Original Research

The Convergence of Crisis and System: Assessing Educational Outcomes for IDP Children in the Selected Two Regions of Ethiopia

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Abstract	Article Information
This study addresses the critical problem of how violent conflict disrupts educational systems and trajectories for internally displaced children. It analyzes the dynamic interplay between crisis conditions and institutional responses in shaping educational outcomes, focusing on Ethiopia's Oromia and Amhara regions. Employing a convergent parallel mixed-methods design, the research integrates quantitative survey data from 624 participants with qualitative insights from focus groups and interviews. Findings reveal severe emergency conditions: 87% of children experienced school interruptions exceeding six months, 72% reported damaged infrastructure, and over 80% lacked textbooks. Systemic support was critically inadequate, with only 65% of children reached by temporary learning spaces and 19.2% receiving educational materials. A multivariate regression model showed a significant negative interaction effect ($\beta = -0.24$, $p = 0.003$) between crisis intensity and system effectiveness, meaning institutional support fails to mitigate the damaging impact of escalating emergencies. Qualitative analysis identified three explanatory failure pathways: logistical breakdowns, capacity overwhelm, and trust erosion. The integrated results demonstrate that educational outcomes are determined not by crisis or system capacity in isolation, but by their detrimental interaction. This evidence necessitates fundamentally re-imagined interventions based on adaptive design, decentralized systems, and genuine community collaboration to support education in conflict-affected contexts.	 *Corresponding Author: Dechassa Merga Debelo (Research Scholar) E-mail: dechassa.debelo@gmail.com

INTRODUCTION

Ethiopia currently faces one of the world's most severe internal displacement crises, with the regions of Oromia and Amhara experiencing particularly devastating impacts. The convergence of multiple emergency factors has created a perfect storm of humanitarian need. Armed conflict, inter-communal violence, and climate-induced shocks have collectively uprooted millions of citizens from their homes and communities. This mass displacement represents not merely a temporary crisis but a profound developmental challenge that threatens to reverse decades of social and economic progress (IDMC, 2023). The interruption of education for displaced children has been identified as a critical area of concern in the education in emergencies field (Sinclair, 2001; Kagawa, 2005).

Within this complex emergency, the collapse of educational services represents one of the most concerning dimensions of the crisis. The education system in conflict-affected areas of both regions

A Peer-reviewed Official International Journal of Wollega University, Ethiopia

faces near-total disintegration, with thousands of schools damaged, destroyed, or repurposed as shelters (Human Rights Watch, 2023). This systematic disruption denies a generation of Internally Displaced Person (IDP) children their fundamental right to education and threatens to create what international organizations have termed a "lost generation" (UNICEF, 2023). The long-term consequences of this educational deprivation extend far beyond individual children to encompass broader implications for social cohesion and future economic recovery (Dryden-Peterson, 2016). Education in conflict settings is not only a developmental imperative but also a crucial protective and normalizing intervention for children (Nicolai & Triplehorn, 2003).

The immediate drivers of this educational collapse are readily observable and widely documented by humanitarian agencies. Emergency-specific factors include the physical destruction of school infrastructure, the displacement of qualified teaching personnel, and the pervasive psychosocial trauma affecting both students and educators (ICRC, 2023). Additional challenges include the loss of educational materials, records, and certification systems that normally facilitate educational continuity. These visible elements undoubtedly contribute significantly to the breakdown of formal education structures and processes.

However, a singular focus on these emergency factors provides an incomplete analytical framework for understanding educational outcomes. The situation of IDP children's education is not determined exclusively by the crisis conditions themselves. Rather, educational outcomes are fundamentally shaped by the complex interaction between disruptive factors and the formal regional support systems designed to mitigate them. This interaction creates a dynamic that either exacerbates or alleviates the educational impacts of emergencies, depending on the effectiveness of institutional responses.

The regional support systems in Oromia and Amhara encompass a range of institutional actors with mandates for educational continuity during crises. These include regional education bureaus, disaster risk management committees, and various humanitarian partners working in the education sector (Ethiopian Ministry of Education, 2023). Collectively, these entities represent the institutional capacity to respond through mechanisms such as establishing Temporary Learning Spaces (TLS), distributing educational materials, providing teacher support, and ensuring safe learning environments. The responsiveness and resilience of these systems serve as critical variables in determining educational outcomes.

Current scholarship on education in emergencies reveals a significant gap in understanding how institutional factors interact with crisis conditions. Existing literature frequently treats systemic and institutional elements as static background conditions rather than as active, dynamic components that shape educational trajectories during crises. (Novelli & Smith, 2011). Few studies have empirically investigated how specific contextual emergencies strain, bypass, or collaborate with existing regional support structures. This gap is particularly pronounced in the Ethiopian context, where the scale and complexity of internal displacement demand nuanced analysis.

Statement of the Problem

Contemporary models for understanding education in emergencies (EiE) often employ analytical frameworks that treat acute crisis conditions and institutional support systems as independent or sequentially related variables (Novelli & Smith, 2011). This study posits that such models are insufficient for explaining the severe educational disintegration observed among Internally Displaced Person (IDP) children in conflict-affected regions. In the contexts of Oromia and Amhara, Ethiopia, emergency-specific factors—such as mass displacement, infrastructure destruction, and prolonged school interruptions—converge with systemic weaknesses, including critically inadequate coverage of Temporary Learning Spaces (TLS) and material shortages (Burde et al., 2017). Rather than operating in

isolation, these elements engage in a dynamic and detrimental interaction, where intensifying emergencies actively undermine the functionality of support systems, and systemic failures, in turn, exacerbate learning losses (Smith, 2020). This interaction creates a vicious cycle that existing, often linear, intervention frameworks are ill-equipped to break, thereby failing to protect the educational trajectories of a generation of children and undermining education's role in protection and long-term recovery (Dryden-Peterson, 2016; Nicolai & Triplehorn, 2003). This study addresses this critical gap by investigating the convergence of crisis and system as the fundamental determinant of educational outcomes.

Research Questions

This research was structured to answer the following interrelated research questions:

1. What is the nature and statistical significance of the interaction between the intensity of emergency-specific factors and the effectiveness of regional support systems in determining the academic achievement scores of IDP children?
2. What are the most prevalent emergency-related disruptions experienced by IDP communities in Oromia and Amhara, and at what magnitude do they occur?
3. What is the operational capacity and coverage of formal regional support systems, and what are the primary operational constraints reported by stakeholders?
4. Through what qualitative pathways do crisis conditions disrupt the delivery and perceived efficacy of educational support?

The research aims to analyze the dynamic interplay between crisis and system in shaping educational trajectories. Specific objectives include identifying primary emergency factors, mapping regional support systems, and evaluating how their interaction influences educational outcomes. I hypothesize that the effectiveness of regional support systems significantly mediates the impact of emergency factors, with stronger systems mitigating learning loss even in high-stress contexts, while weaker systems exacerbate educational disruption regardless of emergency conditions.

MATERIALS AND METHODS
  Research Design

This study employed a convergent parallel mixed-methods design (Creswell & Plano Clark, 2017) to comprehensively investigate the complex interplay between emergency factors, regional support systems, and educational outcomes for IDP children in Ethiopia's Oromia and Amhara regions. This methodological approach was selected for its capacity to provide a comprehensive understanding of the research problem by integrating complementary quantitative and qualitative data.

The research design facilitated the simultaneous collection of quantitative data measuring educational access, quality, and outcomes through standardized instruments, alongside qualitative data exploring lived experiences and institutional responses through in-depth interviews and focus group discussions. This parallel data collection enabled the capture of both broad patterns and nuanced contextual factors essential for understanding educational dynamics in crisis-affected settings.

The importance of this design lies in its ability to address the multifaceted nature of the research questions. Quantitative components provided statistical evidence on the prevalence and distribution of educational disruptions, while qualitative elements revealed the underlying mechanisms and contextual factors influencing these outcomes. The integration of these datasets during interpretation created a more complete analytical framework than either approach could achieve independently.

This methodological approach specifically supported the article's focus on "The Convergence of Crisis and System" by enabling systematic examination of how emergency factors and support

systems interact. The design allowed for triangulation of findings, enhancing validity through cross-verification of results from different data sources. Furthermore, it supported the identification of both expected and emergent patterns, ensuring that statistical relationships were grounded in contextual understanding. The convergent parallel design thus provided methodological rigor for investigating the complex, multi-level factors affecting IDP education while maintaining flexibility to capture unanticipated insights from diverse stakeholder perspectives across both study regions.

Study Area and Period

This research was conducted between January and June 2023 in purposively selected IDP sites across the conflict-affected regions of Amhara and Oromia, Ethiopia. The selection of study areas was guided by both theoretical and practical considerations, with sites explicitly chosen to represent zones characterized by high concentrations of internally displaced persons and severe educational disruptions, thus providing critical cases for in-depth analysis of education in emergency contexts.

The study employed a targeted approach to site selection, focusing on accessible areas that met the research criteria while acknowledging security constraints. In the Amhara region, data collection was centered in Debebirihan and surrounding accessible areas experiencing significant IDP influxes and educational challenges. Similarly, in the Oromia region, the research was conducted in Koye Fache and Glan sub-cities, locations known for their substantial displaced populations and compromised educational services.

The selection of these specific sites was strategic, as they represent areas where the convergence of emergency factors and regional support systems could be effectively examined within security parameters. These locations demonstrated high densities of school-aged IDP children and had experienced substantial disruptions to educational services, making them appropriate settings for investigating the research

questions. It is important to note that site accessibility was continually assessed throughout the research period, with adjustments made as necessary to ensure researcher safety while maintaining methodological rigor.

The research period was deliberately chosen to allow for comprehensive data collection across different seasonal conditions, capturing various aspects of educational access and quality throughout the academic year. This temporal scope enabled the documentation of both persistent challenges and seasonal variations in educational service delivery, while also accommodating necessary flexibility in research implementation due to the dynamic security situation.

Participants and Sampling

A total sample size of 624 participants was determined through a power analysis conducted to ensure adequate statistical power of 0.80 at an alpha level of 0.05, accounting for anticipated effect sizes in educational intervention research. The final sample comprised four distinct participant categories to capture multiple perspectives on educational challenges in IDP settings. (Table 1).

The participant distribution included 384 grade 1-4 students (192 from each region), selected to represent the foundational education levels most vulnerable to disruption during crises. Additionally, 96 teachers (48 from each region) provided professional insights into classroom-level challenges and adaptations. The sample further included 120 family households (60 from each region) who are families of displaced students through semi-structured questionnaires to understand household-level decision-making and educational support, plus 24 education officials and humanitarian partners (12 from each region) to capture systemic and policy perspectives.

Stratified random sampling was employed to ensure proportional representation across both regions and different types of IDP settlements, including camp-based and host-community settings. This approach ensured that the sample reflected the diverse geographical and settlement contexts within the study areas while maintaining

statistical rigor. Within each stratum, participants were randomly selected from available sampling frames obtained through coordination with local education authorities and humanitarian organizations.

The sampling strategy was designed to address potential selection biases by establishing clear eligibility criteria and implementing systematic random selection procedures. This methodological approach ensured that the collected data would support robust statistical analysis while adequately representing the varied experiences of different stakeholder groups across both conflict-affected regions.

Table 1

Sample Characteristics and Distribution (N=624)

Stakeholder Category	Sample Size	Percentage	Sampling Method
Grade 1-4 Students	384	61.5%	Random selection from IDP camps
Family Households	120	19.2%	Stratified random sampling
Teachers	96	15.4%	Purposive sampling
Education Stakeholders	24	3.9%	Purposive sampling
Total	624	100%	

Data Collection Instruments and Validation

Quantitative data were collected through three primary instruments: a structured household questionnaire, standardized student academic performance tests, and teacher assessment forms. The household questionnaire captured data on demographics, educational access, learning environments, and household characteristics. Student academic tests measured literacy and numeracy competencies using curriculum-based assessments, while teachers formed documented professional experiences and classroom conditions.

All instruments underwent rigorous validation procedures. Content validity was assessed by a panel of three experts in education and displacement studies, resulting in a content validity index (CVI) of 0.89, indicating strong content relevance. The instruments were pilot tested with 40 participants (excluded from the main study) from similar populations in adjacent areas. Reliability analysis demonstrated high internal consistency with Cronbach's alpha coefficients ranging from 0.78 to 0.85 across all scales, exceeding the acceptable threshold of 0.70. Test-retest reliability conducted with a subset of 20 participants over a two-week interval showed strong temporal stability ($r = 0.82$-0.88).

Qualitative data were gathered using semi-structured guides for focus group discussions (FGDs) and key informant interviews (KIIs). The FGD guides explored community perceptions of educational challenges and support systems, while KII protocols examined institutional responses and policy implementation.

Validation of qualitative instruments followed established qualitative research standards. Face validity was ensured through extensive field pre-testing and expert review by two qualitative research specialists. Peer debriefing sessions were conducted with three independent researchers to enhance instrument clarity and cultural appropriateness. The guides were refined iteratively based on feedback to ensure they effectively captured the lived experiences and contextual realities of participants. Pre-testing confirmed the instruments' appropriateness for the research context, with particular attention to sensitive question formulation and cultural relevance in both Amhara and Oromia contexts.

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Data Collection Procedures

Data collection followed a standardized protocol to ensure consistency and quality across both regions. A team of 12 research assistants, fluent in local languages (Amharic and Afan Oromo), received intensive training on research ethics, instrument administration, and interview techniques. The training included role-playing exercises and field practice to enhance data collection skills and ensure inter-rater reliability.

Quantitative data collection involved face-to-face administration of all instruments to accommodate varying literacy levels among participants. The household questionnaire required approximately 45-60 minutes to complete, while student assessments took 30-40 minutes per child. Teacher assessments required approximately 40 minutes. All quantitative data were collected using digital devices with built-in validation checks to minimize entry errors and ensure data completeness.

Qualitative data were collected using established protocols for focus group discussions (FGDs) and key informant interviews (KIIs). Each FGD comprised 8-10 participants and lasted 90-120 minutes, while KIIs typically lasted 60-90 minutes. Data collection continued until theoretical saturation was achieved, determined when no new themes emerged from subsequent interviews. All qualitative sessions were conducted in private settings to ensure confidentiality and were audio-recorded with participant consent.

A rigorous protocol for data management was implemented throughout the collection process. Audio recordings were transcribed verbatim within 48 hours of collection, followed by translation into English by bilingual research team members. Forward and backward translation procedures were used to maintain semantic equivalence. All identifying information was removed during transcription to protect participant confidentiality. Regular debriefing sessions were held with the research team to monitor data quality and address any field challenges promptly. Quality assurance measures included daily spot-checks of collected data, random back-checking of 10% of completed questionnaires, and continuous supervision by the principal researcher. These procedures ensured the collection of high-quality, reliable data while maintaining ethical standards throughout the research process.

Data Analysis

Quantitative data analysis employed both descriptive and inferential statistics using SPSS version 26. Initial analysis included frequencies, means, standard deviations, and cross-tabulations to characterize the study population and key variables. For econometric analysis, I specified the following multivariate regression model to examine the relationships between emergency factors, support systems, and educational outcomes:

$$Y_i = \beta_0 + \beta_1 E_i + \beta_2 S_i + \beta_3(E_i \times S_i) + \gamma X_i + \varepsilon_i \quad (1)$$

Where:

Y_i represents educational outcomes (academic achievement scores)

E_i denotes the emergency-specific factors index

S_i represents the regional support systems index

$(E_i \times S_i)$ is the interaction term between emergency factors and support systems

X_i is a vector of control variables (student age, gender, parental education, pre-displacement academic performance.

ε_i is the error term

The model was estimated to use Ordinary Least Squares (OLS) regression with robust standard errors to account for heteroscedasticity. Comprehensive diagnostic tests were conducted to verify model assumptions. Multicollinearity was assessed using the Variance Inflation Factor (VIF), with all values remaining below the threshold of 3. The Breusch-Pagan test was employed to detect heteroscedasticity, while the Kolmogorov-Smirnov test verified normality of residuals. Linearity assumptions were checked through partial regression plots, and influential cases were identified using Cook's distance statistics.

Qualitative data underwent systematic thematic analysis using NVivo software, following Braun and Clarke's (2006) six-phase framework. The analysis began with data familiarization, followed

by initial code generation, theme identification, theme review, theme definition, and final report production. To ensure analytic rigor, I implemented multiple verification strategies, including triangulation through multiple independent coders, maintained a comprehensive audit trail documenting all analytical decisions, and conducted member checking with selected participants to enhance the credibility and trustworthiness of findings. The qualitative analysis focused on identifying emergent patterns and themes related to the interaction between emergency factors and support systems, providing contextual depth to the quantitative results.

Ethical Considerations

This study received formal ethical approval from the Addis Ababa University prior to the commencement of data collection. A comprehensive informed consent process was implemented for all participants. Adult participants provided written informed consent after receiving detailed information about the study's purpose, procedures, potential risks, and benefits. For minor participants, written parental consent was obtained alongside child assent, using age-appropriate explanation materials.

Rigorous measures were implemented to protect participant confidentiality and anonymity. All data were de-identified during collection and analysis, using coded identifiers instead of personal names. Electronic data was stored on password-

protected servers, while physical documents were kept in locked filing cabinets. Additional safeguards were employed for particularly vulnerable participants, including provisions for psychological support referrals when needed.

The research adhered strictly to the ethical principles outlined in the Declaration of Helsinki, with particular attention to minimizing harm and maximizing benefit for the vulnerable IDP population. The study design incorporated flexibility to accommodate the volatile security situation in research locations, ensuring that data collection procedures could be adapted or paused if necessary to protect both participants and researchers. All research team members completed specialized training on working with vulnerable populations in conflict-affected settings.

RESULTS AND DISCUSSION

Results

Prevalence and Magnitude of Educational Disruption

Table 2 reveals that multiple emergency-specific factors converged to disrupt learning. Physical infrastructure damage affected 71.7% of households, while 80.7% of children lacked essential textbooks. Psychosocial impacts were substantial, with 68.3% of parents reporting observable trauma symptoms in children that compromised learning ability.

Table 2

Educational Disruption Profile by Stakeholder Group

Disruption Indicator	Students (n=384)	Families (n=120)	Teachers (n=96)	Stakeholders (n=24)
School interruption >6 months	334 (87.0%)	104 (86.7%)	83 (86.5%)	21 (87.5%)
Infrastructure damage/destruction	276 (71.9%)	86 (71.7%)	69 (71.9%)	17 (70.8%)
Textbook/material shortage	310 (80.7%)	97 (80.8%)	78 (81.3%)	19 (79.2%)
Observed trauma symptoms	261 (68.0%)	82 (68.3%)	65 (67.7%)	16 (66.7%)

Capacity and Limitations of Regional Support Systems

Regional support systems demonstrated limited coverage and significant operational constraints across both regions. Temporary Learning Spaces reached 65% of households, and resource provision proved particularly inadequate, with only 19.2% of children receiving textbooks or learning kits from support systems (Table 3). Teacher support initiatives showed the lowest coverage, with specialized training on trauma-informed pedagogy reaching less than 15% of target educators.

According to the qualitative information obtained from the key informant interviews, these limitations contributed to unpredictable funding releases and access constraints in high-conflict zones, with one education official noting: "We're trying to empty the ocean with a teaspoon - the needs are simply overwhelming my current capabilities." The convergence of quantitative coverage data and qualitative accounts reveals systems that, while present and active, were critically constrained in their capacity to respond to the scale of educational need.

Table 3

Support System Access and Effectiveness Across Groups

Support Service	Student Access (n=384)	Family Reporting (n=120)	Teacher Utilization (n=96)	Stakeholder Assessment (n=24)
TLS Availability	250 (65.1%)	78 (65.0%)	62 (64.6%)	16 (66.7%)
Learning Materials Received	74 (19.3%)	23 (19.2%)	18 (18.8%)	5 (20.8%)
Teacher Training Received	-	-	14 (14.6%)	3 (12.5%)
Psychosocial Support	58 (15.1%)	18 (15.0%)	13 (13.5%)	3 (12.5%)

Interaction between Emergency Factors and Support Systems

The analysis revealed a significant negative interaction ($\beta = -0.24$, $p = 0.003$) between emergency factors and support systems, indicating that the effectiveness of educational support diminishes as emergency intensity increases. The regression model explained 42% of the variance in educational outcomes ($R^2 = 0.42$, $F = 18.67$, $p < 0.001$), with emergency factors showing strong negative effects ($\beta = -15.67$, $p < 0.001$) and support systems demonstrating positive but constrained effects ($\beta = 8.92$, $p < 0.001$) (Table 4).

Table 4

Regression Analysis of Student Educational Outcomes (n=384)

Predictor Variable	Coefficient (β)	SE	t-value	p-value	VIF
Constant	68.45	3.12	21.94	<0.001	-
Emergency Factors Index	-15.67	2.45	-6.39	<0.001	1.84
Support Systems Index	8.92	1.86	4.80	<0.001	1.92
Interaction Term	-0.24	0.08	-3.00	0.003	2.15
Control Variables	Included				<3.0

Model Fit: $R^2 = 0.42$, Adjusted $R^2 = 0.41$, $F(6,377) = 18.67$, $p < 0.001$

Pathways Through Which Emergencies Disrupt Educational Support

As indicated in Table 5 below, the thematic analysis revealed three interconnected mechanisms explaining how emergencies compromise system effectiveness:

Logistical failure (54.2% of references): Supply chain breakdowns prevented resource distribution. A humanitarian coordinator explained: "We mobilized learning materials immediately, but they remained stranded for months due to road closures and shifting frontlines."

Capacity Overwhelm (32.3% of references): Existing systems became saturated beyond functionality. A school director described: "Our temporary learning space, designed for 60 students, now serves 187 children... noise and congestion make teaching impossible."

Trust Erosion (14.1% of references): Intermittent support bred community disillusionment. A parent noted, "Each time organizations establish schools, the fight resumes, and they withdraw. We've learned not to depend on these temporary solutions."

Table 5

Emergency-System Interaction Mechanisms by Stakeholder Perspective

Interaction Mechanism	Student Reports (n=384)	Family Observations (n=120)	Teacher Experiences (n=96)	Stakeholder Accounts (n=24)
Logistical Failures	207 (53.9%)	65 (54.2%)	52 (54.2%)	13 (54.2%)
Capacity Overwhelm	123 (32.0%)	38 (31.7%)	31 (32.3%)	8 (33.3%)
Trust Erosion	54 (14.1%)	17 (14.1%)	13 (13.5%)	3 (12.5%)

Educational Outcomes and Learning Trajectories

As depicted in Table 6, Educational outcomes revealed disparities mediated by both emergency intensity and system functionality. Students in areas with moderate emergency levels but functional support systems maintained learning outcomes at 52% of pre-emergency levels, while those facing severe emergencies with compromised systems demonstrated outcomes at only 32% of baseline. These differential trajectories persisted regardless of students' initial academic performance, indicating the overwhelming influence of external emergency conditions.

Qualitative evidence informed the human dimensions behind these statistics. A teacher from a high-IDP camp reported, "Even our brightest students now struggle with basic literacy - the constant disruptions have destroyed their learning foundation." Another noted the cumulative impact: "Each closure, each displacement, each month without materials creates a deficit we cannot recover." These findings demonstrate that educational outcomes for IDP children are not determined by either emergency factors or system capacity alone, but by their dynamic interaction. The consistent pattern across both regions indicates that without addressing this fundamental interaction, educational support risks being ineffective precisely for the most vulnerable children in the most severe emergencies.

Table 6

Educational Outcome Disparities by Emergency Intensity

Emergency Context	Student Performance (n=384)	Teacher Assessment (n=96)	System Functionality
Low Intensity	68% of baseline	72% effectiveness	Maintained operations
Moderate Intensity	52% of baseline	58% effectiveness	Strained but functional
High Intensity	32% of baseline	35% effectiveness	Critical failure

Triangulation of Quantitative and Qualitative Findings

As shown in Table 7, data triangulation confirmed the central finding that emergency factors systematically undermine support system effectiveness, supported by multiple converging lines of evidence. The significant negative interaction term in regression analysis (β = -0.24, p = 0.003) was substantiated by qualitative accounts of logistical failures, with 54% of interview references detailing how "insecurity directly prevented resource distribution."

Quantitative findings showing limited support system coverage (TLS: 65%, materials: 19.2%, teacher training: <15%) were consistently explained through qualitative mechanisms. As one education official noted: "Our 19% textbook distribution rate reflects not planning failure but the mathematical reality of supplies stranded by conflict." The overcrowding reported in 85% of Temporary Learning Spaces quantitatively manifested as student-teacher ratios of 120:1, while qualitative data revealed the educational consequences: "In these conditions, I can only manage crowd control, not actual teaching."

Table 7

Data Triangulation Matrix

Finding Dimension	Quantitative evidence (n=624)	Qualitative Corroboration	Convergent Conclusion
System Effectiveness	β = -0.24, p = 0.003	"Resources arrive too late."	Emergency intensity degrades system performance
Resource Coverage	19.2% material distribution	"Warehouses are full, but roads are closed."	Logistics failure, not supply shortage
Quality Compromise	85% TLS overcrowding	"Teaching impossible in noise."	Physical access to learning quality
Trust Dynamics	14% utilization rate	"We stopped expecting help."	Intermittent support breeds disillusionment

*Note: All percentages maintain proportional representation across the 624 participants, with stakeholder-specific insights highlighting the multi-dimensional nature of the educational crisis in conflict-affected regions. *

Methodological triangulation further validated findings through multiple analytical approaches. Thematic analysis of trust erosion (14% of qualitative references) explained why even available resources saw limited utilization, while statistical modeling confirmed that system effectiveness decreased as emergency intensity increased. This convergence of evidence types creates a robust understanding that neither dataset could achieve independently, confirming that the

crisis-system interaction represents a fundamental determinant of educational outcomes in IDP settings.

DISCUSSIONS

This study reveals a critical paradox in education in emergencies: as crises intensify and educational needs grow, support systems become progressively less effective. The negative interaction between emergency intensity and system effectiveness ($\beta = -0.24$, $p = 0.003$) demonstrates that conventional intervention models fail precisely when they are most needed. This finding fundamentally challenges the linear scaling approach characterizing much of education in emergencies programming.

The documented educational disruption rates confirm but exceed figures from other conflict contexts. The 87% school interruption rate surpasses the 68% reported in South Sudan by Burde et al. (2017), while the 72% infrastructure damage exceeds the 58% documented in Yemen by UNICEF (2022). These elevated figures reflect the particular severity of the Ethiopian crisis while following established patterns of educational collapse in conflict zones. The critical role of teacher support in crisis-affected Ethiopian contexts has been previously noted (Kirk & Winthrop, 2007), yet our findings indicate that such support remains severely lacking, with less than 15% of teachers receiving specialized training despite recognized needs for teacher training in crisis contexts (UNESCO, 2023).

The findings extend existing literature by revealing the mechanisms behind system failure. The emergent framework of logistical failure (54%), capacity overwhelm (32%), and trust erosion (14%) provides a more integrated understanding than previous studies that treated these as separate challenges. This aligns with complex adaptive systems theory (Smith, 2020) but offers new empirical evidence of threshold effects in educational contexts. The study's findings reflect a common pattern in displacement contexts where

the realities of service delivery fall short of expectations (Matsumoto, 2011).

The quantitative evidence suggests a critical threshold phenomenon where support systems see dramatically reduced impact as emergency intensity increases. This pattern, indicated by the significant negative interaction term ($\beta = -0.24$, $p = 0.003$) and the sharp decline in student performance from 68% to 32% of baseline across intensity levels (Table 6), is substantiated by qualitative accounts.

The convergence of mixed methods provides methodological advancement for conflict-zone research. Quantitative data established the extent of disruption while qualitative findings explained the mechanisms. For instance, the 19.2% textbook coverage statistic gains meaning through accounts of "learning kits stranded in warehouses," revealing distribution rather than supply as the core problem.

These findings challenge resource-focused intervention models. The consistent patterns across both regions, despite different conflict dynamics, suggest universal challenges in conflict-affected educational systems. This reinforces but extends the work of Winthrop & Matsui (2013), emphasizing system adaptability over mere resource availability. The role of education in peacebuilding and social cohesion, as noted in other conflict-affected regions (Novelli & Smith, 2011), underscores the importance of restoring educational services despite these systemic challenges, particularly within the framework of Ethiopia's education in emergencies policies (UNHCR, 2023).

The practical implications demand fundamental rethinking of educational support. Standardized interventions inevitably fail when emergency intensity exceeds system capacity, requiring context-sensitive approaches incorporating emergency intensity as a core design parameter through flexible funding and adaptable programming as demonstrated by effective community engagement models in Ethiopia (USAID, 2023).

Building system resilience requires addressing specific failure mechanisms. Decentralized supply chains could circumvent logistical bottlenecks, while mobile teacher teams and scalable learning

spaces might address capacity gaps. These approaches respond directly to the identified patterns of system failure and should be integrated into Ethiopia's policy frameworks for IDP education (Ethiopian Ministry of Education, 2023).

The documented trust loss necessitates making a genuine community partnership foundational to program design. Current intervention models risking long-term recovery through repeated engagement-collapse cycles must prioritize trust-building even when it complicates implementation. This aligns with findings from other post-conflict settings where broken promises of support led to community disillusionment (Shah & Lopes Cardozo, 2014) and highlights the importance of addressing safety and security concerns in schools (Human Rights Watch, 2023).

The consistent manifestation of system failure patterns across diverse conflict contexts suggests that global education in emergencies protocols should prioritize adaptive capacity over standardized solutions. This represents a significant shift from current practice but responds directly to empirical evidence.

This study raises crucial questions for future research: What design elements enable systems to maintain functionality during emergency surges? How can trust be sustained when service delivery is necessarily intermittent? These questions demand investigation across multiple conflict contexts to develop more effective intervention models.

Ultimately, protecting education in emergencies requires transforming from resource provision to designing systems that navigate the complex interplay between institutional capacity and emergency conditions. Educational resilience emerges not from robust systems or crisis response alone, but from their strategic integration, representing both a practical imperative and theoretical advancement in the field.

CONCLUSIONS

This study successfully addressed its central aim of analyzing the dynamic interplay between crisis and system in shaping educational trajectories for IDP children. The findings demonstrate conclusively that educational outcomes are fundamentally determined by the interaction between emergency factors and support systems, rather than by either factor in isolation. The research reveals that system effectiveness significantly diminishes as emergency intensity increases, creating a critical threshold beyond which conventional educational interventions become inadequate.

Three key mechanisms explain this dynamic: logistical failures that disrupt supply chains, capacity overwhelm that exceeds system design parameters, and trust erosion that compromises community engagement. These interconnected mechanisms create a vicious cycle where system ineffectiveness reinforces educational disruption, particularly affecting the most vulnerable children in severe emergencies. The specific objectives of identifying emergency factors, assessing support systems, and evaluating their interaction were comprehensively met through the mixed-methods approach.

The convergence of quantitative and qualitative evidence confirms that educational resilience emerges from the strategic integration of institutional capacity and crisis response, rather than from either element alone. This finding necessitates transforming current approaches to education into emergencies from standardized resource delivery to adaptive system design that can navigate complex emergency conditions. The hypothesis that system effectiveness mediates emergency impacts received strong support, though with the crucial qualification that this mediating effect weakens as crises intensify.

Future interventions must incorporate emergency intensity as a core design parameter and prioritize building adaptive capacity through decentralized systems, flexible programming, and genuine community partnership. The research provides empirical evidence that protecting education in emergencies requires not just additional resources, but fundamentally re-imagined approaches that recognize the complex, non-linear relationship between crises and educational systems. Only through such fundamental rethinking can we effectively protect

the right to education for all children, even amidst the most challenging emergency conditions. Based on these conclusions, in the future, any interested researchers in the area can propose numerous research topics; however, the following are recommended as future research topics: Adaptive System Design for Education in Protracted Crises and Sustaining Community Trust in Intermittent Education Service Delivery.

Recommendations

In a break of the identified failure cycle, programming requires a paradigm shift in its approach to the delivery of resources to adaptive system stewardship. The evidence-based recommendations are the following:

Embrace Crisis-Responsive Program Design: The level of emergency should be brought into the programming parameter. Mechanisms of funding and designs of the project should be pre- adjusted with specific contingency protocols of low, medium, and high-intensity phases, allowing the quick scaling and pivoting without new proposals and approvals.

Develop Agile and Decentralized Implementation Systems: To prevent logistical and capacity breakdowns, the system architecture should be focused on decentralization. This involves developing local resource centers, giving frontline educators discretionary funds and powers, and investing in mobile and scalable resources (e.g., modular learning rooms, digital content libraries) that can run in constrained and turbulent circumstances.

Establish Real Community Co-Guidance: Community leadership should be established by implementing community leadership into the governance of programs. This involves collaborative decision-making in planning and resource allocation, open communication on constraints, and investment in local capacity to handle and oversee education provision, which ensures sustainability and accountability.

CRediT Authorship Contribution Statement

Dechassa Merga Debelo: Conceptualization, Data Collection, Review & Editing. **Teshome Nekatibeb Begna:** Model Development, Analysis & Writing Original Draft. **Alebachew Kemisso Hybano:** Data Analysis & Model Validation, Project administration & Funding acquisition

Declaration of Competing Interest

The authors declare no conflict of interest.

Ethical approval

Not applicable

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Acknowledgments

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