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Emergency E-Learning as a Gateway to Psychosocial Recovery Among Al-Aqsa University Students in Gaza During the War: An Explanatory Mixed-Methods Study

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Emergency E-Learning as a Gateway to Psychosocial Recovery Among Al-Aqsa University Students in Gaza During the War: An Explanatory Mixed-Methods Study

Abstract:

Background: The **protracted** warfare in Gaza has led to the structural collapse of higher education, demanding urgent alternative instructional frameworks for student survival. **Objectives:** This study aimed to examine the role of e-learning as a gateway to psychosocial recovery among Al-Aqsa University students in Gaza during the war, investigate differences across demographic and logistical variables, and qualitatively explain students' lived experiences to contextualize the statistical findings. **Methodology:** An explanatory sequential mixed-methods design was employed. The digital quantitative sample comprised n = 298 Education students who completed a 21-item Psychosocial Recovery Scale. The qualitative sample included n = 248 students responding to a digital open-ended interview card. Quantitative data were analyzed using descriptive statistics and MANOVA, while qualitative data were processed via Braun and Clarke's inductive thematic analysis. **Results:** Quantitative results revealed a high overall evaluation of e-learning's role in supporting recovery (M = 3.62, SD = 0.81), with social recovery scoring 3.63 and psychological recovery scoring 3.61. Statistically significant differences ($p < 0.05$) were found based on gender (favoring females, (η_ρ^2 = 0.019) and residence (favoring displacement camp residents, η_ρ^2= 0.025), whereas technology type, internet, and electricity status showed no significant differences. The qualitative analysis interpreted the statistical findings through six comprehensive themes: positive distraction and psychological shield; hope sustainer and ambition driver; social cohesion and third space; resilience and technical adaptation; institutional flexibility as an incubator; and psychological challenges and digital burden. **Conclusion & Implications:** Emergency e-learning transcended its conventional academic function to operate as an existential lifeline, fostering *Everyday Sumud* and restoring human agency amidst *scholasticide*. Based on these integrated findings, the study introduces the **Trauma-Informed Displacement Digital Pedagogy (TIDP) Model**, recommending its institutionalization to adopt low-tech, flexible, and trauma-sensitive digital configurations tailored to **protracted** displacement contexts.

Keywords: Emergency E-Learning, Psychosocial Recovery, Al-Aqsa University, Scholasticide, Everyday Sumud, TIDP Model, Mixed Methods.

1. Introduction

1.1. Context of the Study

The occupied Palestinian territory, particularly the Gaza Strip, is subjected to an ongoing aggression that has resulted in unprecedented destructive impacts on the

social fabric, economic infrastructure, and human development. This war has left massive human casualties, including the killing, injury, and disappearance of a large percentage of the population within brief periods—with a disproportionately high rate of women and children among the victims. Consequently, exceptional psychological and social pressures have been imposed on Palestinian society, particularly the university student demographic, which faced a severe humanitarian crisis and forced, repeated displacement affecting more than 75% of the population (UNDP & ESCWA, 2024).

Educational institutions were not isolated from this destruction; international statistics indicate an actual collapse of the educational system due to the direct and indirect targeting of schools and universities. Approximately 100 schools and universities were completely destroyed, hundreds of other institutions were damaged, and hundreds of teachings and academic staff were martyred. This has deprived students of their basic right to education and caused a regression in Human Development Index (HDI) indicators in the Gaza Strip by more than two decades, threatening the emergence of "lost generations" facing complex psychosocial crises (UNDP & ESCWA, 2024).

This systematic targeting manifests in what international and human rights literature defines as "scholasticide" or "educide"—the deliberate and systematic destruction of educational life and institutions, encompassing severe losses among students and staff alongside the annihilation of university infrastructures. Data from the Palestinian Ministry of Education and Higher Education reveals the targeting of personnel and the destruction or damage of over 95% of university buildings, a pattern classified by United Nations experts in New York as an intentional effort to erase the educational system as a cornerstone of national identity and collective culture (United Nations, 2024; Desai et al., 2025; Iriqat et al., 2025). This destruction transcends physical dimensions to constitute a pattern of "organized violence of forgetting" and the "structural violence of scholasticide," aiming to impose historical and cultural amnesia, erase reservoirs of cumulative memory, and obliterate narratives of cognitive resistance.

This deprivation renders students vulnerable to the erosion of protective institutional environments that safeguard their dignity, leading to heightened existential anxiety and extended psychosocial trauma (Giroux, 2025). Furthermore, the determinants of recovery are intrinsically linked to the tactics of "siege warfare" that target higher education institutions to engineer "spaces of despair" and deplete moral energy, causing chronic mental exhaustion that weakens traditional psychological strengths and drives individuals toward losing hope in the future (McGahern, 2025).

The conditions of war and forced displacement have shattered the baseline levels of Maslow’s hierarchy of needs—namely, basic physiological necessities and physical and psychological safety needs. This has placed students' psychological systems in a state

of permanent hypervigilance against dangers, inducing acute mental distraction that impedes memory processes, concentration, and academic achievement. Field data reveals that academics and displaced students within shelter tents face complex emotional and economic crises, manifested in a loss of control over their living environments, daily existential threats, and the crushing of occupational and financial security, leading to escalating rates of mental exhaustion, psychological distress, and a collective sense of loss (Abusamra, 2024). International estimates indicate that the aggression has left hundreds of thousands of students deprived of face-to-face education, rendering more than one million students in need of psychosocial support interventions to confront extended trauma. UNRWA reports confirm that scarcity of aid and the systematic destruction of infrastructure have deepened trauma and imposed chronic psychological and social disorders (United Nations, 2024; UNRWA, 2025).

1.2. Emergency E-Learning and Psychosocial Support (Literature Review)

To analyze psychosocial recovery mechanisms within conflict settings, the conceptualization of Palestinian resilience (*Sumud*) emerges as a collective, solidary practice deeply rooted in culture and community resistance, rather than a purely individualistic trait. Students' persistence in virtual education despite destruction represents a form of educational and existential resistance, wherein virtual spaces transform into an environment that generates "existential hope" and a sense of continuity and normal life. This resilience intersects across three levels: individual (post-trauma adaptation), community/collective (digital support networks), and national (rejection of scholasticide policies) (Junina, 2026).

Constructing an explanatory model for recovery requires dismantling imported Western psychological concepts, foremost among which is traditional psychological resilience based on "bouncing back to a previous state." Palestinian literature proposes "endurance and resistance" as an alternative, dynamic system that transcends passive adaptation to anchor itself in a collective framework integrating attachment to the land, knowledge institutions, fortitude, and the "normalization of the abnormal" to recreate a stable daily life. Actual recovery is bound to the synchronization of emotional support with the principle of social justice, while preserving students' dignity and human agency (Giacaman, 2019). This necessitates a shift toward "multilevel social resilience," where resilience is a participatory process founded on the ability of groups to generate solidary bonds that protect against existential crushing, shifting the focus from the "grieved ego" to a "shared destiny" (Cacioppo et al., 2011). Furthermore, educational responses anchor themselves in "trauma-informed education" and "trauma-based instructional practice," which recognize the effects of trauma on emotional and cognitive performance and rely on principles of trauma-directed care: safety, trustworthiness, flexible choices, collaboration, and

empowerment (Carello & Butler, 2015; Koval et al., 2024). Accordingly, this study adopts the concept of "transformational resilience and recovery as a continuous process" based on shared human agency (Shah et al., 2019).

In light of total closures and the destruction of university premises, including Al-Aqsa University in Gaza, shifting toward e-learning was no longer a technological luxury, but an inevitable alternative and a core survival mechanism. Academic institutions in Gaza demonstrated an exceptional pattern of "community and academic resilience," activating digital learning modes relying on simple, low-cost technical tools suited to severe resource scarcity. This digital arena transformed into a "third space" that gathered scattered students within displacement tents, providing virtual environments to sustain learning and academic communication (Junina et al., 2026). Students' engagement in these environments acquires a liberatory dimension and a conscious practice of existential resistance through knowledge. Sustaining educational activity plays a therapeutic role through generating critical consciousness and human agency, alongside repairing human bonds, granting students the psychological momentum to achieve transformational psychosocial recovery (Giroux, 2025; McGahern, 2025).

Psychosocially, e-learning environments represent an academic and psychological lifeline; engaging in virtual lectures helps break isolation, restore academic belonging, reconstruct academic identity, enhance self-regulation, and alleviate stress and disorder. Evaluative studies at Al-Aqsa University have proven the contribution of these platforms to enhancing individual and collective resilience, particularly among displaced students (Junina et al., 2026; Mahdi & Al-Taaban, 2026). Concurrently, the digital learning environment imposes complex challenges, including limited resources (electricity outages, fluctuating internet, device shortages, overcrowding) and psychological and social barriers (mental distraction, anxiety, continuous threats). Statistical indicators revealed a strong negative correlation ($r = -0.778$) between these challenges and e-learning efficiency, with significant variance favoring students in relatively stable homes (Mahdi, 2026). Other studies showed that the shift toward e-learning received significant support as the sole flexible mechanism ensuring semester continuity, intersecting with security and economic anxieties to render it an "existential safety environment" (Farrah et al., 2025).

The justification for the importance of e-learning rests on its capability to "reshape a safe daily routine" amid chaos, providing an existential purpose that supports adaptation, and demanding the engineering of curricula that transcend academic empowerment toward building psychosocial survival competencies (Abed Alah, 2024; Salha et al., 2024). Self-determination theory supports utilizing interactive activities to satisfy needs for autonomy, competence, and social relatedness (Beserra et al., 2024), while emotional support from the instructor acts as a mediator that builds academic self-efficacy and, subsequently, academic resilience (Guo et al., 2025).

1.3. The Present Study & Research Gap

Based on the hierarchical and critical review of the theoretical background and contemporary literature, it is noted that local studies examining the reality of Al-Aqsa University in Gaza during the war primarily focused on monitoring technical and environmental challenges, the efficiency of emergency e-learning, and general levels of community resilience through descriptive-analytical survey designs (Mahdi, 2026; Mahdi & Al-Taaban, 2026). These studies revealed significant differences based on place of residence and a statistically significant negative correlational relationship between psychosocial pressures and platform efficiency. Despite the importance of these descriptive indicators, they did not directly approach the variable of "psychosocial recovery" as a transformational instructional system that can be intentionally engineered via virtual space, mostly sufficing with pointing out the importance of integrating psychological support programs as a complementary aspect. Although the study by Junina (2026) delved qualitatively into students' responses by monitoring dimensions of daily resilience and low-cost emergency pedagogy tactics, it was limited to a sample of English language majors. Hence, there remains a need for a broader explanatory study applied to multiple disciplines and faculties (such as the Faculty of Education) to scientifically explore how digital platforms can serve as an intervention supporting psychosocial recovery.

It is worth noting that recent local studies addressing e-learning challenges and resilience levels among Al-Aqsa University students collected their quantitative data under highly complex field conditions imposed by war, repeated displacement, and severe restrictions on accessing independent samples (Mahdi, 2026; Mahdi & Al-Taaban, 2026). These prior studies provided a foundation using broader quantitative metrics. Building upon this, the current study independentally re-evaluates the "psychosocial recovery" variable through a novel conceptual framework that systematically integrates demographic and contextual parameters distinct from previous analyses. Specifically, raw items were re-grouped and measured through newly operationalized dimensions targeting trauma-informed psychosocial recovery. Furthermore, this quantitative re-analysis is uniquely coupled with newly collected, study-specific qualitative data to yield an enriched mixed-methods understanding, specifically adapted to an exceptional context where repeating primary field sampling presents severe logistical, ethical, and safety risks. On the other hand, while international literature has presented important conceptual arguments regarding scholasticide, trauma pedagogy, and crisis-driven education, they remained largely general and cross-contextual, and were not empirically validated within the emergency platforms available to Al-Aqsa University students (United Nations, 2024; Abed Alah, 2024; Carello & Butler, 2025; Desai et al., 2025; Giroux, 2025; Iriqat et al., 2025; Koval et al., 2024; Salha et al., 2024). Traditional psychological theories of resilience have also shown limitations in aligning with the Palestinian cultural concept

based on endurance, collective resistance, and the restoration of agency and dignity (Cacioppo et al., 2011; Giacaman, 2019). From this theoretical and methodological gap, the cognitive necessity for the current study emerges, seeking to bridge this deficit through a sequential explanatory mixed-methods design. This design facilitates data triangulation, where quantitative survey data from the initial phase are integrated with qualitative interview narratives in the second phase, minimizing single-method biases while improving trustworthiness and contextual validity (Maxwell, 2012; Zohrabi, 2013). In the quantitative phase, relationships between e-learning domains and recovery indicators are measured, while the qualitative phase serves as an explanatory channel revealing the lived experience and how students and instructors utilize digital platforms to confront isolation and challenges, potentially transforming e-learning from a technical tool into a supportive gateway for survival and recovery.

In light of the devastating war on the Gaza Strip, resulting in extensive destruction of educational infrastructure, disruption of the academic process, and forcing universities—including Al-Aqsa University—to rely on e-learning as a total and continuous alternative, there arose a critical need to understand the role of this emergency educational pattern. This role encompasses not only ensuring academic continuity but also supporting the psychosocial recovery of students experiencing displacement, trauma, and loss.

Therefore, this study aims to examine the role of emergency e-learning as a gateway to psychosocial recovery among Al-Aqsa University students in Gaza during the war by combining quantitative measurement with qualitative explanation of their lived experiences. Specifically, it addresses the following research questions:

1. What is the level of Al-Aqsa University students' evaluation of emergency e-learning as a gateway to their psychosocial recovery during the war?
2. Are there statistically significant differences at the significance level ($\alpha \leq 0.05$) between the mean responses of Al-Aqsa University students on the psychosocial recovery scale attributable to the variables: gender, academic program, academic level, place of residence, utilized technology, internet status, and electricity status?
3. How do they lived experiences and field-based accounts of Al-Aqsa University students explain the quantitative findings regarding the role of e-learning in achieving their psychosocial recovery during the war?

2. Methodology

2.1. Research Design

This study adopted an explanatory sequential mixed-methods design, which is highly appropriate for connecting empirical quantitative measurements with a deep

contextual interpretation of students' lived experiences (Creswell & Creswell, 2018). The methodology was executed in two distinct, sequential phases: an initial quantitative phase followed by a subsequent qualitative phase. In the first phase, a quantitative survey was deployed (N = 298) and statistically analyzed to establish baseline trends, macro-level patterns, and general levels of psychosocial recovery among the participants.

The point of integration and interface between the two strands occurred through a structured connection mechanism. The initial statistical outputs revealed critical empirical paradoxes and significant statistical phenomena—specifically, unexplained significant differences favoring displaced students and female participants, alongside an unexpected decline in the specific item measuring "the improvement of psychological state." To systematically address "how" and "why" these counterintuitive statistical trends manifested, these exact quantitative anomalies were used to inform and construct nine open-ended, qualitative inquiry questions. These questions were subsequently administered to an extended purposive sample (n = 248) derived from the original quantitative cohort who had provided extensive textual responses, thereby allowing the qualitative data to directly explain, enrich, and contextualize the macro-level statistical findings.

2.2. Participants and Context

The target population comprised all higher education students officially enrolled at Al-Aqsa University during the 2023–2024 academic year who were digitally active on the university's institutional e-learning system (N = 4,597). Due to acute security risks and continuous displacement, traditional probability sampling was impossible. Consequently, a non-probability digital convenience sampling approach was utilized through official learning networks. A total of 298 students completed the quantitative survey. Integrated within the same digital tool, a purposive sub-sample of 248 participants also responded to qualitative, open-ended survey items embedded to capture detailed contextual narratives rather than traditional face-to-face interviews.

Table 1

Demographic Characteristics of the Sample

Characteristic	**Dimension / Category**	**Quantitative Sample (N=298)**	**Percentage (%)**
Gender	Female	236	79.2%
	Male	62	20.8%
Academic Program	Undergraduate	277	93.0%

	Postgraduate / Others	21	7.0%
Current Residence	Displacement Camps	184	61.7%
	Non-Displacement / Home	114	38.3%

2.2.1. Methodological Rationale and Limitations

Utilizing remote digital channels was the most ethical and secure option to protect vulnerable participants from physical field hazards during active warfare. To reduce cognitive overload, a unified survey instrument was distributed to capture multi-dimensional indicators simultaneously. However, this digital approach introduces accessibility bias, excluding students lacking stable connectivity or devices. Additionally, the sample exhibits a pronounced gender asymmetry (79.2% female), which reflects the university's baseline enrollment but may limit the external generalizability of the quantitative findings. To mitigate these limitations and support overall trustworthiness, the quantitative findings were supplemented by qualitative interview data representing both genders across various displacement contexts.

2.3. Data Collection Instruments

To satisfy the requirements of the explanatory sequential design, data collection utilized two complementary digital instruments developed specifically for the active conflict context of this study.

2.3.1. The Quantitative Survey

The quantitative instrument comprised a 21-item scale developed from contemporary literature on crisis pedagogy and psychosocial support (PSS). The items were evaluated using a 5-point Likert scale (5 = Strongly Agree, 1 = Strongly Disagree) across two primary domains: Psychosocial Recovery (11 items) and Social Recovery (10 items).

Content validity was established by a panel of five expert reviewers in education and psychology. Internal consistency was verified using Pearson correlation coefficients; item-to-domain correlations ranged from 0.404 to 0.917, while domain-to-total scale correlations reached 0.956 for psychosocial recovery and 0.954 for social recovery, all significant at the 0.01 level. Tool reliability was robust, yielding a total Cronbach's alpha coefficient of 0.93 and a corrected Spearman-Brown split-half coefficient of 0.975. Factor analysis was intentionally omitted since the tool was context-specific rather than intended for psychometric standardization.

2.3.2. The Qualitative Digital Interview

A semi-structured qualitative interview card was developed and deployed asynchronously via Google Forms. The protocol consisted of nine open-ended, non-directive questions designed to explore students' lived experiences and strategic adaptation mechanisms. To optimize the explanatory sequential interface, the prompt formulations were directly informed by preliminary statistical paradoxes emerging from the quantitative phase. The instrument was validated by five academic arbiters to ensure face and structural appropriateness, and linguistic refinements were made to accommodate the critical psychological state of the participants.

2.4. Data Analysis and Trustworthiness

2.4.1. Statistical and Thematic Procedures

Quantitative datasets (N = 298) were processed computationally using SPSS. Descriptive parameters (frequencies, percentages, means, and standard deviations) profiled the sample and evaluated recovery levels. Inferential variances across multiple demographic and contextual factors were tested using a Multivariate Analysis of Variance (MANOVA) without interaction to control for Type I error compounding.

Concurrently, the qualitative textual responses (n = 248) underwent inductive thematic analysis based on Braun and Clarke's (2006) six-phase framework. The text was iteratively read for familiarization, fragmented into open codes reflecting **underlying** emotional meanings, grouped into sub-themes, and finalized into main themes that directly contextualized the preceding statistical indicators.

2.4.2. Trustworthiness and Ethical Protections

Qualitative rigor was secured following Lincoln and Guba's (1985) trustworthiness framework—encompassing credibility, transferability, dependability, and confirmability—through systematic analytical protocols. Credibility and dependability were established via inter-coder reliability procedures; a blind audit of a 20% random sample by two independent qualitative researchers yielded an excellent Cohen's Kappa consensus of *(kappa)* = 0.88, with minor discrepancies resolved via peer debriefing to achieve consensus. Conceptual saturation was fully realized at response 180, though all *(n)* = 248 responses were fully analyzed to maximize transferability and ensure extensive contextual representation.

The exceptionally large size of this qualitative cohort *(n)* = 248 which is highly unconventional for standard interpretive qualitative designs—emerged as a natural outcome of deploying an asynchronous digital interview card directly integrated into the primary electronic survey interface. This embedded configuration lowered participation friction, offering displaced students total temporal flexibility and physical safety to share their lived experiences without external pressure. To manage this massive volume of qualitative textual data with structural rigor, the researchers did not rely on automated machine shortcuts; instead, an intensive manual open-coding process was executed, cross-referencing each narrative through a matrix of inductive

codes. Continuing the thematic analysis across all 248 responses, even after conceptual saturation was fully reached at response 180, served as a deliberate strategy to secure maximum transferability and capture rare outlier accounts, thereby enhancing the contextual confirmability of the mixed-methods integration.

Consequently, negative and discrepant case analysis was systematically applied to outlier responses to expand the framework's confirmability by thoroughly evaluating e-learning boundary constraints. Furthermore, the researchers maintained a reflexive journal to minimize personal emotional bias arising from the severe field conditions. Given the active warfare environment, strict ethical safeguards were integrated into the design. Asynchronous digital data collection protected the physical safety of participants while offering temporal and geographic flexibility for displaced individuals. Absolute autonomy to withdraw was guaranteed, and the inquiry boundaries strictly avoided demanding explicit descriptions of personal trauma to protect participants from risks of re-traumatization while securing full pseudonymization (e.g., Participant-Female-Displaced-142).

3. Results and Discussion

3.1. Macro-Level and Descriptive Analysis of Emergency E-Learning as a Gateway to Recovery (RQ1)

To address the first research question regarding the level of Al-Aqsa University students' evaluation of emergency e-learning as a gateway to their psychosocial and social recovery during the war, descriptive statistical tracking was executed (N = 298). The empirical evaluation thresholds for the 5-point Likert scale were structurally categorized based on the following mathematical intervals: 1.00–1.80 (Very Low), 1.81–2.60 (Low), 2.61–3.40 (Moderate), 3.41–4.20 (High), and 4.21–5.00 (Very High).

3.1.1. Overall Scale and Domain-Level Performance

The preliminary macro-level analysis demonstrated a high overall evaluation across the cumulative psychometric instrument (M = 3.62, SD = 0.81). When deconstructed at the sub-domain level, both primary dimensions settled securely within the high parameter tier. The Social Recovery domain recorded a slightly advanced descriptive position (M = 3.63, SD = 0.83) compared to the Psychosocial Recovery domain (M = 3.61, SD = 0.81). The relatively constrained standard deviation values across the domains indicate an acceptable and statistically coherent level of homogeneity within the participant responses, reflecting a shared consensus regarding the utility of remote instructional environments despite the extreme contextual variations of the ongoing conflict.

Table 2

Descriptive Parameters for Psychosocial Scale Domains and Cumulative Overall Impact (N = 298)

Analytical Domain / Scale	*N*	*M*	*SD*	Evaluation Level
Psychosocial Recovery	298	3.61	0.81	High
Social Recovery	298	3.63	0.83	High
Total Scale (Cumulative Impact)	298	3.62	0.81	High

3.1.2. Psychometric Detailed of the Psychosocial Recovery Domain

A comprehensive breakdown of individual items within the Psychosocial Recovery domain (Table 3) reveals a distinct hierarchical distribution of means. The highest empirical indicators within this dimension were observed for Item 8 ("Emergency e-learning reduced my anxiety and fear of losing the academic year"; *M* = 3.77, *SD* = 1.02), followed closely by Item 6 ("Online education provided me with a sense of control over my future despite current conditions"; *M* = 3.73, *SD* = 1.02), and Item 9 ("The digital space granted me a sense of achievement that supports my mental state"; *M* = 3.73, *SD* = 0.98).

Conversely, the lowest statistical parameter within this sub-scale was recorded for Item 3 ("E-learning contributed to improving my psychological state during crises"), which experienced a visible descriptive decline, settling uniquely into the moderate evaluation bracket (*M* = 3.36, *SD* = 1.11).

Table 3

Detailed Item-Level Descriptive Statistics for the Psychosocial Recovery Domain (N = 298)

Item No.	Psychosocial Recovery Item Phrasing	*M*	*SD*	Evaluation Level
1	Emergency e-learning helped me detach from continuously thinking about the negative, tragic events of the war.	3.48	1.14	High
2	Participation in online learning activities alleviated my sense of isolation and psychological distress.	3.65	0.95	High
3	Emergency e-learning contributed directly to improving my psychological state during crises.	3.36	1.11	Moderate

4	Engaging with the digital platform helped me experience stability amidst the chaos caused by the war.	3.48	1.06	High
5	I find that completing academic tasks online provides an active opportunity to boost my self-confidence.	3.72	0.99	High
6	Emergency e-learning provided me with a sense of control over my future despite current conditions.	3.73	1.02	High
7	I feel a sense of comfort and relief when communicating with instructors and peers via digital learning platforms.	3.67	1.00	High
8	Online learning reduced my anxiety and profound fear of losing the ongoing academic year entirely.	3.77	1.02	High
9	The digital environment granted me a sense of achievement that actively supports my psychological state.	3.73	0.98	High
10	Accessing emergency e-learning assisted me in coping with the chronic anxiety resulting from the war.	3.48	1.07	High
11	Digital learning provided an operational opportunity to reorganize my life and ease the pressures of the crisis.	3.67	1.00	High

3.1.3. Psychometric Detailed of the Social Recovery Domain

The descriptive parameters for the items within the Social Recovery domain (Table 4) reflect high structural ratings across collective and solidarity indicators. The statistical maximums were heavily concentrated in Item 10 ("E-learning enabled me to continue serving my community and achieving useful roles"; *M* = 3.79, *SD* = 1.01) and Item 9 ("The continuity of online learning actively contributed to enhancing community recovery and resilience"; *M* = 3.77, *SD* = 0.96).

On the other hand, the absolute descriptive minimums within this domain were linked to Item 1 ("E-learning contributed to strengthening relationships between me and my

study peers"; *M* = 3.50, *SD* = 1.04) and Item 7 ("My general social conditions improved due to online learning continuity"; *M* = 3.50, *SD* = 1.06). While these items remained within the boundaries of the high evaluation bracket, their relative positions indicate that the digital medium had a powerful impact on macro-level solidarity and community action, while having a slightly more limited effect on rebuilding deep, face-to-face personal connections.

Table 4

Detailed Item-Level Descriptive Statistics for the Social Recovery Domain (N = 298)

Item No.	**Social Recovery Domain Item Phrasing**	***M***	***SD***	**Evaluation Level**
1	Emergency e-learning contributed to strengthening relationships between me and my peers in the study.	3.50	1.04	High
2	Teamwork in digital academic activities enhanced my sense of belonging to the university community.	3.65	0.99	High
3	Communicating with peers and instructors via online learning platforms granted me a sense of social support.	3.64	0.97	High
4	Digital learning helped me exchange ideas and experiences with my peers, boosting the spirit of cooperation.	3.58	1.04	High
5	Active participation in digital educational activities built a supportive social network inside the community.	3.66	0.99	High
6	Emergency e-learning makes me feel continuously connected with my social environment despite active challenges.	3.67	0.99	High
7	My general social conditions improved thanks to the functional continuity of online learning modes.	3.50	1.06	High

8	Online education enhanced our mutual solidarity and support as students, reinforcing social stability and Sumud.	3.70	1.01	High
9	The structural continuity of e-learning actively contributed to enhancing community recovery and resilience.	3.77	0.96	High
10	Emergency e-learning enabled me to continue serving my community and fulfilling highly useful roles within it.	3.79	1.01	High

3.1.4. Integrated Interpretation and Theoretical Discussion of Descriptive Findings

The macro-level descriptive data (*M* = 3.62, *SD* = 0.81) reveals a powerful socio-academic reality: emergency e-learning at Al-Aqsa University transcended its functional role as a technical medium for syllabus delivery. Instead, it operated as a structured, non-clinical psychological intervention that fostered resilience amid active warfare. This high evaluation demonstrates that under conditions of protracted violence, maintaining institutional academic ties acts as an anchor for stabilization, helping to offset the cognitive chaos caused by the widespread destruction of higher education infrastructure—a phenomenon documented in international legal and critical academic literature as *scholasticide* or *educide* (Desai et al., 2025; Giroux, 2025; Junina, 2026).

The Critique of Maslow's Hierarchy and the Paradox of Self-Transcendence

The high quantitative ratings for items measuring "reducing anxiety of losing the academic year" (*M* = 3.77) and "providing a sense of control over my future" (*M* = 3.73) present a striking theoretical paradox when viewed through traditional Western psychological models. Under the severe conditions of the war on Gaza, the foundational tiers of Maslow's hierarchy of needs—namely, basic physiological survival, physical safety, and residential security—were systematically shattered due to forced, repeated displacement and severe infrastructural deprivations (Abed Alah, 2024; UNDP & ESCWA, 2024). According to classical motivation theory, individuals cannot effectively pursue higher-level cognitive growth or self-actualization until these baseline survival needs are met.

However, the study's empirical findings challenge this linear dependency. By actively immersing themselves in digital learning environments despite active bombardment, Gazan students bypassed these shattered foundational layers to pursue what Viktor Frankl conceptualized as self-transcendence the deliberate search for ultimate meaning and existential purpose as a defensive strategy against despair (Abed Alah, 2024). Engaging with virtual coursework was not a secondary academic task; it was an urgent mechanism to maintain dynamic agency, counter terminal helplessness, and

protect their future intellectual identity from being obliterated (Abed Alah, 2024; Giacaman, 2019).

Trauma-Informed Pedagogy and the "Positive Distractor"

From a cognitive and neuropsychological standpoint, the high scores for anxiety reduction and emotional stabilization find solid backing in **trauma-informed pedagogy** and trauma-directed instructional practices (Carello & Butler, 2015; Koval et al., 2024). Prolonged exposure to warfare places the human psychological system in a state of permanent hypervigilance, flooding the working memory with intrusive fear and disrupting executive functioning. The statistical performance of Item 1 ("detached me from continuously thinking about negative war events"; *M* = 3.48) and Item 2 ("alleviated feelings of isolation and distress"; *M* = 3.65) shows that the virtual lecture hall functioned as a **positive cognitive distractor**.

By providing structured, time-framed mental tasks (such as deciphering linguistic text or completing specific homework modules), emergency pedagogy created a temporary mental sanctuary. This forced cognitive redirection gave the nervous system a vital break from monitoring continuous danger, allowing students to regulate emotional distress and regain a sense of predictable routine amid external chaos (Abed Alah, 2024; Hosseini et al., 2026).

The Digital "Third Space" and Multilevel Social Resilience

The advanced descriptive position of the Social Recovery domain (*M* = 3.63), particularly driven by the capacity to "continue serving the community" (*M* = 3.79) and "enhance community resilience" (*M* = 3.77), highlights the role of digital infrastructure in rebuilding social capital. In the context of total geographical fragmentation, digital tools like WhatsApp networks, Telegram feeds, and Moodle discussion boards became what Homi Bhabha termed a **"Third Space"**.

This virtual space bypassed physical destruction to assemble scattered student communities, shifting the psychological burden from an isolated, fractured ego to a shared, collective destiny (Cacioppo et al., 2011; Desai et al., 2025). The interactive academic environment allowed students to exchange affective support, maintain mutual solidarity, and preserve their institutional belonging. This process matches the core tenants of **multilevel social resilience**, which views recovery not as an isolated psychometric trait, but as a participatory, collective practice built on solidarity networks that protect against social alienation and structural erasure (Cacioppo et al., 2011; Junina, 2026).

Reconceptualizing Resilience: Palestinian *Sumud* vs. Western Adaptation

Your quantitative results provide a clear reason to rethink imported Western frameworks of psychological resilience. Standard psychological literature often defines resilience as "bouncing back" to a pre-existing state of equilibrium following an isolated traumatic shock. However, this definition fails in environments marked by continuous, existential trauma like the Gaza Strip (Giacaman, 2019; McGahern, 2025).

The empirical reality of Al-Aqsa University students redefines resilience through the culturally grounded concept of **everyday *Sumud*** (Palestinian defiance)—a dynamic, collective practice of endurance, defiance, and the active "normalization of the abnormal" to sustain life and dignity under siege (Giacaman, 2019; Junina, 2026; McGahern, 2025). Pursuing education under bombardment is transformed into an act of non-violent cognitive resistance. The struggle to access digital platforms becomes a declaration of human agency, where completing a course module is an explicit refusal to let scholasticide halt personal and national development (Desai et al., 2025; McGahern, 2025).

The Boundary Limits of Digital Recovery

However, a balanced analysis must account for the visible drop of Item 3 ('contributed to improving my psychological state during crises') into the moderate bracket (*M* = 3.36, *SD* = 1.11). This decline highlights the practical boundary limits of emergency e-learning as a mechanism for psychological recovery.

While digital learning serves as a powerful coping strategy, it cannot substitute for dedicated clinical psychological treatment or eliminate the profound trauma of ongoing warfare. Attempting to maintain academic performance while facing displacement, severe device shortages, and immediate threats creates a heavy, dual cognitive burden. If instructional workloads are not carefully adjusted, the digital medium can shift from a protective shield into an added source of chronic stress and mental exhaustion (Abed Alah, 2024; Mahdi, 2026). This directly supports Mahdi's (2026) findings regarding the strong inverse relationship between extreme psychosocial stress and emergency learning efficiency.

3.2. Inferential Analysis of Demographic and Contextual Differences (RQ2)

To answer the second research question and test for statistically significant differences ($\alpha \leq 0.05$) in psychosocial and social recovery levels across demographic and contextual factors, a Multivariate Analysis of Variance (*MANOVA*) via the General Linear Model (*GLM*) without interaction was conducted. This statistical approach was used to analyze the independent effects of multiple factors simultaneously while controlling for Type I error inflation.

3.2.1. Multivariate Statistical Testing Matrix

The global multivariate assessments, utilizing Pillai's Trace criterion (Table 4), revealed that statistically significant variations in recovery scores existed exclusively when analyzed by **gender** (*Pillai's Trace* = 0.030, *F* = 4.400, *p* = 0.013, η_p^2= 0.030) and **current place of residence** (*Pillai's Trace* = 0.026, *F* = 3.875, *p* = 0.022, η_p^2= 0.026).

Conversely, no statistically significant multivariate differences were observed based on the student's academic program ((p = 0.604)), academic level ((p = 0.502)), utilized digital technology (p = 0.069), internet connectivity status (p = 0.960), or electricity availability (p = 0.254).

Table 4

Multivariate Test Results (MANOVA) across Demographic and Contextual Independent Factors (N = 298)

Independent Factor Matrix	Pillai's Trace Value	(F) Value	Significance ((p))	η_{ρ}^{2}
Gender	0.030	4.400	.013*	0.030
Academic Program	0.004	0.505	.604	0.004
Academic Level	0.018	0.890	.502	0.009
Place of Residence	0.026	3.875	.022*	0.026
Utilized Technology	0.019	2.704	.069	0.019
Internet Status	0.002	0.156	.960	0.001
Electricity Status	0.019	1.338	.254	0.009
*Note. * Denotes statistical significance at the (α≤0.05) threshold.*				

3.2.2. Between-Subjects Univariate Effects and Directional Tracking

Following the significant multivariate vectors, a series of univariate Between-Subjects Effects tests were reviewed to isolate the precise sub-scale destinations and directional paths of the variances (Table 5).

The data confirmed that **gender-based variations** were statistically significant across all dimensions, consistently favoring **female students** in Psychosocial Recovery ((p = 0.012), η_{ρ}^{2}= 0.022), Social Recovery ((p = 0.039), η_{ρ}^{2}= 0.015), and the total scale balance ((p = 0.021), η_{ρ}^{2}= 0.019).

Furthermore, **residence-based variations** revealed highly significant differences specifically favoring **students residing inside displacement shelter camps** over their non-displaced peers residing in their original homes across Psychosocial Recovery ((p = 0.011), η_{ρ}^{2}}) = 0.023), Social Recovery ((p = 0.006), (η_{ρ}^{2}= 0.026), and cumulative instrument impacts ((p = 0.008), (η_{ρ}^{2}= 0.025).

Crucially, despite the clear statistical significance of these differences, the isolated effect sizes remained strictly within the small-to-moderate parameters η_{ρ}^{2} range: 0.015–0.026). This indicates that the observed demographic variations are relative and boundary-limited; the severe structural and psychological trauma of the warfare universally impacted the entire student sample, maintaining a high baseline level of shared experiential struggle.

Table 5

Univariate Summary of Between-Subjects Effects and Directional Tracking Indices

Primary Source	Dependent Psychometric Dimension	Sum of Squares	(df)	Mean Square	(F) Value	Significance ((p))	η_{ρ}^{2}	Empirical Direction / Favor
Gender	Psychosocial Recovery domain	4.097	1	4.097	6.469	.012*	0.022	Favoring Female Students
	Social Recovery domain	2.832	1	2.832	4.298	.039*	0.015	Favoring Female Students
	Cumulative Instrument Score	3.436	1	3.436	5.405	.021*	0.019	Favoring Female Students
Residence	Psychosocial Recovery domain	4.178	1	4.178	6.597	.011*	0.023	Favoring Displacement Camps
	Social Recovery domain	5.017	1	5.017	7.614	.006*	0.026	Favoring Displacement Camps
	Cumulative Instrument Score	4.588	1	4.588	7.218	.008*	0.025	Favoring Displacement Camps

3.2.3. Integrated Theoretical Discussion of Inferential Findings

1. Gendered Coping Dynamics and Digital Spaces of Empathy

The distinct univariate variance favoring female participants across cumulative recovery metrics (p = 0.021, η_{ρ}^{2}= 0.019) maps cleanly onto contemporary gender-based health and educational crisis literature. Within the context of severe conflict, female students frequently bear disproportionately heavy, layered domestic and caretaking expectations inside overcrowded shelter facilities and tents. These immediate geographic pressures are coupled with extreme safety vulnerabilities that restrict their physical movement outside shelters compared to their male counterparts.

Under these conditions, the digital learning platform shifts from an academic portal to what critical literature conceptualizes as a "Network of Empathy" and a virtual refuge.

Female students actively leveraged synchronous and asynchronous communication feeds (such as academic WhatsApp and Telegram subgroups) as legitimate, socially accepted pathways for emotional expression, stress relief, and reciprocal validation. While male students often process trauma through outer-directed survival mechanics or direct exposure to environmental stressors, female students demonstrate a marked reliance on collaborative relational networks to process grief and break isolation. In the shadow of *scholasticide*, the virtual space allowed female academics to reclaim personal agency, secure human dignity, and reconstruct an academic self-image that structural violence explicitly sought to dismantle (Desai et al., 2025; Junina, 2026; Meshko et al., 2023).

2. The Displacement Camp Paradox: Education as an Existential Lifeline

The inferential finding showing significant differences favoring students embedded in displacement camps over those remaining in fixed residential contexts ($p = 0.008$), $\eta_{\rho}^{2} = 0.025$) exposes an intriguing socio-psychological reality. Displaced students unquestionably face far harsher material deprivation, severe environmental chaos, and the loss of stable household conditions. Yet, they evaluate emergency e-learning as a significantly more powerful gateway to recovery than their non-displaced peers.

This paradox is explained by the concept of existential framing. For a student residing in an original family home, online learning may be viewed as an inefficient, structurally flawed substitute for normal academic operations. However, for a student confined to a displacement tent, surrounded by physical ruins and facing structural erasure, the digital academic connection represents an essential "Lifeline of Existence" and a shield against identity death.

The virtual classroom becomes the ultimate space to practice *Sumud*, allowing displaced youth to reject functional paralysis and affirm their continuous presence as intellectual beings. Academic tasks offer a vital anchor of meaningful focus, helping students look past their immediate material losses and direct their psychological energy toward future reconstruction (Giacaman, 2019; McGahern, 2025).

3. The Technological and Logistic Independence Phenomenon

The absolute absence of statistically significant differences based on internet connectivity status ($p = 0.960$), electricity availability ($p = 0.254$), or the utilized device type ($p = 0.069$) introduces a critical finding regarding crisis pedagogy. This statistical homogeneity across diverse logistical strata confirms a crucial reality: the psychological motivation for survival and the commitment to educational continuity actively overcame external technical barriers.

As students normalized the extreme infrastructure deficits, they engaged in adaptive resource mobilization. This active problem-solving included charging phone devices using car batteries, tracking solar-power sources across tent lines, and sharing low-bandwidth text files during short late-night internet windows.

This high level of flexibility means that when institutional motivation is strong, low-cost digital tools (such as WhatsApp frameworks and asynchronous Moodle applications) successfully step in to bridge deep infrastructural divides. The digital platform becomes a shared virtual environment for a scattered student population, transforming technical challenges into an active arena to demonstrate personal will and maintain academic continuity (Junina, 2026; Salha et al., 2024; Sytnykova et al., 2024).

3.3. Qualitative Findings and Thematic Deconstruction (RQ3)

To explain the quantitative trends and analyze the 248 textual responses, an inductive thematic analysis was conducted following Braun and Clarke's (2006) framework. The qualitative dataset revealed that emergency e-learning functioned as a dynamic psychological protective system. This system transformed digital academic tasks into structured environments for emotional survival, identity protection, and collective solidarity. Table 6 provides the comprehensive structural map of the discovered themes, their supporting sub-themes, and the corresponding operational codes.

Table 6

Thematic Coding Matrix for Al-Aqsa University Students' Psychosocial Recovery Experiences (n = 248)

Main Discovered Theme	**Sub-Themes / Structural Dimensions**	**operational Codes / Structural Indicators**
Theme 1: The Positive Distractor & Psychological Shield	•Cognitive redirection & immersion •News cycle detachment	•Mental safe-haven/Sanctuary • Forced cognitive breaks • Trauma containment
Theme 2: Keeper of Hope & Future Ambition Engine	• Existential anchor and continuity •Relational growth post-trauma	•Defiance of academic erasure •Purpose-driven task motivation •Existential meaning-making
Theme 3: Social Cohesion & The "Third Space"	•Virtual community belonging • Empathetic instructor-peer networks	•Breaking displacement isolation •Virtual solidarity networks • Affective relational safety nets
Theme 4: Resilience & Technical Adaptation	•Adaptive resource mobilization	•Car-battery charging tactics •Solar power tracking

	• Operational problem-solving	metrics •Micro-bandwidth optimization
Theme 5: Institutional Flexibility as a Cradle	•Compassionate administrative care •Trauma-informed evaluation	•Curriculum compression/Focus •Academic safety cushions •Inclusive logistical patience
Theme 6: Continuous Trauma & Digital Fatigue	• Compound cognitive overload • Structural limits of e-learning	•Screen-induced exhaustion •High-stakes evaluation **anxiety** • Chronic survival friction

3.3.1. Extensive Thematic Deconstruction and Raw Field Testimonies

Theme 1: The Positive Distractor and Psychological Shield

The qualitative analysis demonstrates that immersive engagement with academic structures functioned as a critical emotional defense mechanism. By demanding deep intellectual focus, the virtual platform triggered cognitive redirection. This process temporarily separated students' working memory from the severe environmental trauma of the ongoing war, operating as a mental shield against absolute psychological exposure:

"The lectures and assignments were a temporary 'safe haven'. Immersing myself in academic material and focusing on linguistic rules or literary texts gave my mind a mandatory break away from the tragic news cycle. This 'positive distraction' granted me a sense of control amidst a state of chaos, helping me maintain my psychological balance by directing my energy toward future-building rather than surrendering to permanent anxiety." (Participant-Female-Displaced in Camp-P-010)
"When I was not studying, I was constantly following the news and tracking explosions, which kept me in an absolute state of panic over what might happen next. Once the platform re-opened, the assignments consumed most of my day. I simply did not have the spare time to watch tragic videos, and that brought a massive relief to my nervous system." (Participant-Female-Hosted by Relatives-P-074)

This mental containment confirms that when instructional practices accommodate the realities of active conflict, they establish a predictable daily structure. This structure limits cognitive fragmentation and helps minimize the symptoms of acute functional panic (Abed Alah, 2024; Hosseini et al., 2026).

Theme 2: Keeper of Hope and Future Ambition Engine

Rather than evaluating online education as an ordinary administrative requirement, students embedded deep existential purpose within their digital coursework.

Continuing to learn became a direct act of psychological resistance (*Sumud*). It functioned as an active tool to navigate profound grief and prevent the destruction of their professional futures:

"Despite the bitterness of forced displacement and losing my brother—the dearest person to my heart—education remained my only lifeline. Engaging with knowledge is not an escape from reality, but an insistence on life and a challenge to all attempts to crush our will. Every piece of knowledge I learn and every goal I pursue is a declaration of survival and a tribute to the souls of those we lost." (Participant-Male-Shelter Center/Rented Apartment-P-005)
"Education is the only real weapon we possess in Gaza; without it, we lose our future existence. E-learning kept this remaining flame flickering within us, reminding me daily that there is an end to this horror and a future where I must be ready to rebuild myself." (Participant-Male-Original Home-P-030)

These field testimonies show that the accumulation of micro-academic achievements supported students' self-transcendence needs. This process helped rebuild internal self-efficacy and successfully protected youth from falling into total existential despair (Cacioppo et al., 2011; Giacaman, 2019).

Theme 3: Social Cohesion and the "Third Space"

The digital networks developed around Moodle platforms, WhatsApp channels, and Telegram subgroups transcended their standard instructional designs. They transformed into a virtual "Third Space" that bypassed geographic isolation and brought scattered communities together across remote shelter tents:

"Digital communication with my university community helped me overcome the deep feelings of alienation and isolation inside the displacement camps. I felt that I was still part of something bigger and that there were people who cared about my safety. Our academic WhatsApp groups were more than study channels; they were a sanctuary where we exchanged mutual support and checked on one another." (Participant-Female-Displaced in Camp-P-120)
"Our professors interacted with us not merely as grading officers, but as empathetic guides. They regularly checked on our survival and emotional well-being before discussing any syllabus requirements. This made us feel contextually humanized and safe." (Participant-Male-Shelter Center-P-110)

By reconstructing these damaged institutional connections, remote learning generated protective social capital. This relational support system shifted the psychological burden from an isolated, fractured ego to a shared collective destiny (Cacioppo et al., 2011; Desai et al., 2025).

Theme 4: Resilience and Technical Adaptation

The qualitative responses revealed that students viewed severe infrastructural deficits not as barriers to learning, but as active opportunities to demonstrate agency.

Overcoming internet cutoffs and electricity blackouts became an intentional practice of defiance:

"In the camp, there is nothing but the tent and destruction around us. We charged phones from car batteries or solar panels and walked long distances searching for a weak internet signal just to send assignments. The struggle itself gave us internal power, proving to ourselves and the world that we still exist and are capable of learning." (Participant-Male-Displaced in Camp-P-033)
"The harsh constraints forced us to develop immense mental flexibility. If the network drops or the shelling intensifies, we instantly recalibrate our schedules, wait for midnight signals, or share text-heavy compressed files. We normalized the abnormal to keep moving forward." (Participant-Female-Displaced in Camp-P-022)

This active coping strategy explains the missing inferential variance across technological categories in your quantitative findings. It confirms that when internal motivation is robust, students adapt to technical limitations to protect their right to education (Mahdi, 2026; Salha et al., 2024).

Theme 5: Institutional Flexibility as a Nurturing Environment

The operational success of emergency e-learning was heavily reliant on the academic empathy demonstrated by instructors. Flexible evaluation methodologies and compressed curriculum frameworks served as an essential institutional safety net:

"The academic adjustments and the professors' deep empathy for our extreme conditions were our primary motivation to continue. If the university had been rigid with deadlines or requirements, most of us would have dropped out entirely due to our displacement tracking." (Participant-Female-Displaced in Camp-P-150)
"Compressing the courses into fundamental core competencies and dropping non-essential academic pressures allowed us to comprehend materials despite our scattered attention spans. It felt like the institution was genuinely anchoring us." (Participant-Male-Original Home-P-200)

This shows that modifying curriculum requirements during structural emergencies is not merely an administrative choice. It functions as a key psychological requirement to prevent institutional dropout and lower cognitive exhaustion (Carello & Butler, 2015; Mahdi, 2026).

Theme 6: Continuous Psychological Challenges and Digital Burden

To maintain full empirical validity via negative case analysis, this final theme addresses the structural limits of emergency learning. When administrative burdens were poorly managed, online requirements created a heavy double burden that heightened anxiety:

"Honestly, in the beginning, it was a positive distractor, but over time and with the increase in academic workloads and continuous assignments, it turned into an immense burden upon us due to the total absence of basic living necessities. Online

studies cannot fully cure continuous trauma or replace direct psychological treatment." (Participant-Male-Displaced in Camp-P-051)
"The pressure was unbearable at times. Between running to find clean water for my displaced family and attempting to catch a short internet window to upload a quiz, I felt like I was trapped in an endless, agonizing race. My eyes continuously burn from screens, and the digital burden sometimes compounds my panic attacks." (Participant-Female-Displaced in Camp-P-142)

This pattern explains why the item measuring direct psychological improvement remained moderate (M = 3.36). It shows that e-learning serves as an effective supportive coping system, but it cannot completely erase the deep impacts of prolonged trauma (Giacaman, 2019; Mahdi, 2026).

3.4. Mixed-Methods Integration and Key Inferences

The sequential explanatory mixed-methods framework integrated the qualitative findings (n = 248) to explain and contextualize the macro-level statistical patterns (N = 298). This synthesis shows that the high quantitative evaluation of emergency e-learning (M = 3.62) indicates that digital education functioned as a protective socio-academic system during active conflict.

The high rating for anxiety reduction (M = 3.77) matches the qualitative themes of the **"Positive Distractor"** and the **"Psychological Shield"**, showing that structured cognitive immersion helped protect students from constant trauma. Similarly, the statistical paradox where displacement camp residents scored higher on recovery metrics (p = 0.008) is fully clarified by the qualitative evidence: for youth confined to tents facing physical and structural erasure, the digital platform became an existential lifeline to protect their academic identity and practice *Sumud*.

Finally, tracking outlier and negative cases clarified why the direct psychological improvement item remained moderate (M = 3.36). The qualitative feedback uncovered the boundary limits of emergency learning, showing that high assignment workloads amid resource scarcity create a compound digital burden that can compromise e-learning's protective benefits if left unmanaged.

3.4.1. Higher Conceptual Inferences

The integrated analysis yields four key insights regarding education in emergencies:

1. **Pedagogy as an Existential Core:** Emergency e-learning in active conflict zones extends beyond basic knowledge transmission; it functions as a virtual "Third Space" that supports personal agency, builds self-transcendence, and counters structural efforts to disrupt higher education (*scholasticide*).
2. **The Resilience Adaptation Dynamic:** Severe infrastructure deficits (such as internet cutoffs and electricity blackouts) do not automatically stall psychosocial recovery. Instead, when student motivation is high, overcoming

these technical barriers is transformed into a collective practice of resilience and problem-solving.

3. **Virtual Safe-Havens for Vulnerable Demographics:** Digital environments provide vital psychological safe-havens for highly vulnerable cohorts—specifically female students and displacement camp residents—by bypassing severe geographical restrictions to establish virtual communities of empathy and solidarity.
4. **The Structural Capacity Frontier:** While emergency digital learning is an effective supportive coping system, it has clear functional limits; it cannot fully substitute for dedicated clinical psychological treatment or eliminate the profound trauma of ongoing warfare.

3.5. Practical Application: The Trauma-Informed Displacement Digital Pedagogy (TIDP) Model

To translate these higher conceptual inferences into actionable instructional practices, this study introduces the **Trauma-Informed Displacement Digital Pedagogy (TIDP) Model**. Designed specifically for higher education institutions operating within active conflict zones and displacement settings, the TIDP framework shifts crisis pedagogy from a basic technical response to an adaptive, trauma-sensitive instructional environment. (see Figure 1)

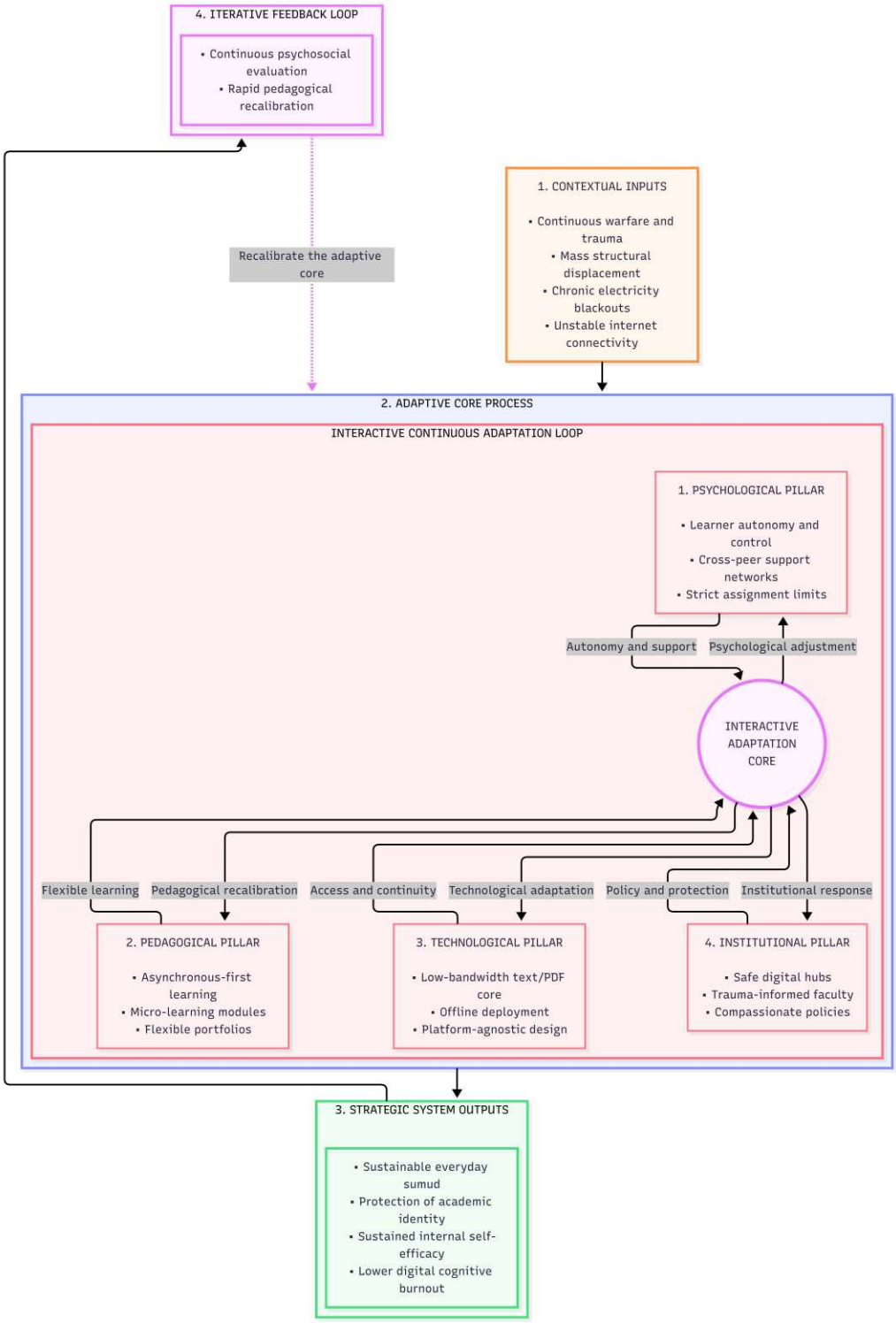


Figure 1. *The Trauma-Informed Displacement Digital Pedagogy (TIDP) Model for Higher Education in Conflict Zones.*

Note. *The framework illustrates the continuous, iterative processing loop where severe contextual stressors are addressed by four adaptive core process pillars (Psychological, Pedagogical, Technological, and Institutional) to generate sustainable system outputs and community resilience (Sumud).*

3.5.1. Operational Execution of the TIDP Model Pillars

Table 7 outlines the structural pillars of the TIDP model, linking your empirical findings directly to actionable practical guidelines.

Table 7. *Operational Blueprint and Actionable Guidelines for the TIDP Model Pillars*

Core TIDP Pillar	Empirical Field Insight	Actionable Practical Guidelines
1. Psychological Pillar	High student anxiety paired with cognitive burnout from heavy digital workloads.	• **Enforce** a strict cap of maximum two assignments per month per course. • **Embed** anonymous peer-support discussion threads within low-bandwidth channels. • **Minimize** timed tasks to lower psychological pressure.
2. Pedagogical Pillar	Heightened effectiveness of flexible, asynchronous learning configurations.	• **Shift** institutional operations to 100% asynchronous delivery frameworks. • **Deconstruct** standard lectures into 15-minute mobile-friendly micro-modules. • **Replace** high-stakes timed exams with cumulative project portfolios.
3. Technological Pillar	Chronic infrastructure collapse, electricity blackouts, and unstable network connections.	• **Strip** heavy streaming video and multimedia files from the core curriculum. • **Compress** all mandatory lecture content into low-bandwidth, text-only PDFs. • **Package** weekly educational modules into downloadable ZIP files for offline access.
4. Institutional Pillar	Essential protective buffering provided by empathetic administrative care.	• **Establish** solar-powered digital access and phone-charging points near camps. • **Mandate** rapid trauma-informed pedagogical training for all faculty members.

		• **Institute** a non-punitive, automatic grading extension policy for displaced students.

4. Limitations and Future Research Directions

4.1. Limitations of the Study

The researchers explicitly acknowledge several contextual, methodological, and structural limitations that bound the scope and immediate generalizability of the empirical findings:

- **Contextual and Institutional Boundaries:** This investigation was conducted under active warfare and structural crisis settings uniquely centered at Al-Aqsa University in the Gaza Strip. Consequently, the operational adaptations, institutional flexibility margins, and the specific manifestation of student *Sumud* reflect localized parameters that may not fully align with general pedagogical dynamics in other global conflict zones or traditional distance learning environments.
- **Self-Reporting and Digital Accessibility Bias:** Data collection relied exclusively on a self-selected digital convenience sampling method due to the absolute impossibility of field physical access. This digital distribution naturally creates an accessibility bias, as it systematically underrepresents or entirely excludes the most marginalized student subsets—specifically those experiencing telecommunication blackouts, chronic power outages, or limited access to smart devices within shelter camps. Furthermore, the reliance on self-reported survey measures can introduce unintended subjective bias regarding the exact quantification of internal psychosocial recovery states.
- **Pronounced Gender Asymmetry:** The final quantitative cohort exhibited a major gender imbalance, with female students comprising 79.2% of the total sample. While this split aligns with the baseline pre-war institutional enrollment trends at Al-Aqsa University, this significant asymmetry restricts the external validity and generalizability of the inferential parameters, meaning the observed differences favoring female respondents must be interpreted with caution.

4.2. Future Research Directions

To expand upon the higher inferences established by this study and advance the literature on pedagogy in emergencies, the following future inquiries are proposed:

- **Longitudinal Tracking of Transformational Recovery:** Future studies should implement a longitudinal methodology to track how the psychosocial and social recovery tracks of Gaza University students evolve through the post-war

reconstruction phases and the eventual transition back to face-to-face academic models.

- **Investigating Faculty Mental Health and Coping Frameworks:** There is an urgent need to examine the psychological well-being, hidden trauma, and strategic coping mechanisms of the academic faculty members themselves, who deliver digital instruction while simultaneously enduring forced displacement and severe survival stressors.
- **Comparative Institutional Analyses:** Conducting expansive comparative research across multiple higher education institutions within the Gaza Strip (such as the Islamic University, Al-Azhar University, etc.) would clarify how varying organizational designs and emergency infrastructures influence student resilience and mental health stabilization.
- **Empirical Validation of the TIDP Model:** Researchers are encouraged to empirically deploy, test, and validate the proposed **Trauma-Informed Displacement Digital Pedagogy (TIDP) Model** across alternative conflict-affected populations or refugee higher education frameworks globally to evaluate its trans-contextual utility.

References

Abed Alah, M. (2024). Shattered hierarchy: How the Gaza conflict demolished Maslow's pyramid of needs. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues, 43*(21), 19562–19568. https://doi.org/10.1007/s12144-024-05784-1

Abusamra, A. (2024). Brain Drain or Brain Circulation? The Impact of Gaza's 7th October War on the Displaced Academicians and Personnel of Higher Education Institutions. *Journal of Higher Education Theory and Practice*, *24*(10). https://doi.org/10.33423/jhetp.v24i10.7309

Beserra, V., Nussbaum, M., Navarrete, M., Garrido, N., & Alvares, D. (2024). The use of physically active academic lessons during the transition to face-to-face classes. *SAGE Open*, *14*(2), Article 21582440241255429. https://doi.org/10.1177/21582440241255429

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Cacioppo, J. T., Reis, H. T., & Zautra, A. J. (2011). Social resilience: The value of social fitness with an application to the military. *American Psychologist, 66*(1), 43–51. https://doi.org/10.1037/a0021419

Carello, J., & Butler, L. D. (2015). Practicing What We Teach: Trauma-Informed Educational Practice. *Journal of Teaching in Social Work*, *35*(3), 262–278. https://doi.org/10.1080/08841233.2015.1030059

Desai, C., Hammad, S., Abu Shaban, A., & Takriti, A. R. (2025). Scholasticide and resilience: The Gaza Genocide and the struggle for Palestinian higher education. *Curriculum Inquiry*, *55*(3–4), 288–324. https://doi.org/10.1080/03626784.2025.2558520

Farrah, M., Abu Zainh, S., & Sweity, H. (2024). Palestinian EFL Students' Attitudes Toward E-Learning and Blended Learning during the 7th of October War on Gaza. *Journal of Palestine Ahliya University for Research and Studies*, *4*(1), 19–32. https://doi.org/10.59994/pau.2025.1.19

Giacaman R. (2020). Reflections on the meaning of 'resilience' in the Palestinian context. *Journal of public health (Oxford, England)*, *42*(3), e369–e400. https://doi.org/10.1093/pubmed/fdz118

Giroux, H. A. (2025). Scholasticide: Waging war on education from Gaza to the West. *Journal of Holy Land and Palestine Studies*, 24(1), 1–16. https://doi.org/10.3366/hlps.2025.0348.

Guo, W., Wang, J., Li, N., & Wang, L. (2025). The impact of teacher emotional support on learning engagement among college students mediated by academic self-efficacy and academic resilience. *Scientific Reports*, *15*, Article 3670. https://doi.org/10.1038/s41598-025-88187-x

Hosseini, N., Leijgraaf, M., Gaikhorst, L., & Volman, M. (2025). Navigating challenges and tensions in social justice–oriented teacher education: A review of the literature. *Review of Educational Research*. Advance online publication. https://doi.org/10.3102/00346543251325572

Iriqat, D., Alousi, R., Aldahdouh, T. Z., AlDahdouh, A., Dankar, I., Alburai, D., Buheji, M., & Hassoun, A. (2025). Educide amid conflict: The struggle of the Palestinian education system. *Quality Education for All*, *2*(1), 83–101. https://doi.org/10.1108/QEA-10-2024-0120

Junina, A. K., Hajir, B., Aqel, M. S., Najim, M. A., & McInerney, W. W. (2026). Remote higher education partnerships in crisis: Reflections and practical insights from the Gaza education research virtual fellowship. *Compare: A Journal of Comparative and International Education*. Advance online publication. https://doi.org/10.1080/03057925.2026.2697853

Koval, V., Burlakova, I., Sheviakov, O., & Kondes, T. (2024). Features of psychological education in Ukraine during the war and post-war recovery. *Pedagogy and Education Management Review*, *4*(18), 76–86. https://doi.org/10.36690/2733-2039-2024-4-76-86

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.

Mahdi, H. (2026). Environmental and Social Challenges of the War on Gaza and Their Impact on the E-Learning Experience of Al-Aqsa University Students. *Palestine Technical University Research Journal*, *14*(01), 96–113. https://doi.org/10.53671/pturj.v14i01.711

Mahdi, H. R., & Al-Taaban, M. (2026). E-learning amid war and its role in enhancing community resilience despite challenges among Al-Aqsa University students in Gaza. *Journal of the Arab American University for Research*, *12*(2), 177–198. https://doi.org/10.35517/AAUP-2026.V12.2.11

Maxwell, J. A. (2012). *Qualitative research design: An interactive approach* (3rd ed.). SAGE Publications.

McGahern, U. (2025). Higher Education Under Siege: Attacking Spaces of Hope in Palestine. *Geopolitics*, *30*(2), 830–858. https://doi.org/10.1080/14650045.2024.2398240

Salha, S., Tlili, A., Shehata, B., Zhang, X., Endris, A., Arar, K., Mishra, S., & Jemni, M. (2024). How to maintain education during wars? An integrative approach to ensure the right to education. *Open Praxis*, *16*(2), 160–179. https://doi.org/10.55982/openpraxis.16.2.668

Shah, R., Paulson, J., & Couch, D. (2019). The rise of resilience in education in emergencies. *Journal of Intervention and Statebuilding*, *13*(3), 303–326. https://doi.org/10.1080/17502977.2019.1694390

Sytnykova, Y., Petrenko, T., Bezkorovaina, O., & Ptushka, A. (2024). Challenges for universities to online technologies implementation in the conditions of war in Ukraine. *Information Technologies and Learning Tools*, *99*(1), 193–208. https://doi.org/10.33407/itlt.v99i1.5436

United Nations. (2024, April 18). *Gaza: UN experts decry 'systemic obliteration' of education system*. UN News. https://news.un.org/en/story/2024/04/1148716

United Nations Development Programme, & Economic and Social Commission for Western Asia. (2024). *Gaza war: Expected socioeconomic impacts on the State of Palestine* (Policy Brief No. 2). United Nations. https://www.undp.org/sites/g/files/zskgke326/files/2024-10/gaza-war-expected-socioeconomic-impacts-palestine-policy-brief-english-1.pdf

United Nations Relief and Works Agency for Palestine Refugees in the Near East. (2025). *UNRWA situation report #170 on the humanitarian crisis in the Gaza Strip and the West Bank, including East Jerusalem*. United Nations. https://www.unrwa.org/resources/reports/unrwa-situation-report-170-situation-gaza-strip-and-west-bank-including-east-jerusalem

Zohrabi, M. (2013). Mixed Method Research: Instruments, Validity, Reliability and Reporting Findings. Theory and Practice in Language Studies, 3, 254-262. http://dx.doi.org/10.4304/tpls.3.2.254-262