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Digital Information Processing During Modern Conflicts: A Cognitive Perspective

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Abstract: ***Armed conflicts are now fought simultaneously on physical battlefields and in digital information environments. Ordinary citizens encounter conflict-related content within minutes of events occurring, often through unverified social media channels, and must process emotionally charged, rapidly evolving, and frequently manipulated information. This paper examines how people cognitively process digital information during modern conflicts, drawing on dual-process theory, cognitive load theory, motivated reasoning, and the information-disorder framework. It reviews the literature on misinformation dynamics during recent conflicts, analyses recurring cognitive vulnerabilities through four illustrative case studies, and proposes a five-phase mixed-methods research design combining a systematic review, content analysis, a survey, a controlled experiment, and semi-structured interviews. The paper sets out research objectives, questions and hypotheses, a conceptual framework, measurement instruments, and an execution timeline. Expected contributions include an integrated cognitive model of wartime information processing and evidence-based recommendations for media-literacy interventions and platform design.***

Keywords: information processing; cognition; misinformation; modern conflict; dual-process theory; media literacy; information warfare

1. Introduction

1.1 Background

The information environment surrounding armed conflict has been transformed within a single generation. During twentieth-century conflicts, most citizens received war news through a small number of editorially controlled broadcast and print channels, typically hours or days after events occurred. Today, smartphone footage from a conflict zone can reach global audiences within minutes, unmediated by editorial verification. Social platforms, encrypted messaging applications, and algorithmic recommendation systems have collapsed the distance between the battlefield and the ordinary news consumer.

This transformation places unprecedented cognitive demands on individuals. Conflict content is emotionally intense, arrives in high volume, is frequently ambiguous in origin, and is often deliberately manipulated by state and non-state actors seeking to shape perceptions. Understanding how human cognition copes- and fails to cope- with these demands is therefore not merely an academic question but a matter of civic resilience.

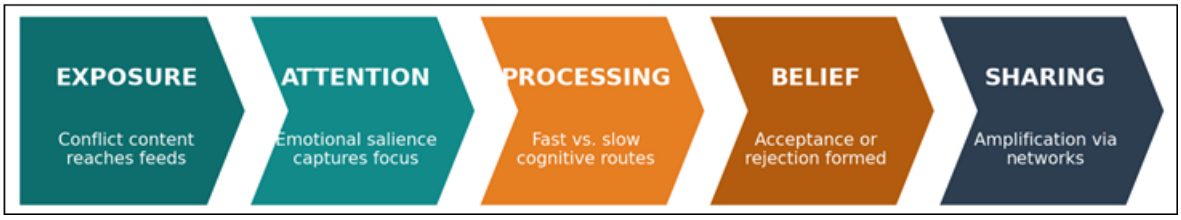

Figure 1: The five-stage journey of conflict information from exposure to sharing

1.2 Problem Statement

Although misinformation research has expanded rapidly, most studies examine political or health misinformation in peacetime settings. Conflict settings differ in three crucial ways: (i) emotional arousal is substantially higher, favouring fast intuitive processing; (ii) identity stakes are salient, activating in-group loyalty and motivated reasoning; and (iii) deliberate information operations are conducted at scale by well-resourced actors. There is a need for an integrated account of how these conditions interact with basic cognitive architecture to shape belief formation and sharing behaviour during conflicts.

1.3 Significance of the Study

The study is significant for three audiences. For **educators**, it informs the design of media-literacy curricula that target the specific vulnerabilities activated during crises. For **platform designers**, it identifies points in the processing pipeline where friction, labels, or prompts are most effective. For **citizens**, it converts abstract warnings about "fake news" into a concrete understanding of one's own cognitive habits under stress.

1.4 Scope and Delimitations

The paper focuses on the cognition of ordinary information consumers rather than on military information operations

doctrine. Case material is treated neutrally, with attention restricted to the cognitive lessons each episode illustrates. All quantitative figures presented in charts are clearly captioned as illustrative composites intended to support conceptual understanding, not as primary empirical findings.

2. Literature Review and Theoretical Foundations

2.1 Dual-Process Theory

Kahneman's (2011) synthesis of dual-process research distinguishes **System 1**- fast, automatic, intuitive, and emotional- from **System 2**- slow, effortful, and analytical. Under conditions of stress, time pressure, and high emotional arousal, System 1 dominates. Conflict information environments are engineered, sometimes deliberately, to keep consumers in System 1: shocking imagery, urgent framing, and rapid content turnover all discourage the reflective pause that System 2 requires. Pennycook and Rand (2019) show that susceptibility to false headlines is better explained by *lack of analytical reasoning* than by partisan motivation alone- a finding with direct implications for conflict settings, where analytical resources are scarcest precisely when they are most needed.

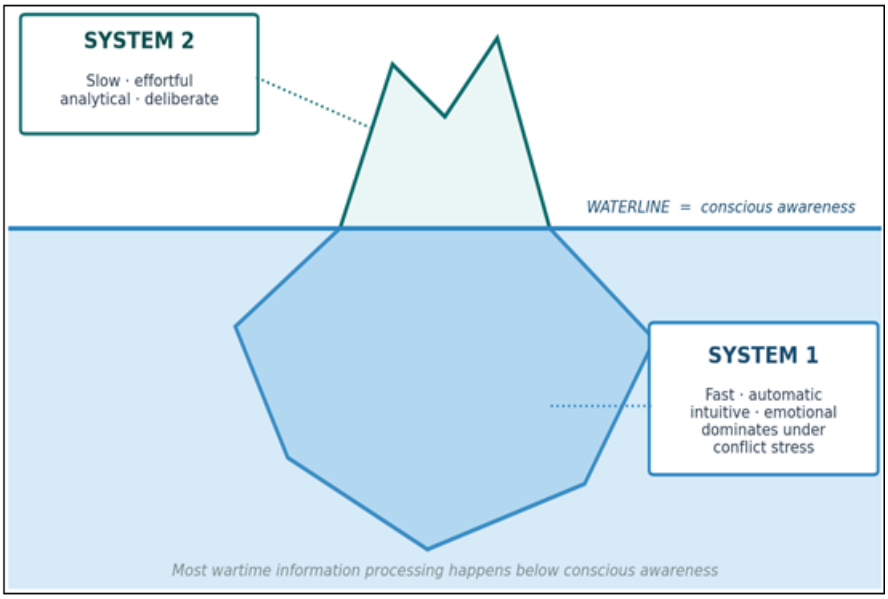

Figure 2: The iceberg model of wartime information processing: deliberate System 2 evaluation is only the visible tip; most processing occurs automatically below the waterline of conscious awareness

2.2 Cognitive Load Theory

Sweller's (1988) cognitive load theory holds that working memory is severely limited, and that performance degrades when the volume and complexity of incoming information exceed processing capacity. During conflict surges, feeds deliver hundreds of claims, counter-claims, images, and corrections per day. Under such overload, individuals default to heuristics- source familiarity, emotional resonance, repetition- rather than evidence evaluation, creating systematic openings for manipulation.

2.3 Motivated Reasoning and Identity

Kunda (1990) demonstrated that reasoning is frequently directional: people work harder to discredit identity-threatening information than identity-confirming information. In conflicts, national, religious, or ethnic identities are maximally salient, so motivated reasoning intensifies. Nickerson's (1998) review of confirmation bias shows how selective exposure, selective interpretation, and selective memory jointly insulate existing beliefs- a dynamic that hardens rapidly once a conflict narrative takes hold.

2.4 The Information-Disorder Framework

Wardle and Derakhshan (2017) distinguish three categories of problematic content according to two dimensions- falseness and intent to harm. **Misinformation** is false but shared without harmful intent; **disinformation** is false and deliberately deceptive; **malinformation** is genuine information weaponised to cause harm. Conflicts generate all three simultaneously, and the appropriate cognitive and institutional responses differ for each.

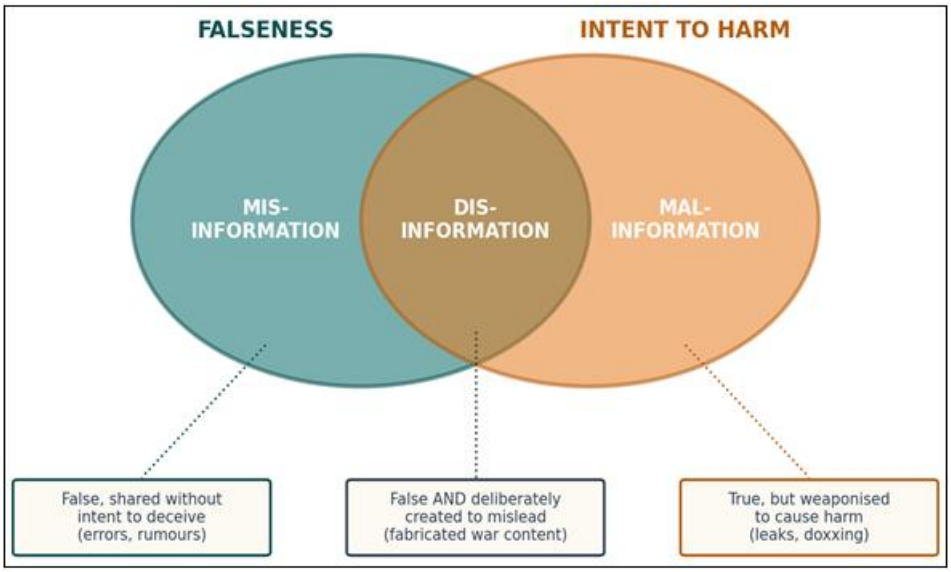

Figure 3: The information-disorder Venn: falseness and intent to harm jointly define mis-, dis- and malinformation (adapted from Wardle & Derakhshan, 2017).

2.5 Diffusion Dynamics of False Content

Vosoughi, Roy and Aral (2018), analysing approximately 126,000 rumour cascades on Twitter, found that false news diffused significantly farther, faster, deeper and more broadly than true news, with novelty and emotional arousal (fear, disgust, surprise) as key drivers- and that humans, not bots, were principally responsible. Conflict content is maximally novel and arousing, which explains the characteristic "surge" of unverified material in the first days of any major escalation, followed by a lagging correction curve.

2.6 From Broadcast to Participatory War Coverage

Table 1 contrasts the broadcast-era and digital-era conflict information environments across the dimensions most relevant to cognition.

Table 1: Broadcast-era versus digital-era conflict information environments

Dimension	Broadcast era	Digital era
Speed	Hours to days; editorial cycle	Seconds to minutes; real time
Gatekeeping	Professional editors verify before publication	Verification, if any, occurs after publication
Volume	Limited bulletins and columns	Effectively unlimited, continuous stream
Source diversity	Few, identifiable outlets	Millions of accounts of unknown provenance
Emotional framing	Moderated by editorial norms	Optimised for engagement; arousal rewarded
Feedback	One-way transmission	Consumers also amplify, remix and produce
Manipulation surface	Limited to a few channels	Vast; micro-targeted and automated

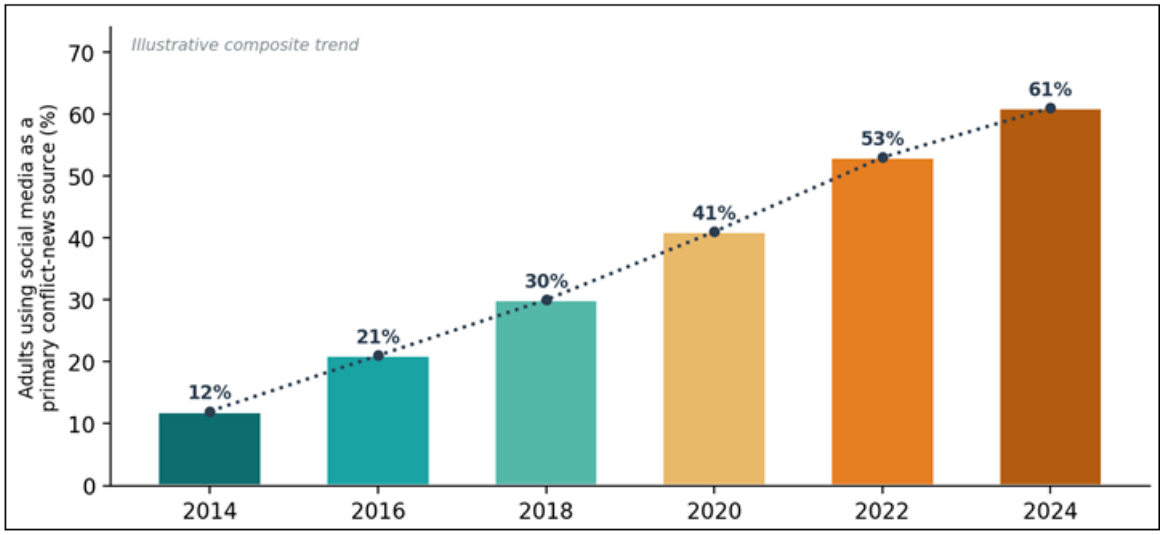

Figure 4: Illustrative composite trend: the growing share of adults relying on social media as a primary source of conflict news, 2014–2024

3. Illustrative Case Studies

The following episodes are examined strictly for the cognitive lessons they illustrate; no political judgement is intended or implied.

3.1 Ukraine, 2014: The Prototype Hybrid Information Conflict

The 2014 Crimea and Donbas crisis is widely treated as the first conflict in which coordinated social media operations played a central role alongside conventional means. Competing versions of identical events circulated within hours, and audiences sorted themselves by prior allegiance rather than by evidence quality. **Cognitive lesson:** under identity-salient conditions, source trust substitutes almost entirely for content evaluation.

3.2 Ukraine, 2022: Volume, Velocity and Verification

The 2022 escalation generated an unprecedented volume of authentic frontline footage *and* of miscaptioned or recycled material, including video-game clips presented as combat footage. Open-source verification communities emerged as a partial corrective, but corrections consistently lagged the original false material. **Cognitive lesson:** the availability heuristic means the first vivid version encountered anchors subsequent belief, even after correction (the continued-influence effect described by Lewandowsky et al., 2012).

3.3 Israel–Hamas, 2023: Emotional Saturation

The October 2023 escalation saturated global feeds with graphic and emotionally overwhelming content, much of it authentic, some fabricated, and a substantial share genuine-but-miscontextualised. Under extreme emotional arousal, users on all sides shared material consistent with their moral outrage before verification was possible. **Cognitive lesson:** emotional contagion accelerates sharing precisely when System 2 evaluation is least available.

3.4 India–Pakistan Tensions: Recycled-Footage Surges

Periods of India–Pakistan tension have repeatedly produced surges of recycled footage- old videos from unrelated events or other regions recirculated as breaking news, frequently via messaging applications where forwarding is frictionless and provenance is invisible. Fact-checking organisations documented large spikes in such content during each escalation.

Cognitive lesson: closed messaging environments remove the contextual cues (comments, community notes, source pages) that open platforms provide, so repetition alone- the illusory-truth effect- drives perceived credibility.

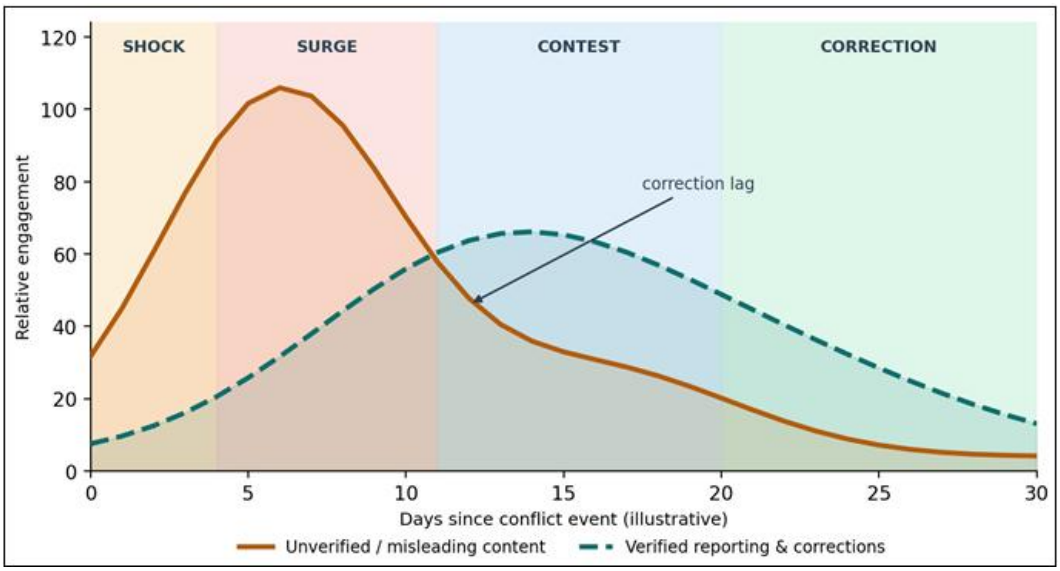

Figure 5: Illustrative phase model of a conflict information cycle: unverified content surges in the shock and surge phases, while verified reporting and corrections rise only later — the correction lag.

4. Cognitive Vulnerabilities in Conflict Settings

Six biases recur across the case material. Table 2 summarises each with a wartime manifestation, and Figure 6 depicts their illustrative intensification from routine periods to active conflict.

Table 2: Key cognitive biases and their wartime manifestations.

Bias	Mechanism	Wartime manifestation
Confirmation bias	Preference for belief-consistent evidence	Accepting unverified claims that fit one's side's narrative
Negativity bias	Threat content receives priority attention	Doomscrolling; overweighting atrocity claims
In-group favouritism	Trust allocated by group membership	"Our sources are reliable; theirs are propaganda"
Availability heuristic	Vivid, recent examples dominate judgement	First viral video anchors the perceived story
Illusory-truth effect	Repetition increases perceived accuracy	Recycled footage gains credibility with each forward
Emotional contagion	Emotions spread through networks	Outrage-driven sharing before verification

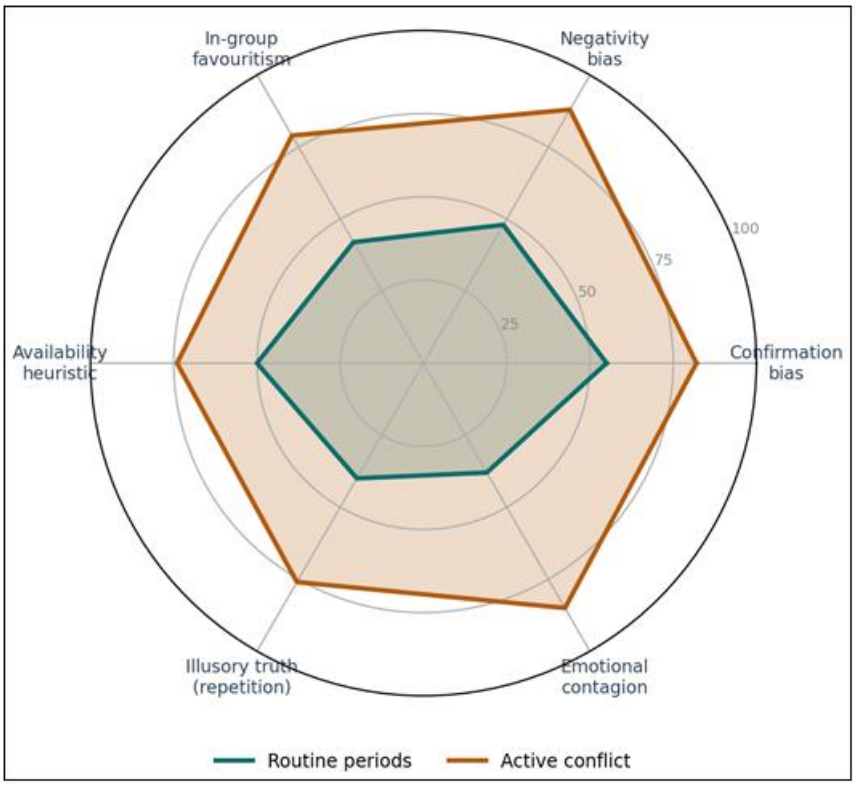

Figure 6: Illustrative radar profile of bias intensity in routine periods versus active conflict.

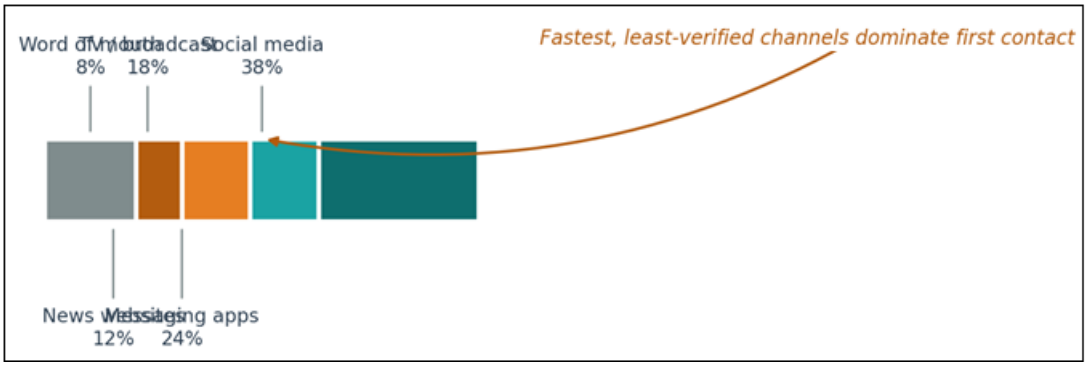

Figure 7: Illustrative distribution of first-contact channels for conflict news; the fastest, least-verified channels dominate

5. Research Objectives, Questions and Hypotheses

5.1 Research Objectives

RO1. To synthesise existing research on cognitive processing of digital information in conflict settings through a systematic literature review.
RO2. To identify the content features (emotional framing, imagery, source cues, repetition) that distinguish viral false conflict content from verified reporting.
RO3. To measure the prevalence of key cognitive biases and verification habits among digital news consumers.
RO4. To test experimentally whether brief accuracy prompts improve discernment of true versus false conflict content under emotional-arousal conditions.
RO5. To develop an integrated cognitive model of wartime information processing and derive intervention recommendations.

5.2 Research Questions

RQ1. How do individuals cognitively process conflict-related digital information under conditions of emotional arousal and information overload?
RQ2. Which content features most strongly predict engagement with false conflict content?
RQ3. How do prior identity commitments moderate the evaluation of conflict claims?
RQ4. Does a simple accuracy prompt improve truth discernment for conflict content, and does its effect survive high emotional arousal?
RQ5. What role does channel type (open platform versus closed messaging) play in verification behaviour?

5.3 Hypotheses

H1. Emotionally arousing conflict content will be shared more, and verified less, than emotionally neutral content of equal informational value.
H2. Identity-consistent false claims will be rated more credible than identity-inconsistent true claims.

H3. Accuracy prompts will significantly improve discernment, but the effect size will shrink under induced emotional arousal.
H4. Content encountered via closed messaging channels will be verified less often than identical content encountered via open platforms.

6. Conceptual Framework

The framework (Figure 8) models the passage of conflict information from the ecosystem to individual belief as a narrowing funnel: the ecosystem supplies effectively unlimited content; exposure is filtered by algorithms and networks; attention is captured by emotional salience; processing follows the fast or slow route; and belief formation yields one of three behavioural outcomes- sharing, disengagement, or verification. Three moderators- prior beliefs, digital literacy, and emotional state- act at successive stages, and shared content re-enters the ecosystem, closing the feedback loop that drives cascades.

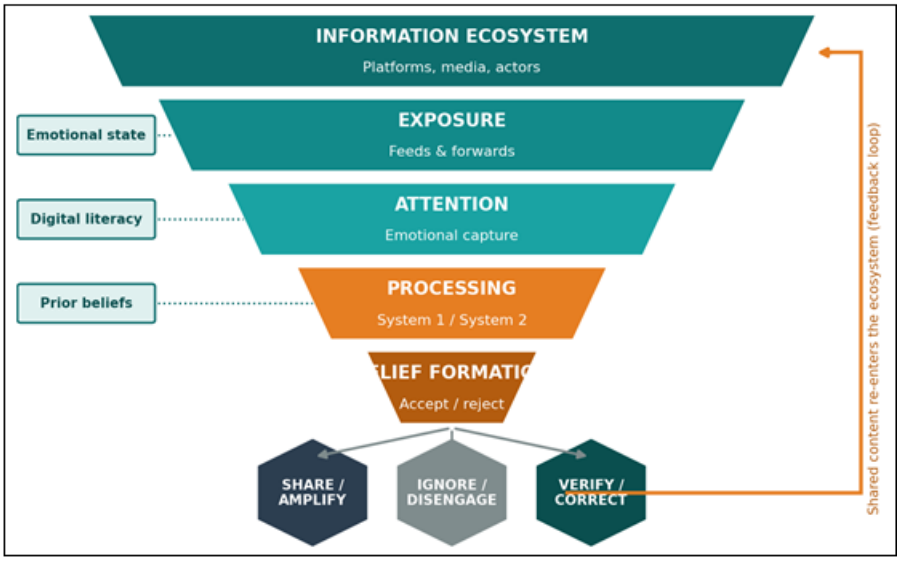

Figure 8: Conceptual framework: the wartime information funnel with moderators and feedback loop

7. Methodology

7.1 Research Design

A five-phase, sequential mixed-methods design is proposed (Figure 9). Quantitative phases establish prevalence and causal effects; qualitative phases supply interpretive depth.

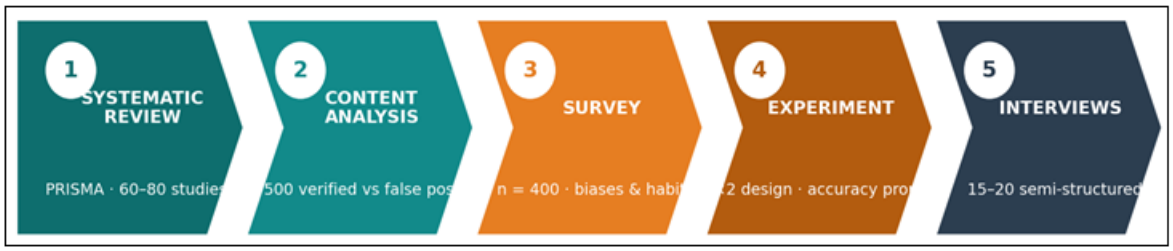

Figure 9: Five-phase methodology roadmap.

7.2 Phase Details

Phase 1- Systematic review. A PRISMA-guided review of peer-reviewed studies (2010–present) on misinformation cognition in conflict or crisis settings, targeting 60–80 included studies across psychology, communication and computer-science venues.

Phase 2- Content analysis. Comparative coding of approximately 500 conflict-related posts (250 independently fact-checked as false; 250 verified) on emotional framing, imagery, source cues, and engagement metrics.

Phase 3- Survey. A structured questionnaire (target n = 400, stratified by age band) measuring news habits, channel use, verification behaviour, and bias-proxy scales.

Phase 4- Experiment. A 2×2 between-subjects design (accuracy prompt: present/absent × arousal induction: high/neutral) with a headline-discernment task using retired, fact-checked conflict claims.

Phase 5- Interviews. Fifteen to twenty semi-structured interviews sampled from survey respondents, thematically analysed to interpret quantitative patterns.

7.3 Instruments

Table 3: Instruments by phase.

Phase	Instrument	Output
Review	PRISMA protocol; coding sheet	Evidence synthesis tables
Content analysis	Codebook (framing, imagery, source, engagement)	Feature-comparison dataset
Survey	Questionnaire; bias-proxy scales; habit inventory	Prevalence estimates
Experiment	Headline set; prompt script; arousal induction; manipulation checks	Discernment scores by condition
Interviews	Semi-structured guide; thematic codebook	Interpretive themes

7.4 Measurement Indicators

Table 4: Key constructs and measurement indicators.

Construct	Indicator
Truth discernment	Difference between accuracy ratings of true and false items
Sharing intention	Likelihood ratings for resharing each item
Verification behaviour	Self-reported and task-based checking (reverse search, source lookup)
Emotional arousal	Self-assessment manikin ratings; manipulation checks
Identity salience	Group-identification scale administered pre-task
Digital literacy	Performance-based new-media literacy items

7.5 Ethical Considerations

The study will use only retired, publicly fact-checked claims; graphic imagery will be excluded; participation will require informed consent with debriefing that corrects all false items; and data will be anonymised. Institutional ethics approval will be obtained before Phases 3–5.

8. Interventions and Expected Contributions

8.1 Intervention Landscape

The literature suggests a clear ordering of intervention effectiveness (Figure 10): **prebunking** or inoculation-exposing people to weakened forms of manipulation techniques before they encounter them (Roozenbeek & van der Linden, 2019)- outperforms post-hoc debunking, which struggles against the continued-influence effect (Lewandowsky et al., 2012). Lightweight **accuracy prompts** (Pennycook et al., 2021) shift attention back to truthfulness at negligible cost, while **friction** on resharing and **fact-check labels** operate at the platform level.

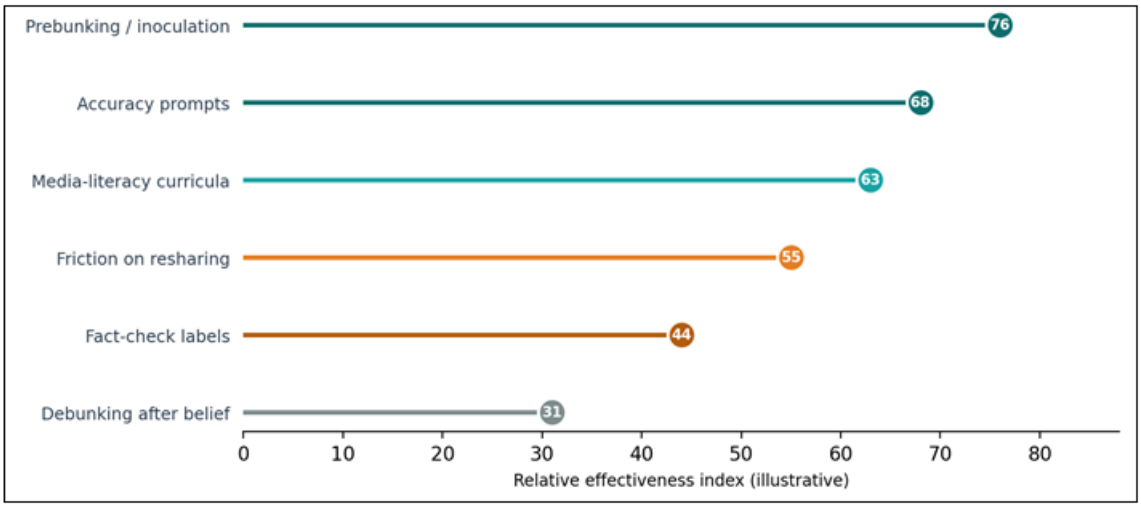

Figure 10. Illustrative effectiveness ordering of counter-misinformation interventions

8.2 Expected Contributions

The study is expected to contribute: (i) an integrated cognitive model of wartime information processing linking ecosystem features to individual outcomes; (ii) empirical estimates of bias prevalence and channel effects in an Indian adolescent-and-adult sample; (iii) experimental evidence on whether accuracy prompts survive emotional arousal; and (iv) concrete design recommendations for school media-literacy curricula and platform safeguards.

9. Chapter Plan and Timeline

Table 5: Proposed chapter plan.

Chapter	Contents
Chapter 1	Introduction, problem statement, significance, scope
Chapter 2	Literature review and theoretical foundations
Chapter 3	Case analyses and cognitive-vulnerability synthesis
Chapter 4	Methodology: design, instruments, ethics
Chapter 5	Results: content analysis, survey, experiment
Chapter 6	Qualitative findings and integrated model
Chapter 7	Discussion, interventions, limitations, future work

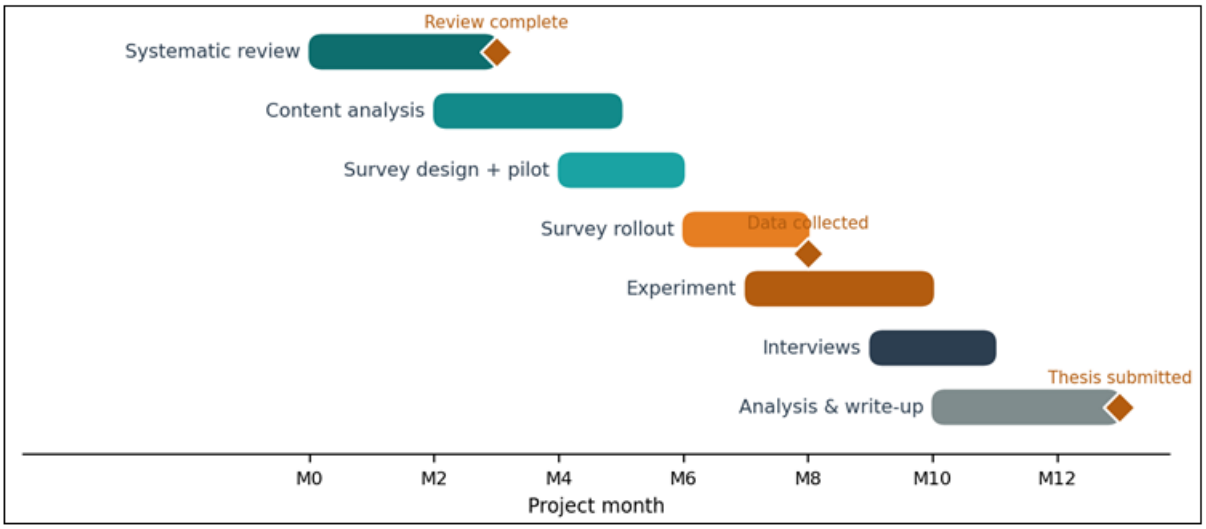

Figure 11: Thirteen-month execution timeline with milestones.

10. Challenges, Limitations and Future Scope

10.1 Challenges and Limitations

Conflict content evolves faster than research cycles; ecological validity is limited because laboratory arousal cannot ethically approximate genuine wartime fear; self-report measures of verification are subject to social desirability; and retired claims may already be familiar to some participants, attenuating discernment measures. Findings from one national context may not generalise across media systems.

10.2 Future Scope

Future work could extend the model to: (i) generative-AI–synthesised conflict media, where fabrication costs approach zero; (ii) longitudinal designs tracking belief revision after corrections; (iii) cross-national comparisons of correction lag; and (iv) classroom trials of prebunking curricula co-designed with schools, for which the present institution offers a natural test bed.

11. Conclusion

Modern conflicts are processed twice: once on the ground, and once inside the cognitive architecture of every connected citizen. That architecture- fast by default, overloaded by design of the environment, and steered by identity- is systematically exploited during escalations, producing the characteristic surge of unverified content and the lagging curve of correction. The framework and research design proposed here treat this not as a moral failing of users but as a predictable interaction between human cognition and an engineered information environment. The practical implication is equally clear: interventions succeed when they reach people *before* the surge- through inoculation, literacy, and small moments of reflective friction- rather than after beliefs have hardened. Equipping young citizens with this self-knowledge is among the most durable defences a society can build.

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