El-Khodary B, Samara M. The relationship between multiple exposures to violence and war trauma, and mental health and behavioural problems among Palestinian children. *Eur Child Adolesc Psychiatry.* 2020;29(5):719-31.
19. Hadi F, Lai B, Llabre M. Life outcomes influenced by war-related experiences during the Gulf crisis. *Anxiety Stress Coping.* 2014;27(2):156-75.
20. Ivanov D, Holub N, Solovey O. Education in times of war: Narrative accounts of displacement and continuity in Ukrainian schools. *Int J Educ Narrat.* 2025;3(3):263-73.
21. Iwo R, Frankenberg E, Sumantri C, Thomas D. Extreme events, educational aspirations, and long-term outcomes. *Popul Environ.* 2024;46(3):1-26.
22. Martyniuk I. The relationship between mental states and the quality of students’ education in war conditions. *Psychol Ment Health Care.* 2023;7(2):212-8.
23. Mirzaie M. Conflict, no internet, politics isolate students, academics. *University World News.* 2026 Apr 10.
24. Mohammadi M, Khaleghi A. Mental health consequences of war: Lessons from recent conflicts and implications for all, specifically Iranians. *Iran J Psychiatry.* 2025;20(4):424-6.
25. Pavlova I, Zikrach D, Mosler D, Ortenburger D, Góra T. Determinants of anxiety levels among young males in threat of experiencing military conflict. *PLoS One.* 2020;15(10):e0239749.
26. Phusavat K, Buheji M. Mapping informal learning for displaced learners during the war on Gaza 2023: Application of situated cognition. *Int J Learn Dev.* 2024;14(1):1-16.
27. Rosli M, Saleh N, Azlah A, Bakar S. Self-determination theory and online learning in university: Advancements, future direction and research gaps. *Sustainability.* 2022;14(21):14655.
28. Senoussi M, Choubani E, Buheji M. Meaning in an era of transformation and uncertainty – From the crisis of understanding to the engineering of strategic significance. *Int J Novel Res Dev.* 2026;11(2):418-37.
29. Shankar P. How US, Israel are waging a war on Iranian culture, education. *Al Jazeera.* 2026 Apr 7.
30. Tareke M, Yirdaw B, Demeke S, Gebeyehu A, Azale T. High school students in armed conflict-affected North Wollo, Ethiopia, struggle with lived experiences of depression and academic challenges. *Sci Rep.* 2026;16(1):7272.
31. United Nations Development Programme. Escalation in the Middle East reverses more than a year of economic growth in the Arab States region. 2026 Mar 31.
32. UNESCO. Middle East: UNESCO calls to keep schools out of conflict. 2026 Mar 17.

How to Cite This Article

Phusavat K, Buheji M. Feedback for double-loop learning: shifting students’ mindsets in war zones. *International Journal of Multidisciplinary Research and Growth Evaluation.* 2026 May–Jun;7(3):481–493.

Creative Commons (CC) License

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.