PUBLISHED BY
ASIA-PACIFIC SOCIAL INNOVATION RESEARCH INSTITUTE
Journal of Advances in Social Sciences
ISSN 3105-899X
eISSN 3105-9007

Vol. 2 No. 3 (2026)

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Journal of Advances in Social Sciences

ISSN 3105-899X

Journal of Advances in Social Sciences

Official Publication of the Asia-Pacific Social Innovation Research Institute

Editorial Office: jass@apsiri.com
Office of International Collaboration : oic@apsiri.com
Journal Secretariat: sec.jass@apsiri.com

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Published by:
Asia-Pacific Social Innovation Research Institute (APSIRI)

Table of Contents

APSIRI

Journal of Advances in Social Sciences

2026, Volume 2, Issue 3 | ISSN 3105-899X | eISSN 3105-9007

Struggle as Field: Internal Power, Legitimacy Capture, and the Politics of Collective Action

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Received
2026-5-19
Accepted
2026-6-18
Published
2026-6-28

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DOI: https://doi.org/10.65192/2pq0q106

Abstract

Political struggles are commonly analysed as unified projects of collective action oriented towards external adversaries. This assumption obscures a central political fact: struggles themselves operate as fields of power. This article advances Internal Contestation Theory to explain how collective struggles generate internal hierarchies, exclusions, and authority long before any external victory or institutional transition occurs. Rather than treating internal conflict as fragmentation or organisational failure, the theory conceptualises struggle as a political field in which actors compete to capture legitimacy, control resources, regulate voice, and pre-authorise future authority. I argue that internal contestation unfolds through a sequenced process of legitimacy capture, gatekeeping, voice regulation, resource conversion, and anticipatory rule consolidation. These mechanisms transform collective action into structured hierarchies that shape representation, decision-making, and political outcomes both during and after periods of mobilisation. The article adopts a conceptual theory-building methodology, synthesising insights from political sociology, contentious politics, institutionalism, and legitimacy theory to develop a generalisable analytical framework that relies on no case-specific evidence. The contribution is threefold. First, it reconceptualises struggle as a field of internal power rather than moral unity. Second, it offers a portable model for analysing legitimacy capture within collective action. Third, it reframes debates on representation and democratic futures by demonstrating how internal power dynamics prefigure post-struggle governance.

Keywords
Collective action; Internal contestation; Legitimacy capture; Political fields; Power and authority; Representation

1. Introduction

Political struggles are routinely narrated as moments of unity. Across political science and adjacent fields, collective struggles are commonly analysed as coherent projects of collective action oriented towards an external adversary, whether the state, a regime, or an established order. In this framing, unity is assumed rather than interrogated, and internal disagreement is typically treated as temporary, pathological, or analytically secondary. However, this way of understanding struggle obscures a central political fact: struggles themselves operate as fields of power. They do not merely confront power; they generate it internally.

Within the study of collective action and contentious politics, analytical attention has historically prioritised mobilisation, framing, opportunity structures, and outcomes (McAdam, Tarrow, & Tilly, 2001; Tarrow, 2011). Internal dynamics are acknowledged, but often only at the margins, where they appear as coordination problems, leadership disputes, or organisational breakdowns. Even when internal divisions are recognised, they are rarely treated as structured political processes. Instead, they are framed as noise that distracts from the principal antagonism or as failures that undermine collective efficacy. This tendency has encouraged political science to model struggles as unified actors, despite empirical observations across contexts repeatedly suggesting otherwise.

This gap generates a fundamental puzzle. If struggles are genuinely collective projects defined by shared purpose, why do they so consistently produce internal hierarchies, exclusions, and asymmetries of authority? Why do some actors acquire the capacity to speak for “the struggle” while others are marginalised, disciplined, or rendered peripheral? Moreover, why do these internal power relations often persist beyond moments of mobilisation, shaping representation and authority long after struggles formally succeed or dissolve? Existing theoretical approaches offer partial insights but stop short of treating internal power as a constitutive feature of struggle itself.

One reason for this omission lies in the normative status often afforded to struggles. Particularly where struggles are associated with justice, emancipation, or resistance, they are frequently approached as moral projects rather than political fields. Internal contestation is therefore interpreted either as deviation from an assumed unity or as evidence of organisational dysfunction. While understandable, this orientation limits analytical reach. By positioning internal politics as failure rather than structure, it discourages systematic inquiry into how power is organised, accumulated, and exercised within collective projects.

This article advances a different approach. It argues that collective struggles should be analysed as political fields, structured by competition over scarce and consequential political goods. Drawing on political sociology, institutionalism, and legitimacy theory, the article develops Internal Contestation Theory (ICT) to explain how struggles generate internal power and exclusion through patterned mechanisms of authority formation. The analysis remains deliberately conceptual, advancing a general theoretical framework rather than empirical claims about any specific movement, context, or political organisation. The purpose is to clarify how power operates within struggle as a general political phenomenon, not to evaluate or diagnose particular cases.

The central research question guiding this analysis is therefore straightforward but underexplored: How do collective struggles generate internal power and exclusion? Addressing this question requires shifting analytical attention away from outcomes alone and towards the internal processes through which authority is constituted during struggle. It also requires moving beyond descriptive accounts of factionalism or leadership conflict to develop a generalisable framework capable of explaining why internal hierarchies emerge across diverse forms of collective action. The purpose is explanatory rather than diagnostic, and the argument should not be read as an assessment of, or commentary on, any identifiable political struggle.

Internal Contestation Theory provides such a framework. It conceptualises struggle as a field structured by competition over four scarce political goods: legitimacy, resources, voice, and future authority. ICT argues that internal contestation unfolds through a sequenced process in which actors accumulate symbolic centrality, establish gatekeeping practices, regulate representation, convert legitimacy into organisational advantage, and consolidate expectations of future rule. Through this process, collective action is transformed into a structured hierarchy, often well before any external victory or institutional transition occurs. Importantly, ICT treats internal power not as moral failure or organisational pathology, but as a normal political outcome of collective mobilisation under conditions of scarcity and uncertainty.

The contribution of this article is threefold. First, it reconceptualises struggle as a site of internal power production rather than a temporary suspension of politics. This challenges prevailing assumptions in the study of collective action that treat unity as the analytical baseline and internal contestation as secondary. Second, it offers a portable conceptual framework for analysing legitimacy capture and authority formation across diverse ideological, organisational, and regional contexts, maintaining sufficient abstraction to ensure broad applicability while preserving analytical precision. Third, the article reframes debates on representation and democratic futures by showing how internal power dynamics prefigure post-struggle governance. Authority exercised during a struggle frequently becomes authority exercised after a struggle, with enduring implications for inclusion, accountability, and political continuity.

The article proceeds as follows. The next section reviews existing theoretical approaches to collective action, factionalism, and internal conflict, and demonstrates why they fail to fully account for how internal power is produced within struggles. Section three develops Internal Contestation Theory in detail, specifying its core concepts, assumptions, and mechanisms. Section four outlines the conceptual theory-building methodology adopted in the article. Section five introduces a typology of intra-struggle power regimes, illustrating how different configurations of internal contestation generate distinct authority structures. The final section discusses the implications of the theory for political science debates on representation, legitimacy, and democratic futures, and concludes by reaffirming the importance of analysing power in struggle.

2. What Existing Theories Explain, and What They Miss

Political science has produced rich literature on collective action, mobilisation, and political contention. However, these bodies of work remain unevenly equipped to explain how power is organised and exercised within struggles themselves. Across dominant theoretical traditions, internal dynamics are typically acknowledged but analytically subordinated, treated as contingent disturbances rather than constitutive mechanisms. This section argues that existing approaches explain why collective action emerges and how it confronts external targets. However, they consistently under-theorise how authority, hierarchy, and exclusion are produced internally during struggle.

Social movement theory provides the most developed account of collective mobilisation, particularly through frameworks centred on political opportunity structures, framing processes, and repertoires of contention (McAdam, Tarrow, & Tilly, 2001; Tarrow, 2011). Recent work has refined these approaches by incorporating culture, emotion, and identity, offering a more nuanced understanding of mobilisation dynamics (Jasper, 2018; Polletta & Jasper, 2021). However, even in these updated formulations, internal power relations are rarely treated as a central object of analysis. Leadership, coordination, and organisational structure are often discussed instrumentally, as means to mobilise resources or sustain participation, rather than as arenas in which authority is contested and consolidated. As a result, internal hierarchies tend to appear either as functional necessities or as deviations from an assumed collective unity. The implicit analytical move is to treat struggles as actors with internal coherence, rather than as fields structured by competition over voice, legitimacy, and representation.

Where social movement scholarship does engage internal conflict, it frequently does so through the language of factionalism or elite rivalry. These accounts, which have gained renewed attention in recent years, emphasise leadership disputes, strategic disagreements, and organisational splits as drivers of movement decline or failure (Higley & Burton, 2006; Kalyvas, 2006). While such work usefully highlights the role of agency and contingency, it remains primarily descriptive. Factionalism is framed as episodic and context-specific, often explained retrospectively once mobilisation falters. What is missing is a general theory of why internal contestation emerges so predictably across collective struggles, and how it becomes stabilised into enduring hierarchies rather than remaining fluid disagreement. By treating internal conflict as a breakdown, factionalism obscures the possibility that internal rivalry may be a systematic mechanism for producing authority during struggle.

Principal–agent and collective action theories offer a different lens, focusing on coordination problems, free-riding, and delegation within groups. Recent contributions in this tradition continue to emphasise monitoring, incentives, and information asymmetries as central challenges of collective action (Bendor, Diermeier, Siegel, & Ting, 2011; Gehlbach, Sonin, & Svolik, 2016). These approaches are analytically powerful for explaining why collective projects require leadership and organisational structure. However, they tend to conceptualise authority as a functional solution to coordination problems rather than as a contested political outcome. Internal hierarchy appears as an efficiency-enhancing response to collective dilemmas, not as a process shaped by competition over legitimacy, representation, and future authority. Therefore, principal–agent models struggle to explain why some actors acquire disproportionate voice and symbolic centrality even when such concentration undermines collective efficiency or participation. While the preceding approaches explain mobilisation and coordination, institutionalist scholarship comes closer to the problem by examining how authority hardens over time.

Institutionalist approaches, particularly those attentive to path dependence and rule formation, deepen this insight by recognising that early organisational choices can harden into durable structures (Mahoney & Thelen, 2015; Capoccia & Kelemen, 2007). Recent institutionalist scholarship has extended this insight to informal institutions and organisational norms, showing how practices established under conditions of uncertainty can persist long after their original rationale fades (Helmke & Levitsky, 2006). However, even here, the analytical focus tends to fall on how institutions constrain actors after consolidation, rather than on how authority is pre-authorised within struggles before formal institutions emerge. Institutionalism explains stability well, but it often treats the origins of authority as exogenous or accidental, leaving unexplored the internal political processes through which certain actors come to define rules, boundaries, and representation during mobilisation.

Across these literatures, a standard limitation emerges. Internal contestation is consistently framed as a problem to be managed, a deviation from unity, or a symptom of organisational weakness. Opposition, dissent, or rivalry within struggles is interpreted as noise that interrupts collective action rather than as a mechanism that constitutes it. This framing has important analytical consequences. By treating internal politics as a breakdown, existing theories overlook how struggles actively produce hierarchies through competition over legitimacy, resources, and voice. They also obscure how authority exercised during struggle can prefigure authority exercised after struggle, shaping representation and governance beyond moments of mobilisation.

The gap this article addresses lies precisely here. What is missing is a generalisable theory that treats internal contestation not as failure, but as a standard and politically productive process. Internal Contestation Theory builds on, but departs from, existing approaches by conceptualising struggle as a political field structured by competition over scarce political goods. In doing so, it shifts the analytical focus from whether struggles remain unified to how internal authority is generated, stabilised, and normalised. This move allows political science to treat internal opposition, hierarchy, and exclusion not as anomalies to be explained away, but as mechanisms through which collective struggles produce durable political outcomes.

3. Internal Contestation Theory: Concepts, Assumptions, and Mechanisms

Internal Contestation Theory (ICT) advances a conceptual reorientation in the analysis of collective struggles. Rather than treating struggle as a temporarily unified actor confronting an external adversary, ICT conceptualises it as a political field in which power is produced, accumulated, and stabilised through internal competition. This move builds on field-analytic approaches in political sociology, which emphasise relationality, positional struggle, and the distribution of power within bounded arenas (Fligstein & McAdam, 2012; Emirbayer & Johnson, 2008). Applied to collective struggle, the field perspective foregrounds the internal organisation of authority, legitimacy, and voice, shifting attention away from unity as an assumption and towards power as an endogenous outcome. To clarify the core concepts and mechanisms advanced in this article, Box 1 summarises Internal Contestation Theory and its central analytical claims.

Box 1. Internal Contestation Theory (ICT)

Internal Contestation Theory conceptualises collective struggle as a political field in which power is produced internally rather than merely directed outward. It argues that actors within a struggle compete over four scarce political goods: legitimacy, resources, voice, and future authority. Through a sequenced process of legitimacy accumulation, boundary control, voice regulation, resource conversion, and anticipatory rule-making, internal hierarchies are stabilised. Rather than treating internal conflict as a breakdown or failure, ICT reframes internal contestation as a standard mechanism through which authority, representation, and exclusion are generated within collective action.

Internal Contestation Theory shares important intellectual affinities with field-theoretic approaches in political sociology, particularly in its understanding of struggle as a relational arena structured by positional competition. Field theory usefully explains how actors occupy unequal positions within bounded social spaces and compete over forms of capital, recognition, and influence. However, while field theory captures positional struggle effectively, it does not specify the internal political process through which legitimacy is converted into authority within collective struggle. In particular, it offers a limited explanation of how some actors acquire the recognised capacity to speak for the struggle while others become marginalised. Strategic Action Field Theory, developed by Fligstein and McAdam (2012), advances this discussion by explaining how fields achieve stability through strategic interaction, incumbency, and social skill. It clarifies how actors maintain order and negotiate power within fields. However, it does not identify legitimacy capture as a sequenced mechanism through which internal hierarchy is progressively stabilised during collective mobilisation. As a result, the transition from symbolic recognition to durable authority remains under-specified.

Similarly, Robert Michels's (1962) theory of oligarchy provides a powerful account of why organisations tend towards concentrated leadership. However, Michels primarily explains oligarchic outcomes rather than the earlier political processes through which authority emerges before oligarchy becomes visible. His framework tells us why hierarchy persists, but less about how hierarchy is initially produced within fluid and contested struggles. ICT contributes precisely to this analytical gap. It offers a mechanism-based explanation linking legitimacy accumulation, gatekeeping, voice regulation, resource conversion, and anticipatory authority. Rather than simply showing that hierarchy emerges, ICT explains the political sequence through which hierarchy is produced, stabilised, and normalised inside collective struggle. ICT, therefore, shifts attention from the existence of hierarchy to the political mechanisms through which hierarchy is produced within collective struggle. Having clarified ICT's theoretical distinctiveness, the next step is to specify the assumptions and mechanisms through which internal contestation generates authority.

The "struggle-as-field" move rests on a simple but consequential premise: collective mobilisation does not suspend politics. Instead, it intensifies it. Struggles assemble heterogeneous actors under conditions of urgency, scarcity, and uncertainty, creating incentives for competition over symbolic centrality, organisational control, and future authority. ICT therefore rejects the notion that internal hierarchy is merely an accidental by-product of mobilisation or a sign of organisational failure. It treats internal contestation as a normal political process through which struggles generate order, exclusion, and authority.

At the core of ICT is the claim that internal power within struggle is structured by competition over four scarce political goods: legitimacy, resources, voice, and future authority. These goods are analytically distinct but empirically interdependent. Legitimacy refers to recognised moral or symbolic authority to represent the struggle, define its meaning, and speak in its name. Unlike formal leadership positions, legitimacy operates relationally and is often grounded in narratives of authenticity, sacrifice, or proximity to foundational moments (Haack, Schilke & Zucker, 2021). Resources encompass material, organisational, and informational assets that enable sustained mobilisation, coordination, and survival over time. Control over resources not only facilitates action but also produces dependence, reinforcing asymmetries within the struggle. Voice denotes the capacity to articulate positions, set agendas, and delimit acceptable discourse. It is exercised through both formal representation and informal practices of inclusion, silencing, and discipline.

Future authority refers to anticipatory claims about who is entitled to govern, decide, or lead once mobilisation yields institutional outcomes. This temporal dimension is critical because struggles are often oriented not only towards present resistance but also towards imagined futures of rule, recognition, or governance. Table 1 abstracts the key manifestations of legitimacy accumulation within collective struggle, illustrating how symbolic authority is progressively stabilised into internal political order.

Table 1. Manifestations of legitimacy accumulation in collective struggle

Phase of legitimacy accumulation	Core logic	Typical manifestations (conceptual)	Political effect
Symbolic centrality formation	Actors establish proximity to the meaning of the struggle	Claims to moral authority, historical primacy, sacrifice, or authenticity	Differentiates central from peripheral actors
Boundary recognition	Legitimacy enables control over inclusion	Defining who belongs, who may speak, and which practices are admissible	Narrows the field of legitimate participation

Representational consolidation	Legitimate actors claim to speak for the struggle	Appointment of spokespersons, agenda-setting authority, and discursive dominance	Aligns voice with recognised authority
Organisational anchoring	Symbolic legitimacy is converted into structure.	Control over coordination mechanisms, procedural authority, or internal rules	Stabilises authority beyond momentary recognition
Anticipatory authorisation	Present legitimacy projects future entitlement.	Naturalisation of leadership claims, expectations of future decision rights	Pre-figures post-struggle authority

ICT argues that internal contestation unfolds through a sequenced process in which these goods are accumulated and converted into a durable hierarchy. The first moment in this sequence is legitimacy accumulation, where actors seek to establish symbolic centrality within the struggle. This involves claims to authenticity, historical primacy, moral authority, or representational entitlement. Recent scholarship on political legitimacy underscores that such claims are performative and relational, requiring recognition by relevant audiences rather than formal validation (Chenoweth, 2020; Gerschewski, 2013). Within struggle, legitimacy accumulation differentiates central actors from peripheral ones, laying the groundwork for subsequent asymmetries. The second moment involves gatekeeping and boundary control. As legitimacy becomes unevenly distributed, actors with recognised authority acquire the capacity to define who belongs, whose claims are admissible, and which practices are acceptable. Boundary work has been widely theorised in organisational and political sociology as a mechanism of inclusion and exclusion (Lamont & Molnár, 2002). However, ICT highlights its specific role within the struggle as a means of stabilising internal power. Gatekeeping transforms symbolic authority into practical control over participation and recognition.

The third moment is voice regulation. Here, internal authority is exercised through the management of representation, agenda-setting, and discourse. Actors occupying dominant positions regulate who speaks for the struggle, how dissent is framed, and which narratives are amplified or marginalised. Contemporary work on representation emphasises that voice is not merely expressive but constitutive of political reality, shaping whose interests are recognised and whose are rendered invisible (Saward, 2010; Disch, 2021). Within struggle, voice regulation consolidates hierarchy by aligning representation with dominant legitimacy claims. The fourth moment entails resource conversion. Legitimacy and voice are translated into preferential access to material, organisational, and informational resources. This conversion deepens asymmetry by enabling dominant actors to institutionalise their position through organisational infrastructure, staffing, and control over communication channels. Resource conversion also produces dependency, as peripheral actors become reliant on central nodes for access and survival. Recent institutionalist scholarship highlights how such asymmetries, once established, tend to reproduce themselves through feedback effects (Mahoney & Thelen, 2015; Capoccia, 2016).

The final moment is the pre-authorisation of the rule. Internal hierarchies formed during struggle become normalised expectations about future authority. Certain actors are widely regarded as the natural leaders, representatives, or decision-makers in post-mobilisation contexts, even in the absence of formal selection. This anticipatory consolidation of authority is central to ICT, as it explains how power exercised during struggle often carries forward into subsequent institutional arrangements. Authority is not merely claimed after victory; it is rehearsed and legitimised in advance.

ICT differs in important respects from existing approaches to internal dynamics. Unlike factionalism theories, it does not treat internal rivalry as episodic conflict driven by personality or contingency. Instead, it conceptualises contestation as structured competition over identifiable political goods. Unlike accounts of movement fragmentation, which focus on breakdown and decline, ICT explains how internal hierarchy can coexist with, and even facilitate, sustained mobilisation. In contrast to elite split models, which typically assume pre-existing elites competing within established institutions, ICT theorises elite formation itself as an outcome of struggle. Finally, ICT should not be conflated with theories of authoritarian drift. It does not assume coercion, repression, or intentional domination. Internal hierarchy may emerge through consensual recognition, routinised practices, and symbolic authority, without overt force.

The explanatory power of ICT is subject to clear scope conditions. The theory is strongest in contexts characterised by high symbolic stakes, prolonged mobilisation, and uncertainty about future institutional outcomes. Under such conditions, competition over legitimacy and future authority intensifies, and early asymmetries are more likely to harden into durable hierarchies. ICT is weaker in settings where mobilisation is short-lived, authority is externally imposed, or institutional frameworks strictly regulate internal decision-making. It is also less applicable where collective action is highly decentralised and deliberately resists representation, though even in such cases, informal hierarchies may still emerge. ICT does not claim to explain all forms of internal conflict, nor does it deny the possibility of egalitarian or pluralist struggle. Its contribution lies in identifying a general mechanism through which internal power is produced, not in asserting that hierarchy is inevitable or normatively desirable. The theory also does not specify the normative consequences of internal hierarchy, which may vary across contexts and values. Instead, it provides an analytical framework for understanding how struggles generate authority and exclusion as political outcomes.

By conceptualising struggle as a field of internal contestation, ICT offers a systematic account of how power operates inside collective action. It complements existing theories by shifting the analytical focus from unity and breakdown to authority and mechanism. In doing so, it provides political science with a vocabulary for analysing internal power dynamics that shape both mobilisation and its aftermath, without reliance on case-specific evidence or context-bound explanation.

4. Methodology

This article adopts a conceptual theory-building methodology grounded in qualitative analysis of extant scholarly literature. The methodological objective is to develop a generalisable analytical framework capable of explaining how internal power operates within collective struggles. Conceptual theory-building is particularly appropriate where existing literatures exhibit fragmentation, conceptual slippage, or unresolved analytical gaps, and where the aim is to synthesise insights across traditions into a coherent explanatory model (Goertz, 2020; Swedberg, 2014).

The domain of analysis is defined broadly as collective struggles, understood as organised or semi-organised projects of collective mobilisation oriented towards political, social, or institutional transformation. This definition deliberately avoids restricting the analysis to any specific ideological orientation, organisational form, or historical period. By construing struggle at a high level of abstraction, the article seeks to identify recurrent internal power dynamics across contexts without relying on case-specific evidence. The analysis, therefore, treats struggles as analytical objects rather than empirical cases, consistent with the argument's conceptual scope. The theoretical framework was developed through a systematic qualitative engagement with extant literature across political science, political sociology, and related fields. Literature was identified using a structured search strategy across major academic databases, including Web of Science, Scopus, JSTOR, and Google Scholar. Search terms included combinations of "collective action," "social movements," "internal conflict," "legitimacy," "representation," "political authority," "institutionalisation," and "power." The initial search returned approximately 420 scholarly texts, including journal articles, monographs, and review essays published primarily between 2000 and 2024, with a preference for work from the past five years where possible.

Inclusion criteria prioritised peer-reviewed sources that engaged directly with questions of authority, legitimacy, organisation, or internal dynamics within collective political projects. Foundational theoretical works were retained, where they continue to structure contemporary debate. Exclusion criteria eliminated purely descriptive case studies, movement-specific ethnographies, activist writings, and policy-oriented reports that did not contribute to generalisable theoretical insight. Following iterative screening and thematic coding, approximately 95 texts were retained for close analytical engagement. These texts informed the development, refinement, and differentiation of the core concepts advanced in the article. Analytically, the study employs two complementary strategies. The first is conceptual synthesis, which involves integrating insights from distinct literatures into a unified theoretical framework. This strategy enables the identification of shared mechanisms that are obscured when bodies of scholarship are treated in isolation (Gerring, 2012). The second strategy is mechanism-oriented analysis at the conceptual level. Rather than tracing empirical sequences within specific cases, the article specifies ideal-typical mechanisms through which internal contestation produces hierarchy, authority, and exclusion within struggle. This approach aligns with recent work emphasising the value of mechanism-based explanation in theory development, particularly where empirical variation is high, and outcomes are contingent (Beach & Pedersen, 2019).

The typologies developed in the subsequent section follow an analytic differentiation logic, distinguishing patterns of internal power based on how legitimacy, resources, voice, and future authority are configured. Typologies are used not as classificatory endpoints but as heuristic tools that facilitate comparison and cumulative theorising. They are intended to be portable across contexts and open to empirical testing in future research. Several limitations follow from this methodological choice. The article does not offer empirical validation of the proposed theory, nor does it adjudicate between competing explanations using case evidence. Its claims to generalisability are therefore theoretical rather than statistical. This limitation is deliberate and appropriate given the theory-building objective. By clearly delimiting scope and method, the article provides a foundation for subsequent empirical work while maintaining analytical clarity and conceptual precision.

5. A Typology of Intra-Struggle Power Regimes

If struggles are understood as political fields structured by internal contestation, then variation in how power is organised within them becomes analytically central. Internal Contestation Theory, therefore, requires not only a general mechanism but also a typology capable of distinguishing recurring configurations of authority, legitimacy, and exclusion. This section develops a typology of intra-struggle power regimes, understood as relatively stable patterns through which legitimacy, resources, voice, and future authority are distributed and governed within collective struggles. The typology is not intended as a classificatory endpoint, but rather as a heuristic framework that enables comparison, diagnosis, and cumulative theorising across contexts.

The four intra-struggle power regimes are distinguished along four analytical dimensions: the concentration of legitimacy, the distribution of voice, the degree of boundary control, and the extent to which future authority is centralised. These dimensions capture how internal power is organised, exercised, and stabilised within collective struggle. Legitimacy concentration refers to whether symbolic authority is widely dispersed or concentrated among a limited set of actors. The distribution of voice concerns the extent to which participation in representation and agenda-setting remains broad or restricted. Boundary control reflects how open or tightly regulated the field of legitimate participation becomes. Future authority refers to the degree to which claims to post-struggle leadership are diffuse, contested, or already centralised. Different combinations of these dimensions generate distinct configurations of internal power. Table 2 presents a taxonomy of the dimensions generated.

Table 2. Analytical dimensions of intra-struggle power regimes

Regime	Legitimacy	Voice	Boundary Control	Future Authority
Pluralist Field	Diffuse	Broad	Open	Contested
Oligarchic Field	Concentrated	Restricted	Moderate	Centralised
Charismatic Monopoly	Highly Concentrated	Leader-Centred	Strong	Personalised
Security-Guarded Field	Conformity-Based	Controlled	Very Strong	Discipline-Based
Source: Author's conceptualisation				

The first type is the *Pluralist Field*. In this configuration, legitimacy is diffuse and contested, voice is broadly distributed, and boundaries of participation remain relatively open. Authority is provisional rather than settled, and no single actor or group can monopolise symbolic centrality. Decision-making tends to be decentralised, often relying on deliberative practices, rotating leadership, or informal consensus. Recent scholarship on horizontalism and participatory governance highlights the appeal of such arrangements, particularly in early phases of mobilisation, where inclusivity and openness are seen as sources of legitimacy (Gerbaudo, 2017; Maeckelbergh, 2022). The *Pluralist Field* produces high levels of participation and discursive diversity, but it also generates vulnerability. Because legitimacy is weakly consolidated, coordination costs are high, and the field remains susceptible to internal capture as struggles intensify or endure.

The *Pluralist Field* often transitions into other regimes under pressure from scale, duration, and external engagement. As mobilisation expands or becomes prolonged, demands for coordination, representation, and strategic coherence increase. Under such conditions, actors who can convert symbolic recognition into organisational capacity may begin to stabilise authority, setting the stage for more hierarchical configurations. The transition is rarely abrupt. It occurs through incremental practices of agenda-setting, spokesperson selection, and resource concentration that gradually narrow the field of effective participation.

The second type is the *Oligarchic Field*, characterised by the concentration of voice and resources in the hands of a limited group of actors. Legitimacy remains nominally collective, but a core leadership or organisational centre exercises practical authority. This configuration resonates with long-standing insights in political sociology regarding the tendency of organisations to generate oligarchic structures, even where egalitarian ideals prevail (Michels, 1911/1962; Leach, 2005). In the context of struggle, oligarchic consolidation often emerges as a response to coordination challenges, external negotiation, or resource dependency. Central actors justify authority on the grounds of efficiency, expertise, or strategic necessity.

The *Oligarchic Field* produces stability and strategic capacity, enabling sustained mobilisation and coherent engagement with external actors. However, it also narrows internal accountability and reduces the permeability of boundaries. Peripheral actors retain formal inclusion but experience declining influence over decision-making and representation. Over time, oligarchic consolidation may harden into a durable hierarchy, particularly where leadership positions become routinised and insulated from challenge. Transition out of this regime typically occurs either through internal contestation, where excluded actors mobilise alternative legitimacy claims, or through further concentration of authority, leading to more monopolistic configurations.

The third type is the *Charismatic Monopoly*. In this regime, legitimacy is highly concentrated around a figure or tightly bound inner circle that embodies the symbolic meaning of the struggle. Authority flows less from organisational procedures than from personal recognition, affective attachment, or claims of exceptional commitment. Contemporary work on charisma emphasises its relational and performative dimensions, highlighting how recognition by followers sustains authority even in the absence of formal structures (Joosse, 2014; Weber, 1978). Within struggle, *charismatic monopoly* simplifies representation by collapsing the distinction between the individual and the collective.

Charismatic monopoly produces strong internal cohesion and clear lines of authority, often enhancing mobilisation capacity and narrative coherence. At the same time, it generates acute dynamics of exclusion. Alternative voices are easily framed as disloyal, divisive, or illegitimate, and internal contestation becomes personalised rather than procedural. The durability of this regime is contingent on the maintenance of charismatic recognition. Transitions occur when charisma erodes, when organisational demands exceed personal capacity, or when inner-circle actors convert symbolic authority into institutional control, producing either oligarchic stabilisation or fragmentation.

The fourth type is the *Security-Guarded Field*, defined by intensive boundary policing and the prioritisation of internal discipline over pluralism. In this configuration, legitimacy is tightly coupled to conformity, and voice is regulated through explicit or implicit enforcement mechanisms. Authority is justified by reference to threats, vulnerabilities, or the need for protection, with internal dissent framed as a risk rather than as a difference. Recent scholarship on securitisation and organisational closure demonstrates how perceived threats can reconfigure internal power relations by legitimising extraordinary measures of control (Buzan, Wæver, & de Wilde, 1998; Léonard & Kaunert, 2020). Applied to struggle, this logic produces a field in which boundary maintenance becomes the primary mode of governance.

The *Security-Guarded Field* generates high levels of internal discipline and cohesion, often at the expense of deliberation and adaptability. Participation is narrowed, and legitimacy becomes conditional on adherence to prescribed norms. This regime is exceptionally durable once established, as boundary policing reproduces itself through cycles of suspicion and reinforcement. Transitions out of security-guarded configurations are rare and typically require either a reduction in perceived threat or a rupture that undermines the authority of those enforcing boundaries. In some cases, security-guarded regimes evolve into oligarchic or charismatic forms as enforcement authority becomes institutionalised or personalised.

These four regimes should not be understood as discrete or mutually exclusive categories. Instead, they represent ideal-typical configurations that capture dominant tendencies within struggles at particular moments. Hybrid forms are common, and transitions between regimes are often gradual rather than abrupt. Crucially, the typology highlights that internal power regimes are not merely reflections of external pressure or ideological orientation. They are produced through internal contestation over legitimacy, resources, voice, and future authority, and they shape the political trajectories of struggles irrespective of external outcomes.

By offering a typology of intra-struggle power regimes, Internal Contestation Theory provides scholars with an analytical tool that travels across contexts while remaining sensitive to variation. The typology invites comparative application, encourages attention to internal mechanisms rather than outcomes alone, and facilitates dialogue between political sociology, movement studies, and institutional analysis. Most importantly, it reframes internal hierarchy not as an aberration to be explained away, but as a patterned political outcome that warrants systematic analysis. These regime variations suggest that internal contestation is not merely descriptive variation within struggle but carries broader implications for representation, legitimacy, and governance.

6. Discussion and Implications

Internal Contestation Theory reorients how political science should think about collective struggle by shifting analytical attention from mobilisation outcomes to the production of authority within mobilisation itself. The preceding sections have demonstrated that struggles operate as political fields structured by competition over legitimacy, resources, voice, and future authority. The implications of this move extend well beyond the study of collective action. They speak directly to foundational debates on representation, legitimacy, and democratic futures, challenging several assumptions that continue to shape mainstream political analysis.

First, ICT requires a rethinking of political representation. Conventional approaches tend to assume that representation emerges once collective action crystallises into formal organisation or institutional participation. In this view, the question of “who speaks for whom” is treated as a derivative of organisational design or electoral procedures. ICT suggests, instead, that representation is actively produced within struggle, often long before formalisation. Actors who successfully accumulate legitimacy and regulate voice during mobilisation come to define not only the meaning of the struggle but also its authorised representatives. Recent work on representation as a performative and contested process reinforces this insight, emphasising that representative claims precede and shape institutional recognition (Disch, 2021; Saward, 2010). From this perspective, struggles do not simply generate demands that later require representation. They generate representatives through internal power dynamics that rarely undergo democratic scrutiny.

Second, ICT reframes political legitimacy as a process that travels across arenas. Much of the legitimacy literature distinguishes between internal legitimacy, grounded in recognition by participants, and external legitimacy, conferred by institutions, publics, or legal authority (Gerschewski, 2013; Levi, Sacks, & Tyler, 2009). ICT shows that this distinction is analytically porous. Legitimacy accumulated within struggle frequently becomes the basis for external authority, as internal recognition is converted into representational standing, organisational control, or claims to future rule. This conversion helps explain why certain actors emerge from mobilisation with disproportionate authority, even in the absence of formal selection mechanisms. Legitimacy is not reset at the point of institutional transition; it is carried forward, often naturalised as deserved leadership or inevitable authority.

Third, the theory invites a reconsideration of political transitions. Transitions are commonly analysed as moments in which struggles give way to governance, implying a shift from contentious politics to institutional rule. ICT challenges this temporal framing. Internal contestation does not end with victory, settlement, or institutionalisation. It is formalised. Power relations forged during struggle become embedded in organisational hierarchies, representative claims, and decision-making structures that persist into post-mobilisation contexts. Recent scholarship on political continuity and institutional reproduction underscores how early power asymmetries shape long-term outcomes, even when formal rules change (Slater & Wong, 2022; Thelen, 2021). ICT adds to this literature by showing that these asymmetries are often generated before institutions emerge, within the struggle itself.

The implications for democratic futures are sobering but analytically clarifying. If internal authority formation during struggle prefigures post-struggle governance, then democratic deficits cannot be attributed solely to institutional design or post-transition failure. They may be rooted in the internal power regimes that govern mobilisation. This does not imply that hierarchy is inevitable or normatively undesirable in all forms. Instead, it suggests that the democratic quality of political outcomes is shaped, in part, by how legitimacy, voice, and authority are organised during struggle. Democratic theory, which has traditionally focused on institutions, procedures, and participation after mobilisation, must therefore pay greater attention to the internal politics of collective action.

The ICT opens a new research agenda for political science. Rather than asking only whether struggles succeed or fail, scholars should examine how internal power is distributed and stabilised over time. This involves tracing who accumulates legitimacy, how boundaries of participation are drawn, whose voices are amplified or marginalised, and how anticipatory claims to future authority are normalised. Such questions are amenable to qualitative, comparative, and mixed-methods research, but they require conceptual clarity about what is being observed. By providing a generalisable framework for analysing internal contestation, ICT offers a foundation for cumulative inquiry across subfields, from political sociology and movement studies to democratic theory and institutional analysis. These implications underscore a central claim of the article: understanding politics beyond struggle requires understanding power within struggle. Collective mobilisation is not a pre-political space of unity, but a formative arena in which authority, exclusion, and representation are actively produced. Recognising this does not diminish the significance of struggle. It clarifies its political consequences.

Beyond its immediate explanatory value, Internal Contestation Theory contributes to several broader fields of political inquiry. Within political sociology, ICT advances the analysis of power by showing how authority is produced relationally within collective struggle rather than merely exercised through formal institutions. In collective action theory, it challenges the tendency to treat mobilisation as a unified actor by demonstrating that internal hierarchy and exclusion are often constitutive of collective action itself. For democratic theory, ICT highlights that democratic deficits may emerge long before institutional consolidation, rooted in the internal distribution of legitimacy, voice, and representation during mobilisation. In institutional analysis, the theory extends understanding of institutional emergence by showing how future authority is often pre-authorised within struggle before formal rules or structures crystallise. Collectively, these contributions position ICT as a portable framework for analysing how internal power dynamics shape not only struggles themselves, but also the political orders that emerge from them.

7. Conclusion

This article argues that collective struggle should not be understood as a temporary suspension of politics and power, but rather as a formative arena in which authority, hierarchy, and exclusion are actively produced. By advancing Internal Contestation Theory, the analysis reconceptualised struggle as a political field structured by competition over legitimacy, resources, voice, and future authority. Rather than treating internal conflict as fragmentation, failure, or organisational pathology, the article demonstrates that internal contestation is a standard and politically productive process through which struggles generate durable power relations long before any external victory or institutional transition.

The core contribution of ICT lies in its capacity to explain how internal authority is accumulated, stabilised, and normalised during mobilisation. By specifying the mechanisms of legitimacy accumulation, gatekeeping, voice regulation, resource conversion, and the pre-authorisation of rule, the theory provides political science with a generalisable framework for analysing power within collective action. This framework bridges gaps between social movement theory, political sociology, institutionalism, and democratic theory, offering a shared vocabulary for examining how struggles shape political outcomes beyond their immediate objectives.

The normative implications of this argument are consequential but not accusatory. If authority exercised during a struggle often prefigures authority exercised after a struggle, then questions of inclusion, accountability, and representation cannot be deferred until formal institutions emerge. Internal openness, contestability, and reflexivity during mobilisation matter because they shape the distribution of power that follows. This does not imply that hierarchy is inherently illegitimate or that struggles must conform to idealised models of deliberation. It does, however, suggest that democratic futures are influenced by how legitimacy and voice are organised at the point of collective action. Treating struggle as a morally unified space risks obscuring these dynamics and limiting critical reflection.

The article, therefore, invites a modest but important reorientation in political analysis. Scholars are encouraged to look beyond whether struggles succeed or fail and to examine how internal power is constituted, who is authorised to represent collective projects, and how anticipatory claims to future authority are established. Doing so does not diminish the significance of struggle as a vehicle for political change. It clarifies its consequences. Struggle does not suspend power. It rearranges it. Recognising this is essential to understanding how collective action shapes political authority, representation, and democratic possibility long after mobilisation itself has passed.

Funding

There is no funding to report.

Conflicts of Interest

The author(s) declare no conflicts of interest regarding the publication of this paper.

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Journal of Advances in Social Sciences

2026, Volume 2, Issue 3 | ISSN 3105-899X | eISSN 3105-9007

AI-Accelerated Opportunity Churn: Migration Frictions, Replenishment, and Governance in Digital Marketplaces

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Received

2026-5-21

Accepted

2026-6-23

Published

2026-6-28

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DOI: https://doi.org/10.65192/epk03p70

Abstract

Generative AI lowers listing and migration frictions in digital marketplaces. We ask whether faster seller churn improves market health or depletes opportunities faster. In an agent-based model, AI affects only launch cost C_L and migration time T_M; sellers chase transient product windows, consumers update trust, new opportunities arrive at rate λ_P, and the platform moderates at intensity φ. Higher AI assistance increases migrations but not bankruptcy survival when the catalog is finite and unreplenished. Collective churn can yield zombie markets: solvent sellers, near-zero active products, and collapsed assortment diversity. Replenishment and governance jointly bound outcomes: low λ_P drives exhaustion; only a narrow band of moderate φ keeps trust, participation, and diversity positive simultaneously. Platform health must be judged on activity and diversity together with trust, not on trust or seller survival alone.

Keywords

Agent-based model; Computational social science; Digital marketplaces; Generative AI; Opportunity churn; Platform governance

1. Introduction

Online marketplaces run on short-lived product windows. Sellers launch, advertise, learn, and exit; windows close through consumer learning, copycat entry, rising ad costs, and platform enforcement. Generative AI shortens listing and relaunch time. The system question is whether a platform can absorb many sellers migrating faster at once, not whether one seller gains an edge.

The ambiguity arises because AI changes both individual and collective time scales. For an isolated seller, faster listing and relaunching can extend survival by reducing time spent in failed niches. At the marketplace level, however, widespread adoption accelerates entry into the same visible opportunities, raising saturation and shortening the very windows sellers are trying to exploit. The effect of AI is therefore not signed ex ante: it depends on whether new product opportunities replenish faster than sellers collectively deplete them. This is not a trivial productivity story—faster sellers are not the same as a healthier market.

We term the process AI-accelerated opportunity churn. Lower CL and TM raise migration frequency, which in turn raises saturation and awareness and shortens the effective window $T_B =$

$\min(T_L, T_C, T_P)$. A seller benefits only if $T_M < T_B$ and replenishment keeps new windows available. When λP is too low, the market can turn zombie: solvency remains while active products, seller participation, and diversity collapse—a state that trust-only metrics miss.

We contribute three results: AI as auditable friction reduction on (C_L, T_M), not a productivity shock; emergent zombie markets under weak replenishment; and legitimacy– vitality separation under governance (stable trust with collapsing participation).

The paper proceeds as follows. Section 2 situates the model. Section 3 states three propositions and the governance viability index. Section 4 describes the agent-based implementation. Section 5 lists experiments; Section 6 presents figures; Section 7 interprets mechanisms, governance, and limitations; Section 8 states implications.

2. Related Mechanisms and Modeling Approach

The model draws on platform economics (Rochet and Tirole, 2003; Armstrong, 2006; Hagiu and Wright, 2015; Zhu and Liu, 2019), trust under quality uncertainty (Akerlof, 1970; Shapiro, 1983; Valle et al., 2020), herding and saturation (Banerjee, 1992; Anderson, 2004), and agent-based regime analysis (Grimm et al., 2010; Railsback and Grimm, 2019). Empirical motivation is specific to marketplace churn rather than generic AI productivity: generative tools shorten seller research and listing tasks (Felten et al., 2023; Mollick et al., 2023; Grewal et al., 2021); social-commerce and trend cycles create burst demand and rapid niche closure (Liang and Turban, 2011; Anderson, 2004); copycat entry on visible winners is documented in platform retail (Zhu and Liu, 2019; Banerjee, 1992); fulfillment and quality uncertainty shape refunds and trust (Valle et al., 2020; Einav et al., 2014); and content moderation can remove harmful listings while imposing false-positive costs on legitimate sellers (Gillespie, 2018; Klonick, 2018; Gorwa et al., 2020). Generative AI is modeled only as lower C_L and T_M (OECD, 2023)—not as autonomous strategy, synthetic reviews, or ad optimization. Parameters are chosen for pattern-oriented reproduction (Grimm et al., 2010), not calibration to a named platform: the goal is comparative statics on migration, depletion, and governance, not GMV forecasting.

3. Theory

The theory is organized around competition among time scales. Let T_L denote the consumer-learning time scale, T_C the imitation or copycat-entry time scale, T_P the platform-penalty time scale, and $T_M(a_i)$ the migration time of seller i after exiting a product. The effective business-window duration is

$$T_B \approx min(T_L, T_C, T_P) \tag{1}$$

A seller survives a window transition when migration is completed before the next opportunity closes:

$$T_M(a_i) < T_B \tag{2}$$

3.1 Proposition 1: Individual Migration Advantage

AI assistance lowers launch cost and migration time:

$$C_L(a_i) = C_{L0}(1 - \gamma_L a_i) \tag{3}$$

$$T_M(a_i) = max\{1,bT_{M0}m_i(1-\gamma_M a_i)c\} \tag{4}$$

Proposition 1. Holding other parameters fixed, higher ai weakly expands the set of states satisfying Equation (2). This is an individual friction advantage. It does not imply monotone bankruptcy survival when repeated relaunch costs and failed windows accumulate

3.2 Proposition 2: Collective Congestion and Window Shortening

When AI adoption becomes widespread, copycat entry can accelerate and the imitation time scale shortens:

$$T_B(\bar{a}) \approx \min\left(T_L, \frac{T_C}{1+\gamma_C \bar{a}}, T_P\right) \tag{5}$$

where $\bar{a}$ is the adoption share.

Proposition 2. The same technology that helps one seller migrate can shorten windows for all sellers. Individual migration advantages can therefore be offset at the aggregate level by faster congestion and churn.

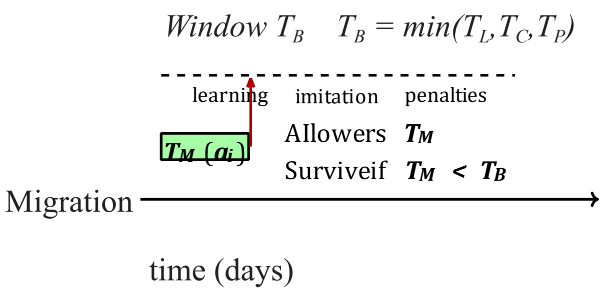

Figure 1. Time-scale competition. The dashed line is the product window T_B. The seller must complete migration (green bar, length T_M) before T_B closes; AI shortens T_M but does not extend T_B.

3.3 Proposition 3: Replenishment Threshold and Zombie Markets

Let new product opportunities arrive as

$$N_t^{new} \sim Poisson(\lambda_P) \tag{6}$$

If λ_P is too small, migration burns through the finite catalog faster than new windows appear. Define a zombie market as a late-window state with positive bankruptcy survival but near-zero seller activity, market-alive fraction, and Shannon diversity.

Proposition 3. The simulations imply an operational replenishment threshold λ^*_P under the reported calibration: for $\lambda_P < \lambda^*_P$, exhaustion and zombie regimes dominate long horizons; for $\lambda_P > \lambda^*_P$ and sufficiently low governance suppression, active diversity can persist. This is an emergent bifurcation in the ABM, not a closed-form existence proof.

Governance introduces a second constraint. Weak moderation allows bad listings and duplicate signals to depress effective trust; strong moderation can preserve apparent trust while suppressing participation through removals and false positives. For diagnostics only—not as a welfare objective—we summarize joint health with

$$V(\varphi) = (M_{alive}\, D_{Shannon}\, W_{eff}\, S_{active,norm})1/4 \tag{7}$$

where $S_{active,norm} = min(1, S_{active}/0.35)$. The index $V(\varphi)$ is a diagnostic for joint viability: it is high only when market-alive fraction, diversity, effective trust, and seller activity are all positive. It is not a social-welfare function and should not be read as proof that every margin peaks at moderate φ. Figure 1 visualizes the migration inequality against T_B; Figure 2 diagrams the migration–depletion loop (R_1) and the replenishment balance (B_1).

4. Model

The model is an agent-based marketplace ($|I| = 100$ sellers, $|J| = 10{,}000$ consumers, $T_{max} = 365$ days) with sellers, consumers, products, listings, and a platform. Sellers hold

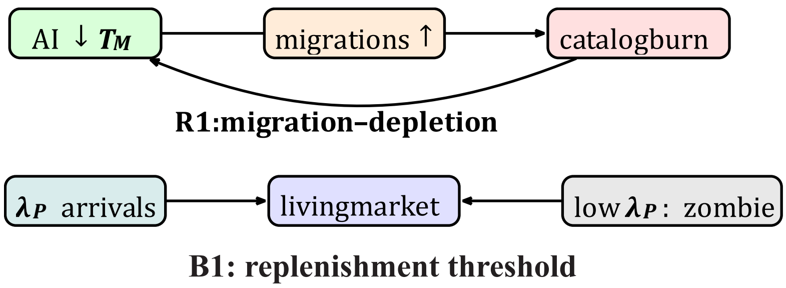

Figure 2. Core feedbacks. R1 (top): friction reduction accelerates migration and depletion. B1 (bottom): replenishment sustains vitality; insufficient λ_P yields zombie markets.

Table 1. Mechanism inventory and tests

Mechanism	Motivating fact	Experiment	Ablation
AI frictions (γ_L,γ_M)	Faster listing setup	2a	AI off
Awareness / saturation	Trend learning	2c	—
Trust dynamics	Lemons, refunds	2c, 4	Trust frozen
Imitation	Copycats	3b	$p_{imit} = 0$
Replenishment λ_P	New trends	4	$\lambda_P = 0$
Governance ecology	Moderation FP	4	Gov. off

cash K_i, ad budget B_i, quality q_i, risk r_i, exit threshold θ_i, AI level $a_i \in [0,1]$, and a migration timer. Products carry demand D_p, novelty N_p, awareness A_p, seller count n_p, saturation S_p, quality Q_p, refunds F_p, copyability χ_p, and unit cost c_p. Consumers carry trust w_j; the platform holds $W(t)$, moderation φ, transparency η, and ad-competition κ.

Each day: costs, seller launch/exit, visibility, purchases, awareness and trust updates, imitation, moderation, migration, Poisson arrivals at λ_P , and metrics—purchases precede trust updates. Sellers launch when expected ROI exceeds θi and cash covers $C_L(a_i)$; they exit on low ROI, refunds, high awareness, or ad spikes, then burn cash over $T_M(a_i)$ inactive days. Consumers choose listings via a logistic score over visibility, novelty, reviews, price, delay, refunds, and $W_{eff} = min(\bar{w}, W)$. Imitation adds copycats to visible winners; governance removes listings and generates false positives that feed Equation (11).

4.1 Seller Migration and Launch

Equations (3)–(4) define the AI friction channel. A seller launches a product when expected return exceeds θ_i and cash covers $C_L(a_i)$. A seller exits when return falls below threshold, refund signals exceed a tolerance, awareness exceeds an exit threshold, or advertising costs spike. Exiting sellers pay migration burn during $T_M(a_i)$ inactive days.

Bankruptcy occurs when $K_i \leq K_{floor}$.

Table 2. Seller archetype presets

Archetype	a_i	q_i	θ_i	m_i
Manual	0.0	0.75	−0.05	1.2
AI-assisted	0.5	0.65	−0.08	1.0
AI-churn	1.0	0.45	−0.15	0.7
Brand-builder	0.2	0.90	−0.02	1.5

4.2 Product-window Closure

Novelty decays each step. Product awareness evolves as

$$A_p(t+1) = clip[A_p(t) + \lambda_E E_p(t) + \lambda_N n_p(t) + \lambda_R F_p(t), 0, 1] \tag{8}$$

where $E_p(t)$ is exposure. Saturation is

$$S_p(t) = \frac{n_p(t)}{n_p(t) + k_s} \tag{9}$$

The product-level conversion rate is

$$CR_p(t) = CR_0 N_p(t)[1 - A_p(t)][1 - S_p(t)] W_{eff}(t)^\rho \tag{10}$$

with $W_{eff}(t) = min(\bar{w}(t), W(t))$. Purchases use a logistic choice model over visibility, novelty, reviews, price, delay, refunds, and trust.

4.3 Trust and Governance

Consumer trust averages to $\bar{w}(t) = |J|^{-1} P_j\ w_j(t)$. Platform trust updates from good purchases, bad purchases, refunds, duplicate signals, successful removals, and false positives:

$$W(t+1) = clip \begin{array}{c} \big(W(t) + \delta_G G_t - \delta_B B_t \sigma_B - \delta_R R_t^{\text{sig}} \sigma_R - \delta_D D_t^{\text{sig}} \sigma_D \\ + \delta_\phi \phi n_t^{\text{rem}} - \delta_{\text{fp}} \phi^{\eta_{\text{fp}}} n_t^{\text{fp}} + b_{\text{gov}}(t), 0, 1\big). \end{array} \tag{11}$$

Trust collapse is recorded when $W(t) < W^*$ for at least τ consecutive steps. Moderation affects removal, false positives, imitation dampening, and cleanup. New products arrive according to Equation (6), with a contested-product cap to prevent inactive catalog size from being mistaken for economic vitality.

4.4 Regime Metrics

The late window is the final 185 days. The main responses are bankruptcy survival, selleractive fraction, seller-profitable fraction, active products, market-alive fraction, Shannon diversity, churn, late trust, trust-collapse probability, and the composite $V(\varphi)$. Regime labels are assigned hierarchically: exhaustion if market-alive is below threshold; trust degradation if trust falls or collapse persists; boom–bust if churn is high and diversity low; stable diversity if diversity, trust, and market-alive are jointly high; migration survival if seller activity is high with elevated churn; otherwise mixed/transitional.

5. Simulation Experiments

Experiments test Propositions 1–3 and Table 1. Unless noted, simulations use $|I| = 100$ sellers,

$|J| = 10{,}000$ consumers, and $T_{max} = 365$ daily steps. Mixed markets use 25% of each archetype. Adoption fraction $\bar{a}$ sets the share of AI-churn sellers at initialization.

Table 3. Main experiment manifest

ID	Factors	λ_P	Role
2a	AI level a_i	0	Proposition 1: migration vs. survival
2c	Mixed archetypes	0	Trust–vitality decoupling
3b	T_{M0}, $\bar{a}$	0	Zombie markets without replenishment
4	λ_P , φ, $\bar{a}$	facets	Replenishment and governance
Abl.	Module toggles	0, 2	Mechanism necessity

Experiment 2a holds quality and exit rules fixed while varying $a_i \in \{0,0.5,1.0\}$. Experiment 2c runs four archetypes jointly with shared trust and awareness fields. Experiment 3b sweeps migration time and adoption with $\lambda_P = 0$. Experiment 4 crosses $\lambda_P \in \{0.5,2,5\}$, $\varphi \in \{0.05,...,0.7\}$, and $\bar{a} \in \{0,0.1,...,1.0\}$ with five seeds per cell. Ablation runs disable replenishment, trust dynamics, imitation, governance ecology, or AI frictions at representative cells.

Validation is pattern-oriented (Grimm et al., 2010). Simulator: market churn abm (Python 3.10+, YAML config; run manifest lists seeds and grids).

6. Results

Figures 3–7 and Table 4 test Propositions 1–3 respectively: individual migration vs. survival (Fig. 3), system depletion and trust–vitality decoupling (Figs. 4–5), replenishment and governance regimes (Figs. 6–7), and mechanism necessity (Table 4). All runs use five independent seeds where grids are reported; late-window metrics average days $t \in [181,365]$.

6.1 AI Raises Migration but not Survival

Figure 3 tests Proposition 1 (Experiment 2a, $\lambda_P = 0$, $a_i \in \{0,0.5,1.0\}$). The left panel shows bankruptcy survival: manual sellers ($a_i = 0$) remain highest through the late window; AI-churn sellers exit first. The center panel shows mean cash drawn down by repeated launches; the right panel shows cumulative migrations monotone in ai. Faster migration does not extend solvency when the catalog is finite.

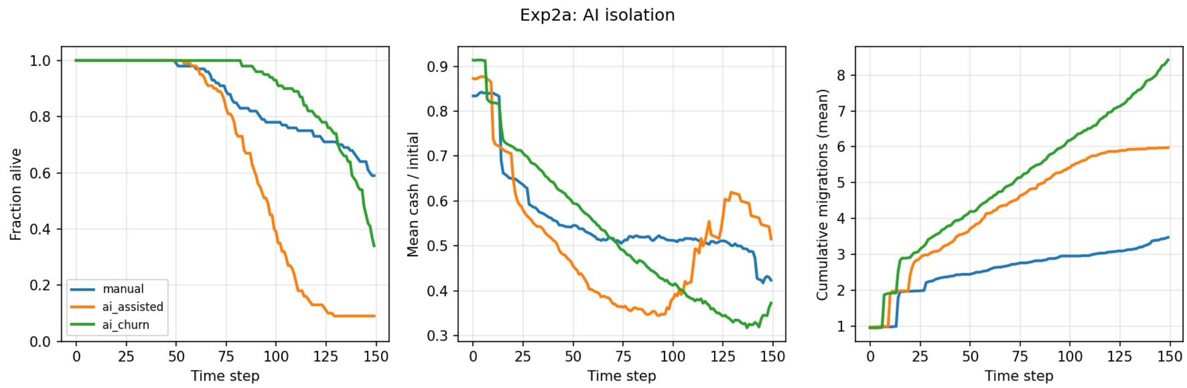

Figure 3. Experiment 2a (λP = 0). Left: bankruptcy survival by AI level. Center: mean cash (normalized). Right: cumulative migrations. Manual sellers survive longest; AI-churn sellers migrate most.

6.2 Trust and Vitality Can Decouple

Experiment 2c mixes four archetypes (Table 2) with shared trust and awareness. Figure 4 plots aggregate trust, churn, active products, and Shannon diversity. Trust falls after early bad purchases and partially recovers toward 0.7; churn rises; active products and diversity go to zero by the late window. A platform monitoring only *W(t)* would miss catalog exhaustion.

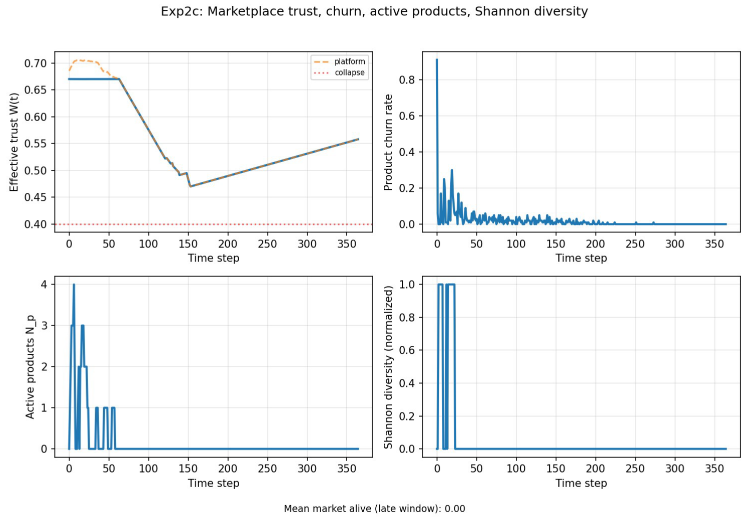

Figure 4. Experiment 2c. Platform trust *W(t)*, churn, active products, and Shannon diversity. Trust stabilizes; assortment metrics collapse.

6.3 Without Replenishment, Zombie Markets Emerge

Figure 5 (Experiment 3b, $\lambda_P = 0$) sweeps base migration time T_{M0} and adoption $\bar{a}$. The top row reports late-window active-product counts, M_{alive}, and Shannon diversity; the bottom row reports trust-collapse probability. The pattern is not that every cell is exactly zero—some cells show small nonzero active products or market-alive values—but diversity remains effectively absent across the grid while vitality metrics stay low. That is the zombie signature of Proposition 3: some sellers or listings can persist, but the market no longer supports a diverse, active assortment. Trust-collapse risk is highest where migration and adoption are both high.

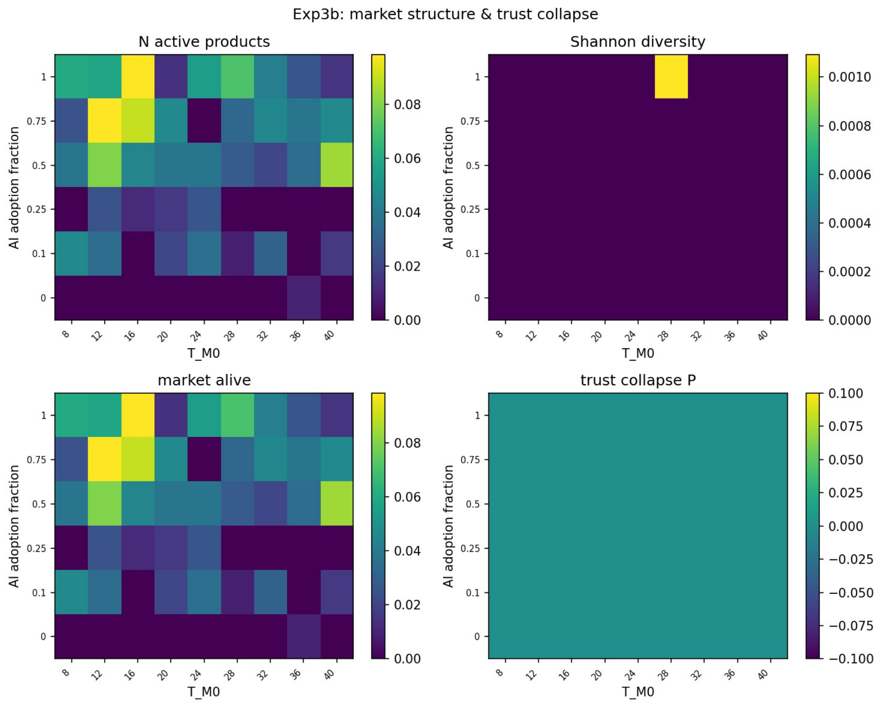

Figure 5. Experiment 3b ($\lambda_P = 0$). Top row: late active products, M_{alive}, and Shannon diversity over (T_{M0}, $\bar{a}$). Bottom: trust-collapse probability. Low diversity with depressed vitality across most cells.

6.4 Replenishment Separates Exhaustion from Stable Diversity

Figure 6 (Experiment 4) classifies late-window regimes over $(\bar{a},\varphi)$ for $\lambda_P = 0.5,2,5$. Low replenishment is exhaustion-dominated; at $\lambda_P \in \{2,5\}$, stable diversity appears at low-to-moderate φ.

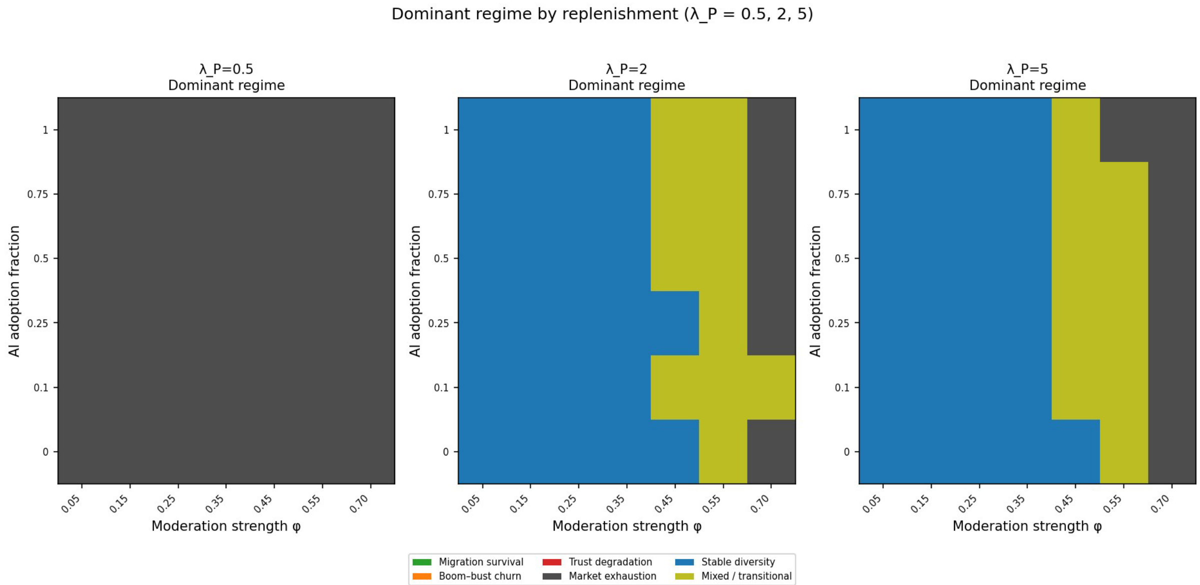

Figure 6. Experiment 4. Dominant regime over adoption and φ for $\lambda_P = 0.5,2,5$ (left to right).

6.5 Governance Separates Trust from Participation

Figure 7 slices φ at $\lambda_P = 2$, $\bar{a} = 0.5$. Effective trust collapses for φ . 0.15. The diagnostic $V(\varphi)$ is positive only near $\varphi \in [0.15,0.25]$, where all margins in Equation (7) are jointly positive. For φ & 0.25, seller-active fraction falls sharply while $Weff \approx 0.7$—trust can look healthy while participation thins.

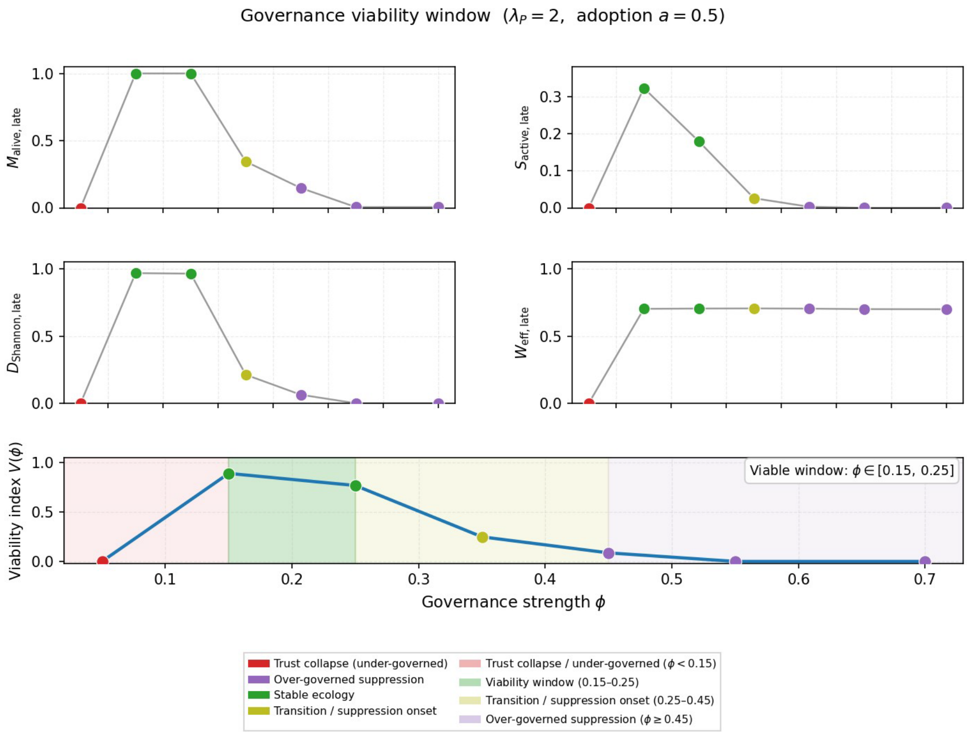

Figure 7. Governance diagnostics ($\lambda_P = 2$, $\bar{a} = 0.5$). Top: Malive, seller-active fraction, diversity, W_{eff} vs. φ. Bottom: diagnostic $V(\varphi)$, not welfare. Joint-viable band $\varphi \approx 0.15$–0.25; participation falls at higher φ while trust stays elevated.

6.6 Ablations

Table 4 toggles one module at a representative viable cell ($\lambda_P = 2, \varphi = 0.15, \bar{a} = 0.5$; five-seed means). Turning off replenishment ($\lambda_P = 0$) drives seller-active and marketalive fractions to zero—without new opportunities, the mechanism inventory confirms that B1 is necessary for any living market. Freezing trust or disabling imitation leaves the baseline nearly unchanged at this cell; that does not imply trust and imitation are globally irrelevant (Experiment 2c shows trust–vitality decoupling). It indicates that, in this representative viable cell, replenishment and governance dominate the local outcome. Disabling governance ecology lowers seller activity and market-alive fraction, showing that moderation rules affect participation even inside the viable band. Turning AI frictions off reduces seller activity without collapsing the market, consistent with Proposition 1:

AI raises migration intensity more than it guarantees economic vitality.

Table 4. Ablation snapshot at $\lambda_P = 2, \varphi = 0.15, \bar{a} = 0.5$ (five-seed means)

Ablation	S_{active}	M_{alive}
Baseline	0.31	1.00
No replenishment	0.00	0.00
Trust frozen	0.32	1.00
No imitation	0.31	1.00
Governance off	0.11	0.81
AI off	0.24	1.00

7. Discussion

7.1 Interpreting the Mechanism Chain

The substantive lesson is that seller-level productivity can be a misleading proxy for system health. Faster relaunching increases motion in the marketplace, but motion is not vitality. Vitality requires an active assortment, positive seller participation, and replenishment of profitable opportunities—the combination stressed in loop B1 (Figure 2). Generative AI compresses (C_L, T_M) and therefore amplifies migration frequency (loop R1). When λ_P is insufficient, collective migration depletes the shared catalog before new windows arrive. Trust and governance matter most once a living opportunity field exists; Experiment 2c already shows that trust can recover while assortment metrics die.

The results are intentionally conservative about AI. The model does not grant better product judgment, cheaper ads, or automated reputation management. Under that restriction, platforms that celebrate listing velocity alone risk missing zombie macro states in which M_{alive} and Shannon diversity trend toward zero while aggregate trust looks acceptable.

7.2 Governance: Trust–participation Separation

Figure 7 is the governance centerpiece. At $\lambda_P = 2$ and $\bar{a} = 0.5$, three φ-zones appear. Under-governed (φ . 0.15): effective trust and the diagnostic V (φ) collapse—weak cleanup lets bad signals dominate. Joint-viable ($\varphi \approx 0.15$–0.25): M_{alive}, seller-active fraction, diversity, and W_{eff} are simultaneously positive; $V(\varphi)$ is positive here but is not a welfare optimum—only a joint-feasibility check. Over-governed (φ & 0.45): $V(\varphi) \rightarrow 0$ from participation suppression while $W_{eff,late}$ can remain near 0.7.

That pattern is legitimacy–vitality separation. A platform can pass a trust survey while sellers stop listing. Policy and analytics should therefore treat aggregate trust as necessary but not sufficient.

7.3 Marketplace Health Metrics and Welfare Proxies

We do not integrate full social welfare, but the recorded metrics map to a stylized decomposition (using W for welfare to avoid confusion with platform trust $W(t)$):

$$W \approx CS + \Pi_S + \Pi_P - H - C_M \tag{12}$$

where CS is consumer surplus (variety and match quality), Π_S seller profit, Π_P platform revenue, H harm from refunds and delays, and C_M moderation cost including false positives. Market-alive fraction and Shannon diversity proxy variety in CS; seller-active and seller-profitable fractions proxy Π_S; $W(t)$ proxies perceived quality and platform legitimacy; removals and false positives proxy C_M. The diagnostic $V(\varphi)$ in Equation (7) is separate from W: it flags joint feasibility of margins, not dollar welfare. Zombie markets waste seller-side surplus (Π_S low) while consumers face thin choice sets; over-governance can raise C_M and collapse Π_S with stable $W(t)$.

A practical monitoring bundle is $(S_{active}, M_{alive}, D_{Shannon}, churn, W(t))$ reported on the same dashboard and time horizon. None of these alone detects trust–participation separation; together they flag exhaustion, zombie states, and participation cliffs.

7.4 Relation to Platform Practice

Platforms rolling out generative listing tools face a systems trade-off, not a seller-level productivity question. If λ_P is endogenously low because trend discovery is slow or enforcement freezes categories, faster migration only speeds depletion. If λ_P is adequate, moderation must avoid both trust collapse at low φ and seller exit at high φ. The regime map suggests that stable diversity is a region in $(\lambda_P, \varphi, \bar{a})$ space, not a default outcome of AI adoption.

For research, the model offers testable comparative statics: raising $\bar{a}$ should shift R1 upward; raising λ_P should expand B1; raising φ should move platforms along the slice in Figure 7. Empirical work could calibrate λ_P from category inflow rates and φ from enforcement intensity, then test whether participation and trust diverge as predicted.

7.5 Limitations and Extensions

The study is pattern-oriented (Grimm et al., 2010), not fitted to a named marketplace. AI is limited to friction reduction; autonomous agents, synthetic reviews, and targeting algorithms are excluded. Suppliers are not strategic—unit costs and delays are product attributes. Regime labels and the diagnostic $V(\varphi)$ depend on threshold choices in the classifier; sensitivity to those thresholds is reported in the replication package. Experiment 4 grids should be re-run after parameter changes because viable φ bands can shift with adoption and replenishment.

Extensions include endogenous λ_P tied to platform category policy, multi-platform competition, richer AI channels, and welfare integrals over simulated purchase paths. CoMSES Net archival of market churn abm, seeds, and figure scripts is planned for peer review.

8. Conclusion

Generative AI compresses the frictions of listing and relaunching in digital marketplaces. This paper asks what that compression does to *marketplace* health when many sellers react at once. An agent-based model with explicit time scales, Poisson replenishment, and platform governance yields three durable findings.

First, AI is a migration-frequency amplifier, not a survival guarantee. In a finite, unreplenished catalog, higher assistance increases relaunches while manual sellers can survive longer by migrating less and spending less on failed windows. Second, collective churn produces zombie markets: bankruptcy survival can remain positive while marketalive fraction, seller activity, and assortment diversity vanish. Replenishment at rate λ_P is the primary bifurcation parameter separating exhaustion from stable diversity. Third, governance separates trust from participation: weak moderation collapses trust; strong moderation can preserve aggregate trust near 0.7 while seller participation collapses—a failure mode invisible to trust-only KPIs.

The policy implication is that AI seller tools should be evaluated on joint vitality metrics, not on listing counts, migration speed, or platform trust alone. The scientific implication is that marketplace ecology under AI is a systems problem: migration speed, opportunity replenishment, competition, and governance must align for a living market to persist.

Funding

There is no funding to report.

Conflicts of Interest

The author(s) declare no conflicts of interest regarding the publication of this paper.

Acknowledgements

The author thanks colleagues at the Courant Institute of Mathematical Sciences and New York University for feedback on agent-based modeling and platform economics. Computational experiments used the market churn abm replication package bundled with this manuscript.

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APSIRI

Journal of Advances in Social Sciences

2026, Volume 2, Issue 3 | ISSN 3105-899X | eISSN 3105-9007

13th National Election of Bangladesh: Media Coverage, Political Dynamics, and Electoral Outcomes

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Received
2026-6-6

Accepted
2026-6-24

Published
2026-6-28

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DOI: https://doi.org/10.65192/sc8zg017

Abstract

This study analyses the pre-election media monitoring, political dynamics, and electoral outcome of the 13th National Parliamentary Election of Bangladesh, held on February 12, 2026. The election was the first since the July 2024 popular uprising that ended Sheikh Hasina's 16-year Awami League rule. The election resulted in a landslide victory for the Bangladesh Nationalist Party (BNP), with Jamaat-e-Islami emerging as the principal opposition. Drawing on a primary dataset of 1,423 news articles collected from 14 major Bangladeshi print and digital media outlets (October 21 - December 10, 2025), supplemented by data from the Human Rights Support Society (HRSS) and the Election Commission, this study traces electoral discourse across five thematic domains. The analysis reveals that pre-election media dynamics, particularly the saturation coverage of BNP's internal nomination disputes foreshadowed the party's organizational dominance on election day. Despite documented irregularities and structural constraints on electoral quality, the election is regarded as a significant milestone in Bangladesh's democratic history.

Keywords
BNP; Bangladeshi democracy; Bangladesh election 2026; Tarique Rahman

1. Introduction

On February 12, 2026, Bangladesh held its 13th National Parliamentary Election alongside the second-ever national constitutional referendum. The election was the first since the July 2024 mass uprising, during which the United Nations Office of the High Commissioner for Human Rights (OHCHR, 2025) estimated that 1,400 civilians were killed during the crackdown on protesters under Sheikh Hasina’s government. Following Hasina’s removal from office on August 5, 2024, an interim government led by Nobel laureate Muhammad Yunus oversaw the country’s political transition and organized what many observers have described as the most closely watched election in Bangladesh’s recent history.

The Awami League, which had governed Bangladesh for 16 consecutive years, was excluded from the 2026 election after the Election Commission suspended its registration. This exclusion reshaped the competitive landscape: the Bangladesh Nationalist Party (BNP) went on to form the next government, while Jamaat-e-Islami, whose registration had been restored by the Supreme Court in June 2025, emerged as the largest opposition party. The student-led National Citizen Party (NCP), formed in February 2025 by leaders of the 2024 protest movement, contested the election in alliance with Jamaat's 11-party coalition.

This study has two related aims. First, it documents the relative volume and topical focus of pre-election media attention using a systematically compiled log of 1,423 headline-level entries from 14 Bangladeshi outlets, covering October 21 to December 10, 2025. Second, it situates this pre-election period within the broader trajectory of the election by drawing on supplementary, independently sourced reporting and official data covering developments through February 14, 2026, including violence monitoring, public opinion polling, and certified results. The two evidentiary strands are kept analytically distinct throughout: claims about pre-election news volume and topic salience rest on the primary log, while claims about events, violence statistics, and outcomes after December 10, 2025, rest on the cited supplementary sources.

The remainder of the article is organized as follows. Section 2 reviews relevant literature on media attention and electoral competition in transitional and competitive-authoritarian settings. Section 3 describes the data sources and analytical procedures. Section 4 presents results on media coverage distribution, pre-election political dynamics, violence, public opinion, and the certified election outcome. Section 5 discusses the findings in relation to theories of democratic transition and electoral system design, and addresses limitations and policy implications. Section 6 concludes.

2. Literature Review

2.1 Media Attention and Electoral Competition

Scholarship on media and elections distinguishes between the volume of attention a topic receives and the way that topic is framed or evaluated (Entman, 1993). The present study is positioned within the first tradition: it measures how much pre-election coverage particular themes and outlets generated, without making claims about framing, tone, or persuasive effect, since the underlying dataset does not contain full article text. This distinction matters in media systems such as Bangladesh's, where outlet ownership and editorial alignment with political camps are well documented (Ali, 2021), and where attention volume alone can reveal which intra-party and inter-party conflicts dominated the pre-election news agenda.

2.2 Democratic Transition After Authoritarian Breakdown

The 2026 Bangladeshi election followed a pattern recognizable from the comparative literature on competitive authoritarianism and democratic transition: the sudden removal of a long-dominant incumbent creates an opening for competitive multiparty politics, but the quality of the resulting election depends on factors such as the inclusiveness of competition, the neutrality of the election administration, and the prevalence of political violence (Levitsky & Way, 2002). Transitional elections of this kind are frequently judged not only by their procedural conduct on polling day but also by the conditions, including exclusions, violence, and administrative reshuffling, that precede them. This framework motivates the attention given in this study to pre-election dynamics rather than polling-day administration alone.

2.3 Electoral Systems and Disproportionality

A further relevant body of work concerns the relationship between vote share and seat share under single-member plurality (first-past-the-post) electoral systems, which can produce parliamentary majorities considerably larger than the underlying vote share of the leading party

(Lijphart, 1994). This literature provides a frame for interpreting the seat distribution reported in Section 4.6, in which the leading party's share of declared seats substantially exceeded what most pre-election polling implied about its vote share.

3. Methodology and Data Sources

3.1 Primary Dataset

The primary dataset is a media log comprising 1,423 entries collected from 14 Bangladeshi news outlets between October 21 and December 10, 2025. Each entry records the article title, source URL, outlet name, and publication date; full article text was not systematically retained. Because the dataset captures headline-level metadata rather than article content, it is used in this study to measure the volume and topical distribution of pre-election news attention across outlets and themes, not to characterize media framing, narrative tone, or discourse. The 14 outlets are Prothom Alo, Jugantor, Kaler Kantho, Samakal, Daily Inqilab, Daily Janakantha, Naya Diganta, Ittefaq, Bonik Barta, Alokito Bangladesh, Amardesh, Daily Star, Times of Bangladesh, and Sangbad.

3.2 Supplementary Sources

Developments after December 10, 2025, including the formal election schedule, campaign-period violence, the public opinion survey, and certified results, are described using supplementary sources rather than the primary log. These include the Bangladesh Election Commission, the HRSS Election Observation Report, and contemporaneous reporting by Al Jazeera, Reuters, the Daily Star, Prothom Alo, and Dhaka Tribune. Because this supplementary material was assembled through targeted retrieval rather than systematic, outlet-controlled sampling, it is treated in this study as a chronological record of verified events rather than as data suitable for volume- or frequency-based analysis. Conclusions drawn from this material are limited accordingly to what each individual source reports, with citations provided throughout.

3.3 Analytical Approach

Entries in the primary log were classified into thematic categories based on title content, and outlet-level and theme-level frequencies were computed using descriptive statistics. Thematic categorization was cross-checked using Voyant Tools, an open-source text analysis platform applied to the compiled title corpus, to confirm that keyword-based groupings reflected the most frequent terms in the dataset. No sentiment, framing, or discourse analysis was conducted, consistent with the title-and-metadata-only structure of the dataset described in Section 3.1. Violence statistics in Section 4.4 are drawn directly from the HRSS (2026) observation report rather than from the primary log.

4. Results

4.1 Volume and Distribution of Pre-Election Media Attention

Table 1 reports the number of primary-log entries by outlet; the full dataset comprises 1,423 entries. Bangla-language dailies accounted for the large majority of coverage volume: Prothom Alo (278 entries) and Jugantor (270 entries) together accounted for 548 entries, or approximately 38.5% of the dataset (Figure 1). The Daily Star, Bangladesh's leading English-language daily, contributed 46 entries, concentrated on institutionally oriented themes such as the neutrality debate, amendments to the Representation of the People Order (RPO), and international observer delegations. Naya Diganta and Daily Inqilab, both associated with Islamic-conservative readerships, together accounted for 246 entries, with a disproportionate share devoted to Jamaat-e-Islami's campaign activities, a pattern consistent with documented outlet-level political alignment in the Bangladeshi press. This study can characterize that alignment only in terms of attention volume; it offers no data on tone, evaluative content, or framing.

Table 1. Distribution of primary-log entries by media outlet (October 21 - December 10, 2025)

Media Outlet	Articles (n)	Primary Coverage Focus
Prothom Alo	278	Candidate nominations, party alliances, election prep, violence
Jugantor	270	BNP-Jamaat rivalry, seat-sharing, grassroots tensions
Daily Inqilab	146	Islamic party coverage, BNP voter base, neutrality demands
Daily Janakantha	139	Constituency-level races, BNP-Jamaat confrontations
Samakal	123	Electoral administration, EVM/ballot logistics, party splits
Kaler Kantho	116	Security arrangements, EC decisions, reform debates
Ittefaq	108	Diaspora voting, candidate lists, administrative reshuffles
Naya Diganta	100	Islamist parties, BNP manifesto, election sabotage concerns
Others (Bonik Barta, Alokito Bangladesh, Amardesh, Sangbad, Times of Bangladesh)	97	Constituency races, RPO amendment, BNP-Jamaat confrontations
Daily Star	46	Neutrality debate, RPO amendment, international observers
Total	1,423	

Note. Source: Compiled by author from the primary media log. Total entries (N = 1,423) include all 14 outlets in the dataset

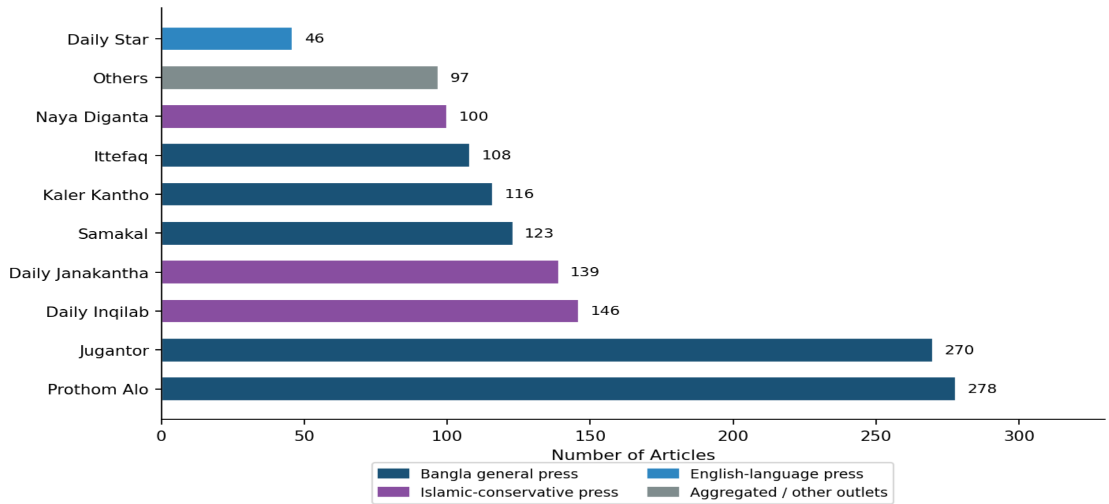

Figure 1. Distribution of primary-log entries by media outlet (October 21 - December 10, 2025; N = 1,423). Colour coding indicates broad outlet orientation. Source: Compiled by author from the primary media log.

4.2 Thematic Distribution of Pre-Election Coverage

Ten recurring thematic categories were identified within the primary log. The most frequent category was BNP's internal candidate-nomination disputes, which generated the largest concentration of entries from late October through early December 2025. Table 2 and Figure 2 summarize thematic intensity across three sub-periods, showing rising attention to electoral violence and NCP-related coverage as the election date approached. These patterns describe the volume of attention each theme received in the primary log; they do not indicate how any individual outlet evaluated or portrayed the parties involved.

Table 2. Thematic distribution of primary-log entries (October 21 - December 10, 2025)

Theme	Intensity	Period	Key Manifestations
BNP candidate nomination disputes	Very High	Oct 21 - Dec 10, 2025	Internal protests, road blockades, shroud marches
BNP-Jamaat seat-sharing tensions	High	Oct 22 - Dec 10, 2025	Competing candidacies in 6+ constituencies
Election Commission actions	High	Oct 21 - Dec 10, 2025	Voter rolls, symbol allocation, observer accreditation
NCP emergence & positioning	Moderate	Oct 31 - Dec 10, 2025	Solo run vs. alliance debate; 100-seat candidacy plan
Administrative reshuffles	Moderate	Nov 14 - Dec 10, 2025	826 judges and 64 police superintendents transferred pre-election
Diaspora (postal) voting	Moderate	Nov 18 - Dec 10, 2025	223,471 registered by Dec 7, 2025
Electoral violence & security	High	Oct 21 - Dec 10, 2025	Pre-polling clashes, weapons arrests, mock voting disorders
Referendum on July Charter	Moderate	Nov 13 - Dec 10, 2025	Yes/No vote held alongside parliamentary election
Awami League exclusion debate	Moderate	Oct 25 - Dec 10, 2025	No consensus; foreign pressure noted; EC stance: banned
International observer interest	Moderate	Oct 23 - Dec 10, 2025	EU, IRI, Commonwealth, UN delegations

Note. Source: Compiled by author from the primary media log.

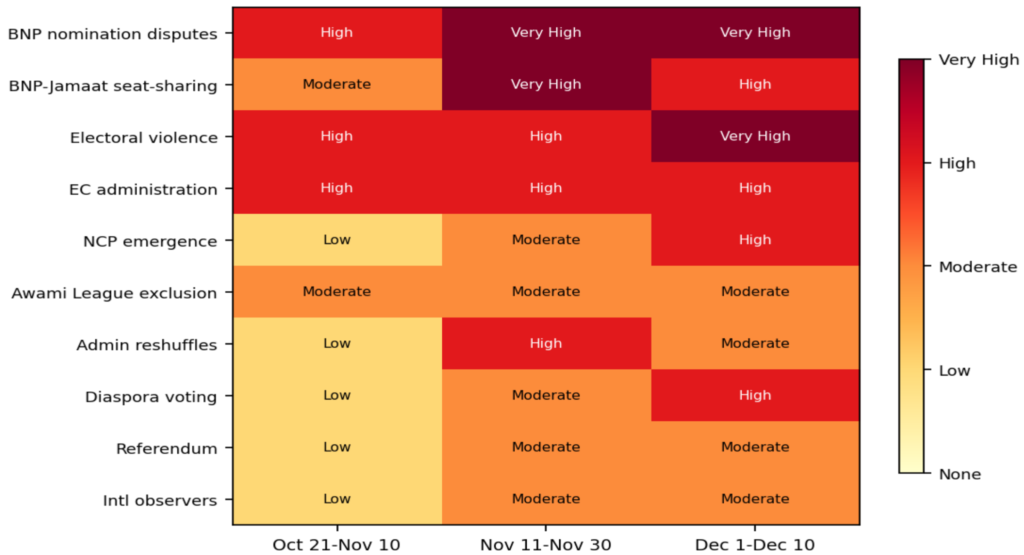

Figure 2. Thematic coverage-volume heatmap by sub-period (October 21 - December 10, 2025), based on primary-log entry counts. Intensity scale: Low, Moderate, High, Very High. Source: Author-compiled dataset.

4.3 Pre-Election Political Dynamics

4.3.1 BNP Candidate nomination disputes

The theme attracting the greatest volume of pre-election coverage was internal disagreement within the BNP over candidate selection. According to contemporaneous reporting, the party faced sustained pressure from local leaders who felt overlooked in the nomination process from late October 2025 onward, with protests reported in the form of road blockades, torch processions, hunger strikes, and announcements of independent candidacies in several districts simultaneously. Coverage also documented the party's nomination of at least 15 women and recurring tension between central leadership and district-level organizations. By November 3, 2025, BNP had announced a preliminary candidate list across 237 constituencies (Staff Correspondent, 2025).

4.3.2 BNP-Jamaat competition for electoral ground

Reporting also documented a shift in the relationship between BNP and Jamaat-e-Islami, which had previously been coalition partners between 2001 and 2006 but contested the 2026 election as rivals in several constituencies, including at least six where both parties fielded candidates against each other, with particular intensity reported in Chattogram, Sylhet, and Rajshahi divisions. NCP ultimately joined the Jamaat-led 11-party coalition and contested 30 seats while retaining its own electoral symbol (The Business Standard, 2026a).

4.3.3 Electoral administration and reforms

Coverage of the Election Commission (EC), under Chief Election Commissioner AMM Nasir Uddin, focused on its handling of competing demands from at least 12 political parties regarding RPO amendments, party-symbol allocation, including a dispute over NCP's request for the 'Shapla Koli' symbol (The Business Standard, 2025), and the administrative arrangements for the simultaneous constitutional referendum. The EC announced the formal election schedule on December 11, 2025, setting February 12, 2026, as the polling date (Al Jazeera, 2025). The interim government also carried out a large-scale reshuffle of civil administration: a gazette notification on November 25, 2025, recorded the transfer or promotion of 826 judges (The Daily Star, 2025a), and a separate notification on November 27, 2025, recorded the transfer of 158 upazila-level officers (Dhaka Tribune, 2025).

4.3.4 Diaspora and postal voting

The 2026 election introduced postal voting for Bangladeshi citizens residing abroad. By December 30, 2025, more than one million diaspora voters had registered (Bangladesh Pratidin, 2025); by election day, 1,224,188 postal ballots had been cast, an 80.11% turnout rate among registered postal voters (The Business Standard, 2026c).

4.3.5 The Awami League exclusion debate

Whether the Awami League should be permitted to contest the election was a recurring point of debate throughout the pre-election period. Although the EC's suspension of the party's registration remained in force, several political and institutional voices, including BNP leader Ruhul Kabir Rizvi and the Bangladesh Army chief, called for broader inclusion, while NCP leader Nahid Islam and Jamaat's Shafiqur Rahman publicly opposed Awami League participation pending trials related to the July 2024 crackdown. A pre-election survey by Prothom Alo (2025) found that 69% of respondents favoured some form of conditional Awami League participation, though this sentiment did not translate into a change in the EC's position, and the party was excluded from the ballot.

4.4 Pre-Election and Election-Day Violence

The HRSS, which deployed 565 observers across all 64 districts, compiled violence data covering October 2025 through February 14, 2026 (HRSS, 2026). Table 3 and Figure 3 summarize this data by phase. During the campaign period (December 11, 2025 - February 11, 2026), HRSS recorded 254 incidents, 5 deaths, and 1,650 injuries; of these, clashes among

BNP supporters alone accounted for 68 incidents, 3 deaths, and 595 injuries, while BNP-Jamaat confrontations accounted for a further 100 incidents, 1 death, and 915 injuries. On election day itself, HRSS recorded 105 clashes between supporters, 59 allegations of ballot-box stuffing, 149 instances of disorder at polling centres, and 6 assaults on candidates, with no fatalities reported for that day specifically. Across the full observation window, HRSS recorded more than 700 incidents, 10 deaths, and 2,503 injuries. Separately, Transparency International Bangladesh attributed 91.7% of documented political violence following Hasina's removal to BNP-affiliated activists, with 20.7% attributed to Awami League-linked individuals and 7.7% to Jamaat-affiliated individuals (The Business Standard, 2026b); these category totals are not mutually exclusive of HRSS's incident counts and should be read as a separate attribution analysis rather than a reconciliation of the same events.

Table 3. Election-related violence by phase (October 2025 - February 14, 2026)

Period	Phase	Key Statistics
Oct 2025 - Dec 10, 2025	Pre-schedule period	Nomination clashes, BNP internal conflicts, Jamaat rally incidents (not disaggregated in source)
Dec 11, 2025 - Feb 11, 2026	Campaign period	254 incidents; 5 killed; 1,650 injured; 24 shot; 200+ properties attacked
Feb 12, 2026 (Polling day)	Election day	105 clashes; 59 ballot-stuffing allegations; 145 injured; 6 candidate assaults
Oct 2025 - Feb 14, 2026 (Total)	Full observation window	700+ incidents; 10 killed; 2,503 injured
Note. Source: Compiled by author from HRSS (2026).		

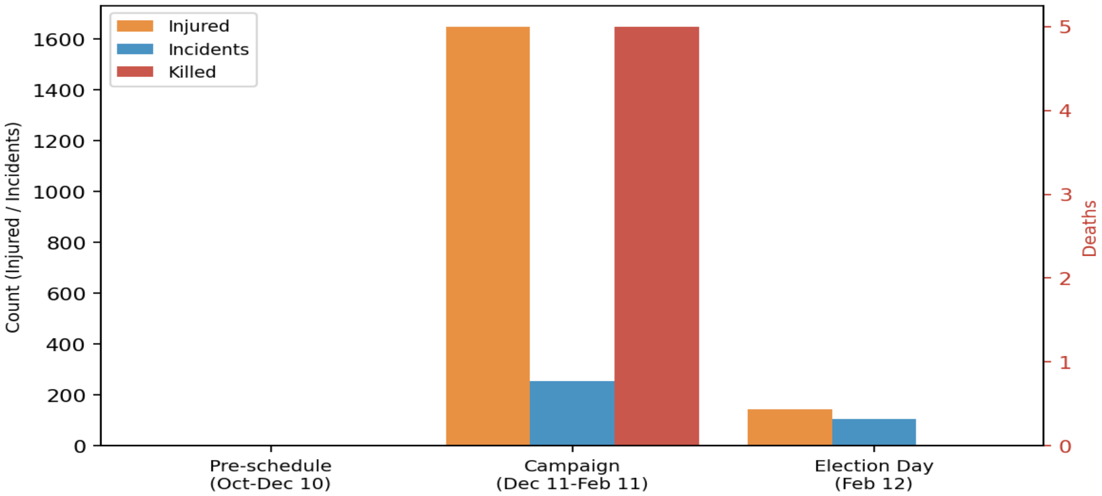

Figure 3. Election-related violence by phase: incidents, injuries, and deaths (HRSS, 2026). Pre-schedule-period totals were not disaggregated in the source report. Source: Compiled by author from HRSS (2026).

4.5 Public Opinion and Voter Expectations

A pre-election survey conducted by Prothom Alo (2025) and published on December 9, 2025, offers the only systematic public opinion data available for this study (Table 4; Figure 4). Sixty-six percent of respondents expected BNP to win the most seats, while only 50% believed the vote would be free and fair, indicating that expectations of a BNP victory coexisted with substantial public skepticism about electoral quality. Forty-seven percent considered it likely that Tarique Rahman would become Prime Minister.

Table 4. Selected public opinion and electoral participation indicators

Indicator	Figure	Source
BNP expected to win most seats	66%	Prothom Alo survey (Dec 9, 2025)
Vote expected to be free and fair	50%	Prothom Alo survey (Dec 9, 2025)
Tarique Rahman likely as PM	47%	Prothom Alo survey (Dec 9, 2025)
Awami League should participate (conditional)	69%	Prothom Alo survey (Dec 9, 2025)
Awami League should NOT participate	28%	Prothom Alo survey (Dec 9, 2025)
Final voter turnout (official)	59.88%	Bangladesh Election Commission (Feb 13, 2026)
First-time voters who participated	4.57 million	Bangladesh Election Commission data
Note. Source: Compiled by author from Prothom Alo (2025) and the Bangladesh Election Commission (2026).		

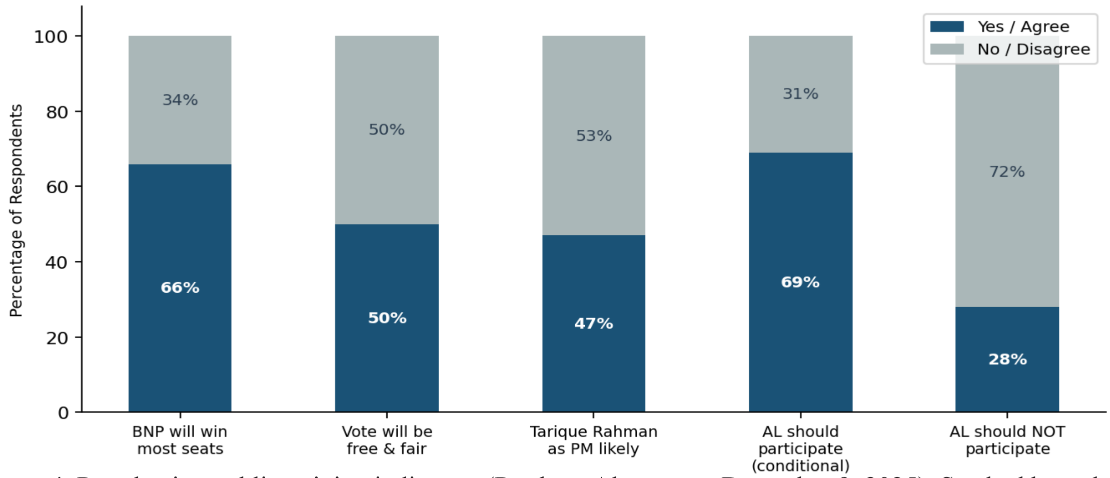

Figure 4. Pre-election public opinion indicators (Prothom Alo survey, December 9, 2025). Stacked bars show agree/disagree proportions for each survey item. Source: Prothom Alo (2025).

Final turnout, certified by the Bangladesh Election Commission (2026), was 59.88%, with 4.57 million first-time voters participating, a cohort with a documented connection to the July 2024 uprising whose turnout was concentrated in urban constituencies.

4.6 Certified Election Results

Polling was conducted at 42,761 centres across 64 districts for 300 constituencies. Voting was held in 299 constituencies after the death of a Jamaat-e-Islami candidate suspended the contest in Sherpur-3; court orders separately barred the publication of results from Chattogram-3 and Chattogram-8, leaving 297 constituencies with declared results at the time of reporting (Dhaka Tribune, 2026). Table 5 and Figure 5 report the outcome among these 297 declared seats.

Table 5. 13th National parliamentary election results, declared seats (February 12-13, 2026)

Party / Alliance	Seats Won	% of 297 Declared	Notes
Bangladesh Nationalist Party (BNP)	209	70.4%	Majority government; Tarique Rahman named Prime Minister-designate
Bangladesh Jamaat-e-Islami (BJI)	68	22.9%	Largest opposition party; most seats won by Jamaat in a single election
Independent candidates	8	2.7%	Several former BNP/Jamaat figures
National Citizen Party (NCP)	6	2.0%	Nahid Islam won; party contested 30 seats
Bangladesh Khelafat Majlish	2	0.7%	Small Islamic party gains representation
Other parties (7 parties)	4	1.3%	1 seat each: Workers Party, GOP, Islami Andolon, etc.
Note. Source: Bangladesh Election Commission (2026); Dhaka Tribune (2026). Percentages are calculated against the 297 declared seats at time of reporting.			

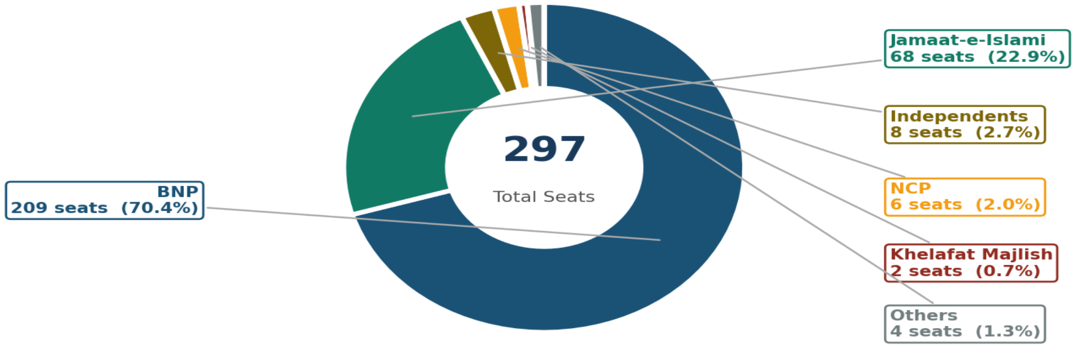

Figure 5. Seat distribution by party among 297 declared constituencies, 13th National Parliamentary Election (February 12-13, 2026). Source: Bangladesh Election Commission (2026); Dhaka Tribune (2026).

The BNP won 209 of 297 declared seats (70.4%). Because the full parliament comprises 300 seats, a constitutional supermajority requires 200 seats; BNP's 209 declared seats therefore met and exceeded the two-thirds threshold required for unilateral constitutional amendment, an outcome substantially larger than the 66% expectation recorded in the December 2025 Prothom Alo survey regarding the party's likely seat performance (Table 4). This gap between pre-election expectations and the certified outcome is discussed further in Section 5.3 in relation to the disproportionality typically associated with single-member plurality electoral systems. Jamaat-e-Islami won 68 seats (22.9%), its largest-ever result in a single election. NCP won 6 of the 30 seats it contested, including the seat of party leader Nahid Islam; NCP candidate Abdul Hannan Masud, aged 26, became the youngest member of parliament in Bangladesh's electoral history (Nath, 2026).

A constitutional referendum on the July National Charter was held alongside the parliamentary election, asking voters whether they supported the 'July National Charter (Constitutional Reform) Implementation Order, 2025' and four associated reforms: an election-time caretaker government system; a bicameral parliament with a proportionally allocated 100-member upper house; a binding requirement for winning parties to implement 30 consensus reform proposals; and other charter provisions. The referendum passed with 62.74% support.

The BNP government was sworn in on February 17, 2026, amid an opposition boycott by the Jamaat-NCP coalition over disagreements concerning the sequencing of July Charter implementation. International reaction was largely positive: the EU Election Observation Mission described the vote as a significant democratic milestone while noting that further reforms were needed (The Daily Star, 2026a), and the United States, which had previously criticized the conduct of Bangladesh's 2024 elections, characterized the 2026 vote as a success. Congratulatory messages followed from India, Pakistan, China, and Canada (CNN, 2026).

5. Discussion

5.1 Media Attention as an Indicator of Political Fragmentation

The concentration of pre-election media attention on BNP's internal nomination disputes, the largest single thematic category in the primary log, is consistent with the party's prominence as the presumptive election winner and with the scale of its internal organizational strain. A long-excluded party suddenly facing an abundance of aspiring candidates generated conflicts that were, by volume, the most heavily covered story of the pre-election period. The differential emphasis given to Jamaat-e-Islami's campaign by Islamic-conservative outlets compared with general-interest outlets is consistent with documented patterns of outlet-level political alignment in the Bangladeshi press (Ali, 2021). Because the primary dataset records only headline-level metadata, this study can speak to the relative volume of attention different outlets devoted to different actors; it cannot characterize how that attention was framed, evaluated, or received by audiences, and no causal claim is made linking pre-election coverage volume to vote choice.

5.2 Structural Constraints on Electoral Quality

Evidence from the supplementary sources and the HRSS (2026) observation report points to several constraints on the quality of the 2026 election: substantial pre-election and election-day violence, a majority of which independent monitors attributed to BNP-affiliated activists; the exclusion of the Awami League, which removed a major political actor from competition despite documented public ambivalence about that exclusion; and election-day irregularities recorded by HRSS observers. These constraints should be weighed against indicators of a genuinely competitive process, including the participation of 51 registered parties, a turnout of 59.88%, and the introduction of diaspora postal voting. Read through the lens of transitional-election theory (Levitsky & Way, 2002), the 2026 election represents a meaningful opening for competitive politics whose durability depends on whether the incoming government implements the July Charter commitments that underpinned the transition.

5.3 Seat-Vote Disproportionality Under First-Past-the-Post

A central analytical finding concerns the gap between pre-election expectations and the certified seat distribution. BNP’s 70.4% share of declared seats considerably exceeded the 66% expectation recorded in the December 2025 Prothom Alo survey regarding the party’s likely seat performance, and substantially exceeded what a single-party vote share near a plurality would typically be expected to produce under proportional allocation. This pattern is consistent with the well-documented tendency of single-member plurality systems to convert a geographically concentrated plurality of votes into a disproportionately large parliamentary majority (Lijphart, 1994). Jamaat-e-Islami’s 68 seats and NCP’s 6 of 30 contested seats further illustrate how the electoral system rewards geographically concentrated support while constraining parties with more dispersed support bases. This dynamic is directly relevant to the proportional-representation reforms debated by Jamaat and NCP during the referendum campaign.

5.4 Scope and Limitations of the Primary Dataset

Several limitations qualify the conclusions that can be drawn from this study. First, and most importantly, the primary dataset consists of article titles, outlet names, URLs, and publication dates rather than full article text; it is therefore suited to measuring the relative volume and topical distribution of pre-election coverage but not to making claims about media framing, narrative construction, or the causal influence of coverage on the electoral outcome, and this study has limited its claims accordingly. Second, the 14 sampled outlets, while representative of major print and digital Bangla- and English-language media, likely undercount regional, broadcast, and social-media-native sources of political information, which played an increasingly prominent role in the 2026 campaign. Third, the supplementary sources used to describe the period after December 10, 2025, were assembled through targeted retrieval of credible journalistic and official reporting rather than systematic, outlet-controlled sampling; conclusions about this period are limited to what each cited source specifically reports, and should not be read as deriving from the same systematic method as the primary log. Fourth, the public opinion findings rest on a single survey conducted by one outlet, and have not been validated against other polling. Fifth, the violence statistics in Section 4.4, while drawn from a credible and methodologically transparent civil-society monitor, reflect the observations of a single organization and may not capture the full universe of incidents.

5.5 Policy Implications

Three implications follow from these findings. For the Election Commission, the volume of pre-election media attention devoted to disputes over RPO amendments and symbol allocation suggests value in establishing a structured, earlier-stage consultation mechanism with contesting parties to reduce post-schedule disputes, alongside continued expansion of postal-voting infrastructure for the diaspora. For political parties, and particularly BNP given the violence attribution discussed in Section 4.4, the volume of coverage devoted to internal nomination disputes points to the value of more transparent candidate-selection procedures, while the seat-vote disproportionality discussed in Section 5.3 strengthens the case, raised by smaller parties during the referendum campaign, for considering proportional-representation elements in future electoral design. For researchers, this study's reliance on headline-level metadata illustrates both the value and the limits of large-scale media logs; future work would benefit from full-text content analysis, sentiment coding, and systematic inclusion of broadcast and social-media sources to test claims about media framing that the present dataset cannot support.

6. Conclusion

Bangladesh's 13th National Parliamentary Election, held on February 12, 2026, was the country's first genuinely multiparty competitive election since the July 2024 uprising ended 16 years of Awami League rule. BNP's majority victory, Jamaat-e-Islami's strongest-ever result, and the parliamentary entry of the newly formed NCP together reflect a political landscape substantially reshaped by the events of 2024.

This study's primary contribution is a systematic, if necessarily bounded, account of pre-election media attention: the volume and topical distribution of 1,423 headline-level entries from 14 outlets shows that BNP's internal nomination disputes, BNP-Jamaat competition, and Election Commission decision-making dominated pre-election news attention, with rising coverage of violence and NCP's positioning as the election date approached. Read alongside supplementary evidence on violence, public opinion, and certified results, these patterns describe an election that was neither without serious flaws, including substantial violence, the exclusion of a major party, and documented irregularities, nor without genuine competitive substance, including broad multiparty participation and meaningful turnout. The principal task facing Bangladesh's new BNP-led government will be to translate this qualified electoral legitimacy into governance consistent with the reform commitments that accompanied the 2026 transition.

Funding

There is no funding to report.

Conflicts of Interest

The author(s) declare no conflicts of interest regarding the publication of this paper.

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Journal of Advances in Social Sciences

2026, Volume 2, Issue 3 | ISSN 3105-899X | eISSN 3105-9007

Exploring the Feasibility of Applying the CER Framework to High School English Writing Instruction: Evidence from a *Sports and Fitness* Thematic Context

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Received
2026-5-7
Accepted
2026-6-19
Published
2026-6-28

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DOI: https://doi.org/10.65192/sjmdyy02

Abstract

High school English writing instruction faces persistent structural challenges, including vague argumentation, unorganised evidence, and broken reasoning chains. Existing pedagogical frameworks—process writing, genre-based pedagogy, and reading-writing integration—share a systemic gap in scaffolding students' argumentative logic. This paper conducts a theoretical investigation into the feasibility of integrating the Claim-Evidence-Reasoning (CER) framework into high school English writing instruction, using a *Sports and Fitness* thematic context drawn from the national PEP-A textbook series as an illustrative case. Drawing on a systematic review of recent empirical literature, the paper first examines the theoretical alignment between CER's three components and the core competences demanded by high school argumentative writing, demonstrating that Claim corresponds to thesis clarity, Evidence to the organisation of supporting details, and Reasoning to logical coherence and development. A three-stage instructional model (pre-writing, while-writing, post-writing) is then elaborated to operationalise the framework across the writing process. Pedagogical tools—including a Claim generation protocol, evidence classification scaffolds, Reasoning sentence starters, and a CER-aligned analytic rubric—are proposed and illustrated with topic-specific examples. The paper further discusses the complementarity of CER with existing frameworks, its comparative advantage over the Toulmin model in secondary school contexts, and its practical limitations with respect to genre range and grade level. The study contributes to the emerging body of cross-disciplinary research on CER and provides a theoretically grounded, practically operable blueprint for subsequent empirical investigation.

Keywords
Argumentation; Critical thinking; CER framework; EFL pedagogy; High school English writing

1. Introduction

Writing proficiency in English as a Foreign Language (EFL) settings is widely regarded as the most complex and cognitively demanding of the four macro-skills, not only because it draws on the full breadth of language knowledge but because it simultaneously requires structured reasoning, rhetorical awareness, and the strategic organisation of ideas into a coherent discourse (Grabe & Kaplan, 1996, as cited in Dong & Zhang, 2023). In the Chinese high school context, English writing—particularly argumentative and expository genres—occupies a central position in both the national curriculum and high-stakes assessment. The Ordinary High School English Curriculum Standards (Ministry of Education of China, 2020) explicitly specify written argumentation as a key dimension of students' core literacy, requiring them to articulate clear positions, deploy relevant and credible evidence, and construct logically sound reasoning chains.

Despite this policy emphasis, empirical research consistently documents deep-seated argumentative deficiencies in Chinese high school students' English writing. Huang and Li (2022) conducted a corpus-based analysis of 240 argumentative essays produced by upper-secondary EFL learners and found that 71% exhibited what they termed 'evidence stacking without reasoning'—a pattern in which students juxtapose multiple pieces of evidence without providing any logical explanation connecting that evidence to the stated claim. Zhang et al. (2023) corroborated this finding through qualitative interviews with 28 experienced high school English teachers across five provinces, all of whom identified 'the inability to transform evidence into argument' as the single most common and most persistent weakness in their students' writing. These findings collectively point to a structural gap at the level of argumentation—specifically, in the metacognitive skill of reasoning, which bridges the gap between data and conclusion.

The theoretical roots of this problem are traceable, in part, to the instructional frameworks that dominate high school English writing pedagogy. Process writing pedagogy, which foregrounds recursive drafting and revision, has been shown to improve content richness and engagement but provides no structural guidance on argumentation logic (Gu & Wang, 2021). Genre-based pedagogy attends to textual conventions and schematic structures but tends to treat logical development as a surface-level formatting concern rather than a deep reasoning skill (Lin, 2022). Reading-writing integration, which leverages input texts as models for output production, likewise lacks dedicated scaffolding for the reasoning process (Dong & Zhang, 2023). The cumulative result is a pedagogical environment in which students are provided with rich linguistic input and structural templates yet remain without explicit guidance on how to reason argumentatively in writing.

The Claim-Evidence-Reasoning (CER) framework, originally developed for science education by McNeill and Krajcik (2012), offers a theoretically promising response to this gap. The framework's three components—a focused, contestable Claim; relevant, sufficient, and credible Evidence; and explicit Reasoning that articulates the logical connection between Evidence and Claim—map directly onto the argumentative competences that high school EFL writing demands. Crucially, the Reasoning component, which requires students to explain why evidence supports a claim rather than merely presenting it, directly targets the 'evidence stacking' problem identified in recent empirical research (Huang & Li, 2022; Zhang et al., 2023). A growing body of work has demonstrated the effectiveness of CER training in developing argumentative writing quality in science contexts (Sampson et al., 2021; Choi & Hand, 2022) and has begun to explore its cross-disciplinary applicability (Colley & Windschitl, 2021; Li & Chen, 2023), yet no systematic theoretical account exists of how CER might be operationalised specifically within high school EFL writing instruction.

This paper addresses that gap through a theoretically grounded feasibility analysis guided by three research questions:

RQ1: To what extent does the CER framework align theoretically with the core competence demands of high school English argumentative writing?

RQ2: What pedagogical pathways can operationalise the CER framework across the high school English writing process?

RQ3: How can the CER framework be concretely instantiated within a *Sports and Fitness* thematic writing context?

The paper proceeds as follows: Section 2 provides a systematic literature review covering CER's theoretical origins, its documented effectiveness, its cross-disciplinary applications, and the known limitations of existing high school EFL writing frameworks. Section 3 develops the theoretical alignment analysis responding to RQ1. Section 4 constructs the three-stage instructional model responding to RQ2 and RQ3, drawing throughout on the *Sports and Fitness* theme as an illustrative context. Section 5 discusses theoretical contributions, limitations, and directions for future empirical research. Section 6 concludes.

2. Literature Review

2.1 The CER Framework: Origins, Components, and Theoretical Foundations

The CER framework emerged from sustained efforts within science education research to make students' epistemic reasoning visible and teachable. McNeill and Krajcik (2012) consolidated earlier work on scientific explanation and argument—including Toulmin's (1958) model of argumentation and Driver et al.'s (2000) analysis of scientific discourse—into a three-component instructional scaffold designed for classroom use. Their framework defines a Claim as a testable, contestable statement that responds to a specific question; Evidence as data or information that is relevant, sufficient, and credible enough to support the Claim; and Reasoning as the explicit articulation of why the Evidence supports the Claim, including the underlying scientific principles, causal mechanisms, or logical rules that connect the two.

The Reasoning component is widely regarded as the framework's most theoretically distinctive contribution. As Colley and Windschitl (2021) observe, traditional writing instruction tends to treat evidence as self-evidently supportive of claims, an assumption they describe as the 'ostensive fallacy'—the implicit belief that pointing to evidence is equivalent to arguing with it. Reasoning, by contrast, requires students to make explicit the inferential moves that transform data into argument, a metacognitive operation that research across multiple disciplines associates with the development of critical thinking (Sampson et al., 2021; Choi & Hand, 2022). This is precisely the operation that Chinese EFL students have been found to lack: they present evidence but do not explain its argumentative significance (Huang & Li, 2022).

From a theoretical standpoint, the CER framework draws on several converging intellectual traditions. Vygotsky's (1978) zone of proximal development underlies its scaffolding logic: explicit, named components reduce the cognitive complexity of argumentation by decomposing an integrated skill into teachable sub-skills. Bereiter and Scardamalia's (1987) distinction between knowledge-telling and knowledge-transforming writing aligns with CER's ambition to move students from information reproduction to genuine argumentative reasoning. More recently, the framework has been theoretically positioned within systemic functional linguistics, with Reasoning corresponding to the logical-semantic relations—in particular causality and elaboration—that Halliday and Matthiessen (2014) identify as central to expository and argumentative discourse (Li & Chen, 2023).

2.2 Empirical Evidence for CER's Effectiveness in Writing Instruction

A substantial body of empirical research supports the effectiveness of CER-based instruction for improving argumentative writing quality. Sampson et al. (2021) conducted a large-scale meta-analysis synthesising results from 34 studies involving over 4,000 middle and high school students in science classrooms. Their analysis found a weighted mean effect size of $d = 0.71$ for overall argumentation quality, with the largest gains observed specifically in the Reasoning dimension ($d = 0.89$), suggesting that explicit Reasoning instruction—the component most absent from traditional writing pedagogy—produces the most substantial improvements in student writing.

Choi and Hand (2022) conducted a pretest-posttest quasi-experimental study with 186 ninth-grade science students in South Korea, comparing CER-instructed classes with control classes receiving conventional writing instruction. Results indicated that the CER group significantly outperformed the control group on holistic essay quality ($p < .001$, $d = 0.63$), with the most pronounced differences in the coherence and logical development subscores of the analytic rubric. Critically, the qualitative analysis of student writing samples revealed that CER-instructed students had shifted from what the researchers call 'evidence listing' to 'evidence reasoning'—the exact shift that Zhang et al. (2023) identify as the key unmet need in Chinese EFL writing instruction.

Research on CER in writing-to-learn contexts has produced complementary findings. Graham et al. (2021) reviewed 56 experimental and quasi-experimental studies on writing instruction across disciplines and identified structured argumentation frameworks as among the most consistently effective interventions for improving academic writing quality at the secondary level, with particular efficacy when combined with modelling and feedback. Notably, the review found that effectiveness was not discipline-specific: the gains associated with structured argumentation scaffolds were as strong in humanities and social science contexts as in natural science settings, a finding that supports the cross-disciplinary applicability of CER.

2.3 Cross-Disciplinary Applications of the CER Framework

The cross-disciplinary transfer of CER has been investigated in a growing number of studies over the past five years. Li and Chen (2023) conducted a mixed-methods study examining the effects of CER-based writing instruction on 94 ninth-grade students in a Chinese middle school social studies context. The experimental group received a ten-lesson CER instructional sequence; the control group received conventional essay instruction. Post-intervention analysis of student writing revealed significant improvements in the experimental group's claim specificity, evidence relevance, and—most strikingly—the logical explicitness of their reasoning, with effect sizes ranging from $d = 0.58$ to $d = 0.77$. The researchers attributed the success of the transfer to CER's domain-general logic: while the content of claims, evidence, and reasoning naturally differs across disciplines, the structural and metacognitive demands remain constant.

Colley and Windschitl (2021) offer a complementary theoretical account of cross-disciplinary transferability. In their analysis of how novice teachers deploy cognitive scaffolds across subject areas, they argue that the CER framework functions as a 'visible thinking scaffold'—a tool that externalises otherwise invisible reasoning processes, making them objects of explicit instruction and peer critique. This externalisation function, they argue, is domain-neutral: any discipline that requires evidence-based argumentation can benefit from making reasoning explicit in the CER format. Their analysis specifically includes language arts and EFL contexts as promising sites for CER application, noting that the framework's alignment with genre expectations for argument essays is particularly strong.

Additional cross-disciplinary work includes Nussbaum et al. (2021), who investigated CER's effectiveness in secondary history writing and found significant improvements in the quality of historical argumentation, particularly in students' ability to contextualise and evaluate historical evidence. Kuhn and Modrek (2022) applied a modified CER framework in a secondary civics context and documented gains in both written argumentation quality and self-reported metacognitive awareness. These studies collectively establish a pattern of effective cross-disciplinary transfer that provides theoretical warrant for the present investigation into CER's applicability in EFL writing instruction.

2.4 High School EFL Writing Instruction: Persistent Challenges and Framework Limitations

Despite decades of research and reform effort, high school EFL writing instruction in China continues to face structural challenges centred on argumentation quality. Huang and Li (2022) identified 'evidence stacking without reasoning' as the most prevalent argumentative deficiency in a corpus of 240 high school essays, noting that the problem appears to intensify at higher grade levels—a counterintuitive finding they attribute to the cumulative effects of instruction that rewards content quantity over argumentative quality. Zhang et al.'s (2023) interview study revealed that teachers are well aware of the problem but lack practical tools to address it: all 28 participants described feeling 'equipped to teach language but not to teach argument.'

Analysis of specific instructional frameworks illuminates why the gap persists. Gu and Wang (2021) examined the application of process-genre pedagogy in 14 Chinese high school classrooms over one academic year and found that while the approach successfully improved students' structural awareness and revision engagement, it produced no significant gains in argumentative coherence. The researchers concluded that process-genre pedagogy, by foregrounding the procedural and schematic aspects of writing, implicitly treats argumentation logic as a product of genre knowledge rather than a separable skill requiring its own instruction.

Lin (2022) conducted a large-scale mixed-methods investigation of genre-based writing pedagogy in 22 Chinese high school classrooms, collecting both student writing samples and teacher reflection data. The study found that genre-based instruction significantly improved text organisation and lexicogrammatical accuracy but produced minimal gains in logical development. Lin attributes this limitation to what she terms 'structural fetishism'—an instructional tendency to treat genre templates as sufficient conditions for good writing, overlooking the reasoning processes that must fill those structures with meaningful argument.

Dong and Zhang (2023) conducted a systematic review of 68 empirical studies on reading-writing integration in EFL instruction published between 2012 and 2022. While the approach was found to be effective for vocabulary development, reading comprehension, and writing fluency, the review identified a consistent absence of dedicated argumentation scaffolds in RWI designs, limiting its contribution to the development of reasoning-intensive writing. Collectively, these findings confirm a systemic gap in the existing pedagogical repertoire: all three dominant frameworks improve important aspects of writing but leave argumentative reasoning—and specifically the Reasoning component that connects evidence to claim—substantially unaddressed.

2.5 Positioning the Present Study

The foregoing review reveals two converging gaps in the literature. First, while CER has been successfully deployed in cross-disciplinary writing contexts, its systematic application to high school EFL writing has not been theoretically elaborated. Second, while the argumentative deficiencies of Chinese high school EFL writers have been extensively documented, no framework-level response specifically targeting the Reasoning dimension has been proposed. The present study is positioned at the intersection of these gaps: it constitutes a theoretically grounded feasibility analysis that maps the structural alignment between CER and high school EFL writing demands and constructs an operational instructional model for CER's integration into high school English writing pedagogy.

3. Theoretical Framework: CER and High School English Writing

3.1 Component-Level Alignment Analysis

The core theoretical claim of this paper is that the three components of the CER framework exhibit high-fidelity alignment with the core competence requirements of high school English argumentative writing as specified in the national curriculum standards (Ministry of Education of China, 2020). This alignment is not merely analogical; it reflects a deep structural correspondence between the epistemological demands of scientific argumentation and the rhetorical demands of academic writing in English. Table 1 presents the alignment mapping.

Table 1. Alignment between CER components and high school EFL writing core competences

CER Component	Core Requirement	Corresponding Writing Competence	Argumentative Problem Addressed
Claim	Specificity; contestability	Clear thesis statement; debatable central position	Vague, non-arguable, or absent central claim
Evidence	Relevance; sufficiency; credibility	Organised, multi-type supporting details from credible sources	Unrelated evidence stacking; single-source over-reliance
Reasoning	Logical explicitness; inferential bridging	Coherence and logical development; causal and elaborative connections	Broken reasoning chains; evidence-claim disconnect

Regarding Claim alignment: The national curriculum specifies that students should be able to "express opinions clearly and precisely, support those opinions with appropriate evidence, and demonstrate logical reasoning and argumentation" (Ministry of Education of China, 2020, p. 7). The CER framework's Claim requirement—that a claim must be specific, contestable, and directly responsive to the writing prompt—directly scaffolds the thesis statement competence that this specification demands. Critically, the Claim component introduces a threshold that students often do not encounter in conventional instruction: the distinction between an arguable proposition and a commonly accepted truth. This distinction is essential for producing writing that achieves genuine argumentative force, since only a contestable claim provides the rhetorical motivation for marshalling evidence and constructing reasoning (Choi & Hand, 2022). In the *Sports and Fitness* context, for instance, 'physical exercise benefits health' fails this threshold because it is not contestable; 'sustained participation in competitive sports substantially improves adolescents' cognitive self-regulation' meets the threshold because it is specific, debatable, and requires evidentiary support.

Regarding Evidence alignment: High school English argumentative writing requires students to "select and organise supporting details that are relevant, sufficient, and credible" (Ministry of Education of China, 2020, p. 8)—a formulation that maps precisely onto CER's three-part evidence standard. The curriculum standard also implicitly distinguishes between anecdotal and empirical evidence, privileging the latter in formal writing, which aligns with CER's emphasis on credibility. The most important pedagogical implication of this alignment is that CER's evidence standard provides an explicit, student-facing criterion set that conventional instruction typically leaves tacit: students are told to 'use evidence' but are rarely given operational criteria for what counts as relevant, sufficient, and credible evidence in English academic writing (Huang & Li, 2022). The CER framework makes these criteria explicit and teachable.

Regarding Reasoning alignment: This is the most consequential point of alignment, because it corresponds to the most significant instructional gap. The national curriculum requires students to demonstrate 'coherence and logical development' in their writing, but neither the curriculum document nor standard pedagogical frameworks specify what logical development means at the level of individual argumentative moves. CER fills this gap precisely: Reasoning is defined as the explicit articulation of why evidence supports a claim, encompassing causal explanation, principle application, and inferential bridging. This definition gives teachers and students a concrete, instructable target for the 'reasoning' that the curriculum demands but does not specify. As Zhang et al. (2023) observe, teachers know their students lack reasoning ability but lack the vocabulary and framework to teach it directly; CER provides both.

3.2 CER Versus the Toulmin Model: Pedagogical Fit in the Secondary EFL Context

A natural question arises as to why the CER framework is preferred over the Toulmin (1958) model of argumentation, which has a longer history and broader theoretical elaboration. The Toulmin model includes six components: Claim, Grounds, Warrant, Backing, Qualifier, and Rebuttal. While its comprehensiveness makes it valuable for advanced argumentation analysis, several features limit its pedagogical utility in the high school EFL context. First, the model's six-component structure imposes a high cognitive load, particularly for students writing in a foreign language, who must simultaneously manage linguistic encoding and argumentative structure (Colley & Windschitl, 2021). Second, the distinction between Grounds (evidence) and Warrant (the rule that licenses the inferential step) is philosophically important but practically difficult for secondary students to operationalise without substantial philosophical training; in classroom research, students frequently confuse Grounds and Warrant or conflate Warrant with Backing (Nussbaum et al., 2021).

The CER framework, by contrast, reduces the model to three components whose functions are more transparent and whose relationships are more easily grasped. The combined Reasoning component in CER integrates the functions of Toulmin's Warrant and Backing without requiring students to distinguish between them—a simplification that research suggests is pedagogically appropriate at the secondary level (Sampson et al., 2021). Furthermore, the CER framework was specifically designed as an instructional scaffold, not only as a descriptive model of argument structure: its three components are calibrated to be teachable within standard lesson sequences and assessable through accessible rubrics, qualities that make it more suitable for classroom implementation than the Toulmin model's more analytically oriented structure (Li & Chen, 2023). This is not to say that the Toulmin model has no place in high school writing instruction; rather, its complexity makes it better suited to elective or advanced coursework, while CER is appropriate for mainstream instruction.

3.3 The *Sports and Fitness* Theme as Illustrative Context: Rationale

The *Sports and Fitness* theme from PEP-A Compulsory Book 1 is selected as the illustrative context for this paper's instructional model for four interrelated reasons. First, the theme's topics—competitive sports, physical training regimens, the relationship between sport and academic performance, the psychology of athletic motivation—possess intrinsic debatability: they admit multiple defensible positions, which is the prerequisite condition for CER-based instruction, since the Claim component requires a contestable proposition (Choi & Hand, 2022). Topics such as ‘Does competitive sport build or damage character in adolescents?’ or ‘Should physical fitness be a graded academic requirement?’ exemplify the kind of genuine controversy that motivates authentic argumentation.

Second, the theme is extensively represented in high school English curricula across multiple textbook editions and is a recurring topic in both provincial and national examinations, meaning that instructional designs developed for this context have broad applicability and are likely to be of direct practical use to teachers. Li and Chen (2023) specifically identify the *Sports and Fitness* domain as one of the most frequently examined argumentative writing topics in Chinese high school English assessment, confirming its pedagogical relevance.

Third, students bring substantial prior knowledge and lived experience to this theme—they have direct experience of physical education classes, sports participation, and the social discourse around fitness—which reduces the content knowledge load of the writing task. This is pedagogically significant because research on writing instruction consistently shows that high content knowledge load competes with cognitive resources that would otherwise be devoted to higher-order writing processes such as argumentation planning and reasoning construction (Graham et al., 2021). A theme that students know well allows instruction to focus attention on the argumentative framework itself.

Fourth, the theme’s cross-disciplinary character—it intersects sport science, psychology, education research, and public health—provides access to multiple types of evidence (statistical data, experimental findings, expert opinion, case studies), which allows for explicit instruction in evidence classification and selection, a key component of the pre-writing stage described in Section 4.

4. A Three-Stage Instructional Model for CER Integration

This section elaborates the three-stage instructional model that constitutes this paper’s primary practical contribution. The model is organised around the standard process writing sequence—pre-writing, while-writing, and post-writing—which provides a familiar structural frame for teachers while integrating CER-specific interventions at each stage. The model is designed to be modular: individual components can be used in isolation or combined into a complete instructional sequence, depending on available instructional time and student proficiency level.

4.1 Stage One: Pre-Writing — Claim Generation and Evidence Classification

4.1.1 Claim generation protocol

The pre-writing stage addresses two foundational tasks: generating a defensible Claim and assembling a classified Evidence pool. Claim generation is the less intuitive of the two for students accustomed to writing instruction that begins with “choose your topic” rather than “define your position”. Many students, when asked to write on a topic, default to descriptive or expository modes rather than genuinely argumentative ones—a tendency documented by Zhang et al. (2023) as topic treatment without position taking. The Claim generation protocol proposed here addresses this through a three-step sequence.

Step 1: Prompt decomposition. Students analyse the writing prompt to identify the contested issue and the range of defensible positions. For a prompt such as "Write an argumentative essay discussing whether participating in competitive sports is beneficial for high school students", the contested issue is the net effect of competitive sports on adolescent development, and defensible positions range from unqualified endorsement to qualified support to critical opposition. This step activates students' awareness that the writing task requires a position, not merely information.

Step 2: Claim refinement through specificity and contestability screening. Students draft an initial claim and evaluate it against two criteria: Is it specific? Is it contestable? The screening process is supported by a contrastive example set. In the *Sports and Fitness* context, the progression from weak to strong Claim might look as follows:

Weak Claim: 'Competitive sports are good for high school students.' [Too general; not clearly contestable]

Improved Claim: 'Participation in team sports benefits high school students in multiple ways.' [Still vague; lacks a specific mechanism or measurable outcome]

Strong Claim: 'Regular participation in competitive team sports significantly enhances high school students' self-regulatory capacity, producing measurable gains in both academic performance and emotional resilience.' [Specific, contestable, and arguable with empirical evidence]

Step 3: Claim-to-evidence preview. Once a Claim is established, students sketch the types of evidence they will need: what kind of data would confirm the claim? What expert perspectives are relevant? What case-level illustrations might be persuasive? This step creates the cognitive bridge between Claim generation and Evidence classification.

4.1.2 Evidence classification and relevance screening

The evidence classification scaffold organises the evidence-gathering process around CER's three-part evidence standard: relevance, sufficiency, and credibility. Students working on a *Sports and Fitness* argumentative essay are directed to collect evidence across three categories, each illustrated with source-type guidance:

Category 1: Quantitative Data. This includes statistics from government bodies (e.g., national physical education surveys), results from empirical studies (e.g., controlled trials measuring the effects of sport participation on academic outcomes), and longitudinal health data. Credibility screening requires students to identify the source institution and verify that data has been published in a peer-reviewed or officially endorsed outlet.

Category 2: Expert and Scholarly Opinion. This includes statements from researchers in sport psychology, exercise science, and educational psychology, as well as position statements from professional organisations (e.g., the World Health Organization, national sports federations). Students are guided to distinguish between informed expert opinion (which carries evidential weight) and popular opinion (which does not).

Category 3: Illustrative Cases. This includes documented individual cases, institutional programmes, or comparative international examples (e.g., Finland's integration of physical activity into the school day and its associated academic outcomes). Students are guided that cases are most effective as illustrative support for claims already supported by quantitative and expert evidence, not as primary evidence in isolation.

After collecting evidence across all three categories, students apply a relevance screening rubric: for each piece of evidence, they must answer ‘How does this evidence directly support my specific Claim?’ If they cannot articulate a direct logical connection, the evidence is flagged as potentially off-topic and set aside. This step embeds the beginning of the Reasoning process at the pre-writing stage, creating continuity between evidence collection and reasoning construction.

4.2 Stage Two: While-Writing — CER Paragraph Architecture and Reasoning Scaffolds

4.2.1 CER-based paragraph architecture

At the while-writing stage, the instructional model focuses on translating the CER structure into paragraph-level writing. The proposed paragraph architecture for CER-informed argumentative writing consists of four elements arranged in a logical sequence:

1. Topic Sentence (Claim): States the paragraph’s argumentative position, which should be either the essay’s central Claim or a subordinate claim supporting it.

2. Evidence: Presents 1–2 pieces of relevant, credible evidence drawn from the classified evidence pool.

3. Reasoning: Explicitly articulates why the evidence supports the claim, identifying the causal mechanism, logical principle, or inferential bridge that connects them.

4. Concluding Sentence: Summarises the paragraph’s argumentative contribution and, where appropriate, transitions to the next paragraph.

The following annotated model paragraph, developed for the *Sports and Fitness* context, illustrates how this architecture operates in practice:

[Topic Sentence / Claim] Regular participation in competitive team sports significantly strengthens adolescents’ capacity for self-regulation, a competence with documented positive effects on academic achievement.

[Evidence] A three-year longitudinal study conducted by Batista et al. (2024) tracked 1,340 adolescents aged 13–16 across schools in Canada and France and found that students who participated in organised team sports for a minimum of four hours per week demonstrated statistically significant improvements on validated measures of emotional regulation, impulse control, and goal-directed behaviour compared with matched non-participating peers ($d = 0.68$, $p < .001$).

[Reasoning] This outcome is consistent with what exercise psychology research identifies as the ‘dual-channel mechanism’ of sport participation: competitive team sport simultaneously builds physiological self-regulation through repeated aerobic exertion—which has been shown to strengthen prefrontal cortical networks associated with executive function—and social self-regulation through the demands of cooperative play, role performance, and conflict management with teammates. Both channels produce self-regulatory capacities that are not specific to athletic contexts but transfer to academic settings, where sustained attention, frustration tolerance, and goal management are equally required. The evidence therefore supports

the claim not merely empirically, by showing a correlation, but mechanistically, by identifying the processes through which sport participation produces academic-domain self-regulation gains.

[Concluding Sentence] The documented self-regulatory effects of competitive sport thus provide a compelling, evidence-grounded basis for the claim that sport participation yields generalisable developmental benefits for high school students.

This model paragraph illustrates several features of effective CER-structured writing that students should be trained to recognise and replicate. First, the Reasoning section is substantially longer than the Evidence section—a proportion that surprises many students who are accustomed to treating evidence presentation as the primary task of an argumentative paragraph. Second, the Reasoning makes explicit the causal mechanism ('dual-channel mechanism') rather than simply asserting that a connection exists. Third, the Reasoning acknowledges the type of evidence presented (correlational) and explains why mechanism-level reasoning strengthens the argumentative force beyond what correlation alone provides—a metacognitive move that distinguishes sophisticated from superficial argumentation.

4.2.2 Reasoning sentence starters and metacognitive prompts

Because Reasoning construction is the most challenging component for students, dedicated linguistic and metacognitive scaffolds are essential. Research on writing scaffolds indicates that sentence starters are most effective when they encode the inferential move they are designed to support, not merely the surface discourse function (Graham et al., 2021). The following sentence starters are designed to prompt the specific types of reasoning most relevant to *Sports and Fitness* argumentative writing:

For causal reasoning: 'This evidence supports the claim because the mechanism involved is…'; 'The reason this finding is relevant to the claim is that it demonstrates the causal pathway from… to…'

For principle-based reasoning: 'This evidence is consistent with the well-established principle that…, which explains why…'; 'The connection between this evidence and the claim rests on the principle of…'

For inferential bridging: 'What this evidence shows is not merely that X occurs, but that it occurs because…, which means that…'; 'The significance of this evidence for the claim lies in the fact that…'

For addressing competing evidence: 'While one might object that this evidence only demonstrates correlation rather than causation, the claim is nonetheless supported because…'

These starters are not intended as fixed templates but as cognitive entry points that help students begin the reasoning process and develop their own phrasing as their reasoning fluency grows. Teachers should model the use of these starters through think-aloud protocols in which they narrate their own reasoning process while constructing a model paragraph, making the invisible cognitive work of argumentation visible for students (Colley & Windschitl, 2021).

4.2.3 Whole-essay CER architecture

Beyond the paragraph level, the CER framework provides structural guidance for the essay as a whole. In a five-paragraph argumentative essay—the standard format expected in high school examinations—the recommended macro-architecture is as follows:

Paragraph 1 (Introduction): Contextualise the issue, present the central Claim, and preview the argumentative structure. The Claim in the introduction corresponds to the essay's thesis statement; it should be the most refined, specific, and contestable version of the position the writer intends to defend.

Paragraphs 2–3 (Body Paragraphs): Each body paragraph presents and develops a subordinate Claim that supports the central thesis. Each subordinate Claim should be supported by at least one strong piece of Evidence and followed by explicit Reasoning. A well-structured body paragraph in this model typically runs between 150 and 220 words, with Reasoning constituting at least 40% of the paragraph's word count.

Paragraph 4 (Counter-argument and Rebuttal): This paragraph demonstrates intellectual honesty by acknowledging the strongest counter-argument to the central Claim, then providing Evidence and Reasoning that rebut it or qualify its force. The inclusion of a counter-argument paragraph strengthens rather than weakens an argument, because it demonstrates awareness of the argumentative landscape and grounds the defence of the central Claim in a fuller evidentiary picture.

Paragraph 5 (Conclusion): Synthesises the argumentative development across body paragraphs, restates the central Claim in light of the evidence and reasoning developed, and, where appropriate, extends the argument to broader implications.

4.3 Stage Three: Post-Writing — CER-Aligned Assessment and Revision

4.3.1 CER-aligned analytic rubric

The post-writing stage is where the instructional model achieves its formative closure: students evaluate their writing—and each other's—against explicit CER-informed criteria, then revise in response to feedback. The analytic rubric in Table 2 operationalises the CER framework as an assessment tool.

Table 2. CER-aligned analytic rubric for high school EFL argumentative writing

Dimension	**4 — Advanced**	**3 — Proficient**	**2 — Developing**	**1 — Beginning**
Claim (Thesis Clarity)	Central claim and all paragraph claims are specific, contestable, and directly responsive to the prompt	Central claim is clear; most paragraph claims are adequately specific	Central claim is present but vague or non-contestable; paragraph claims are inconsistent	No clear central claim; position is absent or indistinct throughout
Evidence (Supporting Details)	Multiple evidence types (data, expert opinion, case) are used; all are directly relevant, sufficient, and credible; sources are acknowledged	Evidence is mostly relevant and credible; at least two evidence types are represented	Some evidence is relevant; single evidence type predominates; credibility is inconsistent	Evidence is absent, largely irrelevant, or anecdotal throughout
Reasoning (Logical Bridging)	Reasoning explicitly and fully articulates why each piece of evidence supports the claim; causal or principle-based mechanisms are identified	Reasoning is present and mostly explicit; some inferential steps are implied rather than stated	Some reasoning is present but reasoning chains are incomplete or contain logical gaps	No reasoning is provided; evidence is listed without argumentative explanation

Overall Coherence	Essay is fully coherent; CER components form a complete logical chain across all paragraphs; transitions are logical and smooth	Essay is mostly coherent; the logical chain is present with minor breaks	Coherence is partial; logical development is interrupted by evidence-claim disconnects	Essay lacks coherence; paragraphs are argumentatively disconnected

Several features of this rubric merit elaboration. First, the rubric is designed to be used by both teachers and students as a peer assessment and self-assessment tool, not only as a summative scoring instrument. Research consistently demonstrates that the greatest formative gains from rubrics come when students use them to evaluate writing before and after revision, because the process of applying the rubric forces metacognitive engagement with the criteria that constitute quality writing (Graham et al., 2021).

Second, the rubric deliberately weights Reasoning as an independent dimension equivalent in importance to Claim and Evidence, which sends a clear instructional signal to students about the argumentative value of explicit reasoning. In conventional writing assessment, reasoning is typically subsumed under 'coherence' or 'organisation' and is not separately scored—a design decision that inadvertently reinforces students' tendency to treat evidence presentation as argumentative completion.

4.3.2 CER-focused teacher feedback and revision protocols

The post-writing stage also requires a reorientation of teacher feedback practices. Research by Lin (2022) found that in typical Chinese high school English writing classrooms, approximately 78% of teacher written feedback comments addressed grammar, vocabulary, and mechanical errors, with fewer than 10% targeting argumentation logic. This distribution of feedback attention perpetuates the very imbalance that produces students' argumentative deficiencies: if teachers attend primarily to surface correctness, students will prioritise surface correctness, and the deeper argumentative work that produces skilled writing will remain systematically underdeveloped.

In a CER-integrated classroom, teacher feedback should be restructured around the three CER dimensions. For Claim-level feedback, teachers might write: 'Your central claim is present but not yet contestable—consider adding a specific mechanism or comparative qualifier that makes the claim debatable.' For Evidence-level feedback: 'The two pieces of evidence you present are both relevant to the claim, but both come from the same source type (personal anecdote). Adding a data-based or expert-opinion source would strengthen the evidential base.' For Reasoning-level feedback: 'Your Reasoning in paragraph two lists the same information as your Evidence rather than explaining why that evidence supports your claim. Can you identify the causal mechanism that connects the evidence to your specific claim?'

The revision protocol built around this feedback follows a three-cycle structure aligned with the writing process literature: initial peer review using the CER rubric, teacher feedback focused on the highest-priority CER dimension requiring improvement, and a second revision cycle in which students address the identified gap. This cycle operationalises the 'write-evaluate-revise' loop that Colley and Windschitl (2021) identify as the central mechanism through which CER scaffolding produces lasting improvements in argumentative writing quality.

5. Discussion

5.1 Theoretical Contributions

This paper makes three interconnected theoretical contributions to the literature on EFL writing instruction and cross-disciplinary argumentation pedagogy. The first and most fundamental contribution is the systematic theoretical justification for CER's cross-disciplinary transfer to high school EFL writing instruction. While previous work on CER's cross-disciplinary applicability has proceeded largely empirically—demonstrating effects in specific non-science contexts without elaborating the theoretical rationale—this paper provides a component-level alignment analysis that grounds the transfer in structural correspondence between the epistemological demands of scientific argumentation and the rhetorical demands of academic writing. This theoretical grounding is important because it explains not only that CER can work in EFL writing contexts but why it should work: the structural gap that CER's Reasoning component targets—the failure to make the inferential move from evidence to claim explicit—is a domain-general argumentative deficit, not a science-specific one (Colley & Windschitl, 2021; Zhang et al., 2023).

The second contribution is the elaboration of a three-stage instructional model that operationalises CER across the full writing process. Previous work applying CER outside science education (Li & Chen, 2023; Nussbaum et al., 2021) has typically focused on isolated components—teaching the Claim criterion in isolation, or using the Reasoning criterion as a post-writing evaluation heuristic—without integrating all three components across a coherent pedagogical sequence. The model proposed here provides that integration, demonstrating how Claim generation protocol, evidence classification scaffolds, Reasoning sentence starters, and CER-aligned rubric constitute a mutually reinforcing instructional ecology rather than a set of independent techniques. This ecological view of the three-stage model is consistent with the process writing literature's emphasis on the interconnectedness of pre-writing, drafting, and post-writing activities (Graham et al., 2021).

The third contribution is the explicit positioning of CER as a complementary intervention within the existing pedagogical framework rather than a competing alternative. The paper's analysis of existing frameworks reveals that process writing, genre-based pedagogy, and reading-writing integration each addresses important dimensions of writing quality—process management, textual convention, and input-output integration—while collectively leaving argumentative reasoning underserved. CER fills this specific gap without requiring the abandonment of existing approaches. This 'additive complementarity' framing is pedagogically important because it lowers the implementation barrier for teachers, who need not dismantle their existing instructional repertoire but can integrate CER as a targeted augmentation. Gu and Wang (2021) and Lin (2022) have each noted the difficulty of implementing wholesale framework replacements in the high-stakes Chinese high school context; an additive intervention is both theoretically coherent and practically more feasible.

5.2 Limitations

This study has three principal limitations that must be acknowledged. The first is that it is exclusively theoretical in character. All findings are derived from literature synthesis and deductive reasoning; no empirical data from actual classroom implementation of CER-informed EFL writing instruction is reported. This means that claims about the framework's efficacy in high school English writing contexts are inferential—warranted by alignment analysis and analogy with empirical findings from related contexts—but not directly evidenced. The practical challenges of implementation, including teacher uptake, student motivation, and time constraints under examination pressure, remain empirically unexamined.

The second limitation concerns genre scope. The paper focuses on argumentative and expository writing because the CER framework's Claim requirement presupposes a contestable position, which is a feature of argument-oriented genres but not of narrative, descriptive, or applied writing. High school English curricula include a range of genres—personal narratives, letters, reports, summaries—that the CER framework in its standard form cannot directly address. Teachers using CER should clearly delimit its application to argument-oriented tasks and ensure that instruction across other genres is provided through appropriately tailored frameworks.

The third limitation is developmental appropriateness. The full three-stage model as elaborated here is designed for upper secondary students (Grades 11–12) with intermediate-to-upper-intermediate English proficiency. For Grade 10 students or for lower-proficiency learners, the cognitive demands of the Reasoning component—particularly the expectation that students identify causal mechanisms and inferential bridges—may exceed what is achievable within a single writing task. A progressive, difficulty-ramped version of the model—beginning with Claim and Evidence instruction in earlier grades and introducing Reasoning construction incrementally—would be needed to extend the framework's reach across the full high school curriculum.

5.3 Implications for Practice and Future Research

The practical implications of the paper fall into three domains. For curriculum designers, the paper suggests that the national curriculum's specification of argumentation competences—currently written at a level of generality that leaves specific argumentative sub-skills unaddressed—could be productively supplemented by CER-aligned learning objectives that specify Claim, Evidence, and Reasoning as discrete, assessable competences. Such supplementation would create an evaluation standard that not only rewards surface correctness but systematically assesses the argumentative quality of student writing.

For teachers, the instructional model provides concrete, portable tools—Claim generation protocols, evidence classification scaffolds, Reasoning sentence starters, and the CER-aligned rubric—that can be integrated into existing lesson designs with moderate effort. Critically, these tools are designed to be used by students as active agents in their own learning, not merely as criteria applied by the teacher, which aligns with the self-regulated learning orientation that is increasingly central to progressive pedagogical approaches (Colley & Windschitl, 2021; Sampson et al., 2021).

For researchers, the paper identifies several specific directions for empirical investigation. First, quasi-experimental studies should be conducted to test whether CER-integrated EFL writing instruction produces measurable improvements in argumentative writing quality, with particular attention to the Reasoning dimension, using validated analytic rubrics similar to that proposed in Table 2. Second, longitudinal studies should examine whether CER instruction at the essay level produces durable changes in students' metacognitive reasoning habits. Third, comparative studies should examine whether CER instruction is more effective when integrated with specific existing frameworks (e.g., genre-based pedagogy + CER) than when used in isolation. Fourth, teacher professional development research should examine the professional learning supports needed for teachers to implement CER-informed feedback effectively, given

Lin's (2022) finding that existing feedback practices are heavily surface-focused.

6. Conclusion

This paper has conducted a theoretically grounded feasibility analysis of integrating the CER (Claim-Evidence-Reasoning) framework into high school English writing instruction, using the *Sports and Fitness* theme as an illustrative context. The analysis addressed three research questions and produced the following findings.

In response to RQ1, the paper demonstrated a high-fidelity theoretical alignment between CER's three components and the core competence demands of high school EFL argumentative writing: Claim aligns with thesis statement clarity; Evidence aligns with the quality standards for supporting details; and Reasoning—the framework's most distinctive and pedagogically consequential component—aligns with the coherence and logical development demands that existing instructional frameworks have consistently failed to address. This alignment provides the theoretical warrant for CER's cross-disciplinary transfer to EFL writing contexts.

In response to RQ2, the paper constructed a three-stage instructional model that operationalises CER across pre-writing (Claim generation protocol and evidence classification scaffolds), while-writing (CER paragraph architecture, Reasoning sentence starters, and whole-essay macro-structure), and post-writing (CER-aligned analytic rubric, CER-focused teacher feedback, and revision protocol). The model is designed to complement rather than replace existing pedagogical frameworks, targeting the specific argumentative reasoning gap that those frameworks leave unaddressed.

In response to RQ3, the paper demonstrated that the *Sports and Fitness* theme provides an exceptionally well-suited illustrative context for CER instruction: its topics are intrinsically debatable, its content is familiar to students, its cross-disciplinary evidence base accommodates all three evidence categories, and its broad curricular representation ensures that instructional designs developed for this theme are widely applicable. The annotated model paragraph, Claim progression example, and evidence classification scaffolds developed for this theme illustrate concretely how CER can be operationalised in a specific EFL writing context.

The primary limitation of the study is its exclusively theoretical character; empirical validation of the proposed model through classroom-based research is the most urgent priority for future work. The instructional tools provided in this paper—the Claim generation protocol, the evidence classification scaffold, the Reasoning sentence starters, and the CER-aligned rubric—are designed to serve both as immediately usable pedagogical resources for practitioners and as operationalised variables for the experimental studies that will constitute the next phase of this research programme.

Funding

There is no funding to report.

Conflicts of Interest

The author(s) declare no conflicts of interest regarding the publication of this paper.

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APSIRI
Journal of Advances in Social Sciences
2026, Volume 2, Issue 3 | ISSN 3105-899X | eISSN 3105-9007

Examining a Subscale-Level Higher-Order Model of Workplace Learning among Higher Vocational Education Students in Shanghai, China

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Received
2026-5-6
Accepted
2026-6-18
Published
2026-6-28

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DOI: https://doi.org/10.65192/q3f6ly02

Abstract

Workplace learning is central to higher vocational education, yet its measurement remains fragmented across studies. Drawing on workplace learning theory and prior measurement work, this study tested a subscale-level higher-order structure of workplace learning comprising three theoretically specified dimensions: supervisor support, peer support, and reflective practice. Survey data were collected from 385 final-year higher vocational education students in eight vocational colleges in Shanghai, China, all of whom had completed workplace learning placements. The analysis followed a two-stage model-testing strategy. First, item-level confirmatory factor analyses were conducted within each multidimensional scale as preliminary checks of the adapted instruments. Second, 15 subscale means were used as parcels to test the three-dimensional and higher-order workplace learning models. The three-factor parcel model fitted the data well and outperformed a one-factor alternative, chi-square/df = 1.583, CFI = .971, TLI = .965, RMSEA = .039, SRMR = .039. The higher-order model provided an acceptable representation of workplace learning, with positive standardized second-order loadings for supervisor support, peer support, and reflective practice. Composite reliability and HTMT values supported construct reliability and discriminant validity, although several moderate standardized loadings suggest that some indicators could be refined in future work. The findings offer initial evidence for a subscale-level model of workplace learning.

Keywords
Workplace learning; Supervisor support; Peer support; Reflective practice; Higher vocational education

1. Introduction

Workplace learning has become a defining feature of Chinese higher vocational education (HVE) because it places students inside authentic work settings where occupational knowledge is learned through participation, interaction, and reflection. In HVE programs, workplace learning placements are expected to help students move beyond classroom knowledge and develop situated forms of professional judgment. Students encounter real work routines, unfamiliar organizational norms, social expectations, and problems that are often less structured than those presented in classroom tasks. In this setting, workplace learning involves students negotiating opportunities to participate, receiving guidance from others, observing workplace practices, and making sense of their developing competence (Billett, 2001, 2004; Eraut, 2004).

Although workplace learning is widely valued, the construct remains difficult to measure. Prior studies have used terms such as work-based learning, work-integrated learning, internship, placement, informal learning, and workplace learning in overlapping ways (Ferns et al., 2025; Nikolova et al., 2014; Steinberg et al., 2024; Zegwaard et al., 2023). These terms are not identical, yet they often refer to similar experiences in which students learn through participation in work. Some empirical studies treat workplace learning as a broad placement experience, while others examine selected elements such as supervision, feedback, peer interaction, or reflection (Ali et al., 2022; McBeath et al., 2018; Nuis et al., 2024; Zehr & Korte, 2020). This dispersion has produced useful evidence, but it has also made it harder to accumulate knowledge about the internal structure of student workplace learning. The field has many studies about what may support learning at work, but fewer studies that test how the core mechanisms of student workplace learning should be organized as a measurement model.

Scale validation studies in adjacent areas illustrate the value of clearer measurement. For example, the Learning Potential of the Workplace scale clarified workplace conditions that create opportunities for learning, and the Workplace Learning Inventory used multimethod validation to describe workplace learning experiences in health sciences education (Nikolova et al., 2014; Steinberg et al., 2024). These studies show that factor analytic work can help move workplace learning research from broad descriptive language to testable constructs. However, student workplace learning in HVE still needs a compact model that connects social support and reflective engagement in a way that can be measured across placement settings.

To specify such a model, the present study draws on three strands of prior measurement work that correspond to social guidance, peer-mediated support, and reflective engagement in workplace learning. Supervisor support captures guidance, feedback, availability, autonomy support, and relational assistance from more experienced workplace actors (Nuis et al., 2024). Peer support represents informational, emotional, instrumental, feedback-related, and companionship support from peers or co-workers who are more accessible in everyday workplace interaction (Mostafaei Alaei & Hosseinnezhad, 2020). Reflective practice refers to learners' efforts to examine experience, question assumptions, remain open to new findings, and cross-check information in order to improve future action (de Groot et al., 2012; Dewey, 1933; Schön, 1983). Together, these dimensions provide a theoretically grounded basis for examining whether workplace learning can be represented as a higher-order structure.

The aim of this study is to examine whether workplace learning can be represented as a subscale-level higher-order construct comprising supervisor support, peer support, and reflective practice. Such a structure may help preserve the distinction between social support and reflective engagement while examining their common organization within workplace learning. The study addresses two research questions. First, are supervisor support, peer support, and reflective practice empirically distinguishable dimensions of workplace learning? Second, can these three dimensions be represented by a higher-order workplace learning factor?

2. Literature Review

2.1 Workplace Learning as a Social and Reflective Process

Workplace learning theory emphasizes that learning through work depends on both the opportunities afforded by the workplace and the way individuals elect to participate in those opportunities. Billett (2001, 2004) described this as a relationship between workplace affordances and individual engagement. From this perspective, learning is shaped by access to tasks, tools, guidance, feedback, and social participation, but also by learners' agency, prior experience, and interpretive activity. Eraut's (2004) work on informal learning similarly shows that much occupational learning occurs through participation in everyday work, consultation with others, observation, and gradual refinement of practice.

For students in workplace placements, these ideas have particular relevance. Students often enter workplaces with limited practical experience and uncertain professional identities. Their learning therefore depends heavily on whether they can access meaningful guidance, supportive peer relations, and opportunities to reflect on real tasks. Qualitative work on internships has shown that students learn technical routines, organizational norms, professional interaction, and how to position themselves in a work community (Zehr & Korte, 2020).

This study focuses on HVE students because their workplace learning placements occupy a distinctive position between schooling and employment. HVE programs are designed to cultivate occupational competence, but students' actual learning at work depends on the quality of placement environments and on students' own engagement with those environments. A student may spend several months in a workplace and still learn little if the placement offers limited guidance, few meaningful interactions, or no opportunity to review experience. Conversely, even routine tasks can become educationally valuable when supervisors explain workplace expectations, peers help interpret problems, and students critically examine what has happened.

For this reason, a measurement model of workplace learning should capture mechanisms rather than merely recording whether a placement occurred or how long it lasted. A mechanism-based model is more useful for both researchers and institutions because it identifies features that can be studied, compared, and improved. The three dimensions examined here represent such mechanisms: vertical support from supervisors, horizontal support from peers, and students' reflective processing of experience.

2.2 Supervisor Support

For students in workplace placements, these ideas have particular relevance. Students often enter workplaces with limited practical experience and uncertain professional identities. Their learning therefore depends heavily on whether they can access meaningful guidance, supportive peer relations, and opportunities to reflect on real tasks. Qualitative work on internships has shown that students learn technical routines, organizational norms, professional interaction, and how to position themselves in a work community (Zehr & Korte, 2020).

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and students' reflective processing of experience.

2.2 Supervisor Support

Peer support represents assistance, encouragement, information, and feedback from fellow students or co-workers who occupy comparable positions in the workplace learning environment. Unlike supervisors, peers are usually more accessible and less evaluative. Students may turn to peers when they need quick clarification, practical advice, reassurance, or a shared interpretation of workplace routines. Prior work on peer support shows that peers can provide both practical and emotional resources in learning contexts (Mostafaei Alaei & Hosseinnezhad, 2020). In workplace placements, these resources are often embedded in ordinary interaction rather than formal training.

Much day-to-day learning at work occurs through informal exchange. Students often learn how to handle minor problems, interpret tacit rules, and judge whether their difficulties are common by talking with peers. Research on work-integrated learning also suggests that peer support and a sense of belonging can strengthen students' confidence and well-being during work terms (McBeath et al., 2018). Peer support should therefore be treated as a distinct pathway of workplace learning. It differs from supervisor support because it operates through horizontal relationships, shared experience, and everyday accessibility rather than formal authority.

2.4 Reflective Practice

Reflective practice captures the learner's deliberate effort to examine experience, question assumptions, and translate learning into improved future action. Its conceptual roots can be traced to Dewey's (1933) account of reflective thought, Schön's (1983) work on professional reflection, and Raelin's (2001) account of public reflection as a basis for learning. In workplace learning, reflection is not simply private thinking after an event. It involves reviewing what happened, considering alternative interpretations, using feedback, and checking one's understanding against evidence from work situations and interaction with others (de Groot et al., 2012).

Reflective practice should be treated as a separate dimension because it captures what learners do with workplace experience. Supervisor support and peer support describe resources students receive through relationships. Reflective practice describes how students process those resources and connect them to their own developing competence. Without reflection, guidance and interaction may remain fragmented experiences rather than becoming usable learning. In a workplace learning model, reflective practice therefore represents the interpretive work through which students examine tasks, feedback, and workplace events and use them to adjust future action.

2.5 Proposed Model

Workplace learning in this study is treated as a higher-order construct composed of supervisor support, peer support, and reflective practice. The three dimensions are expected to be related because they occur within the same placement experience, but they refer to different aspects of learning at work. Supervisor support reflects guidance, feedback, and access to workplace tasks through a role relationship that carries instructional and evaluative authority. Peer support reflects more horizontal forms of assistance, including clarification, reassurance, and shared interpretation of everyday workplace situations. Reflective practice refers to students' own cognitive and behavioral work in examining experience and using it to adjust future action.

This structure preserves the distinction between social support and reflective engagement while allowing them to be examined as parts of a broader workplace learning construct. Supervisor support and peer support describe relational resources available in the workplace, whereas reflective practice describes how students process workplace experience. On this basis, the proposed model specifies three related but distinguishable dimensions of workplace learning and represents them within a higher-order structure.

3. Methodology

3.1 Research Design

This study used a quantitative cross-sectional design to test a prespecified subscale-level measurement model of workplace learning. It examined whether supervisor support, peer support, and reflective practice could be treated as distinct but related dimensions and represented by a higher-order workplace learning factor.

3.2 Participants and Procedure

The dataset contained 385 valid responses from final-year students enrolled in eight higher vocational colleges in Shanghai, China. All respondents had completed workplace learning placements involving participation in authentic workplace tasks. The sample included 218 female students (56.6%) and 167 male students (43.4%). Placement duration was mainly longer than six months (n = 224, 58.2%) or three to six months (n = 157, 40.8%), with four respondents reporting one to three months (1.0%).

Participation in this study was voluntary. The online questionnaire included an information statement explaining the purpose of the study, participants' rights, confidentiality arrangements, and the academic use of the data. Data were collected in April 2026 through the Wen Juan Xing online survey platform.

3.3 Measures

The study used prior instruments adapted for the Chinese HVE workplace learning context. Permission to use and adapt the original instruments was obtained where required. The English-language instruments were translated into Chinese using a translation and back-translation procedure. Before the pilot test, the questionnaire was reviewed by four vocational education experts from Malaysia and China to assess face validity and content validity.

Supervisor support was measured with 21 items covering autonomy support, emotional support, networking support, trust and availability, similarity, and empathy. The dimensional structure follows the mentoring support scale validated by Nuis et al. (2024), with wording adapted to students' workplace learning experience.

Peer support was measured with 22 items covering informational support, emotional support, instructional or instrumental support, validation/feedback, and companionship support. The scale structure was adapted from the Peer Support Questionnaire developed by Mostafaei Alaei and Hosseinnezhad (2020).

Reflective practice was measured with 14 items covering individual reflection, reflection in social interaction, openness to new findings, and cross-checking of information. These dimensions are consistent with the critically reflective work behavior model validated by de Groot et al. (2012).

Following expert review, a pilot study was conducted in March 2026 using convenience sampling from one HVE institution in Shanghai. A total of 44 questionnaires were collected. The pilot test was used to assess the internal consistency of the adapted instruments and to identify potential wording or measurement problems before formal data collection. The overall pilot reliability was excellent (alpha = .940). At the construct level, Cronbach's alpha values were .940 for supervisor support, .952 for peer support, and .905 for reflective practice.

3.4 Data Analysis

Data analysis proceeded from scale checks to parcel-level model testing. Descriptive statistics and internal consistency coefficients were first computed for the main scales and subscales. Item-level confirmatory factor analyses (CFAs) were then estimated separately for supervisor support, peer support, and reflective practice. After these checks, 15 subscale means were used as parcels to test one-factor, three-factor, and higher-order workplace learning models. Covariance-based structural equation modeling (SEM) was used because the study focused on theory-driven model fit testing and model comparison rather than prediction (Boateng et al., 2018; Brown, 2015; Hair et al., 2019; Kline, 2016).

Model evaluation used chi-square/df, comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR) rather than relying on chi-square alone. Convergent validity was examined through standardized item loadings, composite reliability (CR), and average variance extracted (AVE) (Fornell & Larcker, 1981). Discriminant validity at the parcel level was examined using heterotrait-monotrait ratio (HTMT) values (Henseler et al., 2015) and comparison with the one-factor model.

4. Results

4.1 Descriptive Statistics and Preliminary Measurement Checks

Item-level CFAs were conducted for the three adapted multidimensional scales before parcel-level modeling. As shown in Table 1, all three models showed acceptable fit.

Table 1. Item-level CFA fit for component scales

Model	Chi-square	df	Chi-square/df	CFI	TLI	RMSEA	SRMR
Supervisor support item-level CFA	175.469	174	1.008	1.000	.999	.005	.030
Peer support item-level CFA	214.569	199	1.078	.996	.995	.014	.030
Reflective practice item-level CFA	97.921	71	1.379	.989	.987	.031	.042

Internal consistency was also adequate for model testing. Cronbach's alpha was .912 for supervisor support, .912 for peer support, and .897 for reflective practice. Table 2 reports the subscale means, standard deviations, and reliability coefficients. Subscale alphas ranged from

.760 to .880, with the two-item cross-checking dimension showing a Spearman-Brown coefficient of .781.

Table 2. Subscale descriptive statistics and reliability

Subscale	Items	*M*	*SD*	Alpha
Autonomy support	4	3.836	.863	.845
Emotional support	3	3.845	.875	.780
Networking support	5	3.784	.794	.839
Trust and availability	3	3.915	.815	.784
Similarity	3	3.808	.862	.760
Empathy	3	3.847	.880	.794
Informational support	5	3.524	.911	.877
Peer emotional support	4	3.721	.835	.832
Instructional support	3	3.559	.934	.787
Validation/feedback	4	3.537	.994	.880
Companionship support	6	3.629	.838	.876
Individual reflection	4	4.066	.761	.833
Reflection in social interaction	4	3.954	.839	.868
Openness to new findings	4	3.753	.851	.852
Cross-checking of information	2	3.794	.959	.781

Before SEM estimation, the parcel distributions were inspected. Univariate normality tests were significant, as expected with a sample of 385, but skewness and kurtosis values for the 15 modeled parcels were within commonly accepted ranges. Skewness ranged from -.965 to -.195, and kurtosis ranged from -.933 to .409. Mardia's test indicated multivariate non-normality, so model evaluation used approximate fit indices alongside chi-square.

4.2 Parcel-level Confirmatory Factor Analysis

The parcel-level analysis first compared a one-factor workplace learning model with the theoretically specified three-factor model. As shown in Table 3, the one-factor model fitted the data poorly, chi-square/df = 5.490, CFI = .767, TLI = .728, RMSEA = .108, and SRMR = .090. The three-factor model showed good fit, chi-square/df = 1.583, CFI = .971, TLI = .965, RMSEA = .039, and SRMR = .039. The higher-order model produced comparable fit. These results indicate that the parcels were better represented by three related dimensions than by one undifferentiated factor, and that the three dimensions can be interpreted within a higher-order workplace learning representation.

Table 3. Parcel-level workplace learning model fit indices

Model	Chi-square	df	Chi-square/df	CFI	TLI	RMSEA	SRMR
One-factor model	494.060	90	5.490	.767	.728	.108	.090
Three-factor model	137.686	87	1.583	.971	.965	.039	.039
Higher-order model	137.687	87	1.583	.971	.965	.039	.039

The standardized parcel loadings in the three-factor model are shown in Table 4. All freely estimated loadings were significant at $p < .001$. Loadings for supervisor support ranged from .630 to .730, loadings for peer support ranged from .559 to .720, and loadings for reflective practice ranged from .566 to .747.

Table 4. Standardized parcel loadings in the three-factor model

Latent factor	Indicator	Std. loading	*p*
Supervisor support	Autonomy support	.730	-
	Emotional support	.673	< .001
	Networking support	.661	< .001
	Trust and availability	.655	< .001
	Similarity	.637	< .001
	Empathy	.630	< .001
Peer support	Informational support	.720	-
	Peer emotional support	.559	< .001
	Instructional support	.625	< .001
	Validation/feedback	.624	< .001
	Companionship support	.623	< .001
Reflective practice	Individual reflection	.634	-
	Reflection in social interaction	.740	< .001
	Openness to new findings	.747	< .001
	Cross-checking of information	.566	< .001
Note. The first indicator of each latent factor was fixed for model identification.			

The higher-order model was then examined to determine whether supervisor support, peer support, and reflective practice could be represented by a broader workplace learning factor. The standardized second-order loading was .858 for supervisor support, .813 for peer support, and .578 for reflective practice. All three dimensions contributed positively to the higher-order factor, although reflective practice was less strongly aligned with the broader factor than the two social support dimensions.

4.3 Reliability, Convergent Validity, and Discriminant Validity

Evidence for composite reliability and convergent validity at the item-to-first-order-dimension level is reported in Table 5. All composite reliability values met conventional expectations, and all AVE values exceeded .50. The standardized item loading ranges also support the interpretation that the adapted items formed coherent lower-order dimensions before those dimensions were used as parcels.

Table 5. Reliability and convergent validity of first-order dimensions

Variable	Dimension	Standardized item loading range	CR	AVE
Supervisor support	Autonomy support	0.690-0.787	.845	.578
	Emotional support	0.705-0.769	.781	.543
	Networking support	0.696-0.751	.839	.511
	Trust and availability	0.730-0.747	.784	.548
	Similarity	0.681-0.767	.762	.517
	Empathy	0.727-0.765	.794	.563
Peer support	Informational support	0.743-0.807	.878	.589
	Emotional support	0.723-0.766	.832	.553
	Instructional support	0.730-0.759	.788	.553
	Validation/feedback	0.778-0.828	.881	.649
	Companionship support	0.713-0.759	.877	.542
Reflective practice	Individual reflection	0.697-0.778	.834	.556
	Reflection in social interaction	0.770-0.818	.869	.623
	Openness to new findings	0.676-0.816	.855	.597
	Cross-checking of information	0.748-0.856	.784	.646

Discriminant validity at the parcel level was examined using HTMT values. As shown in Table 6, the HTMT values were .697 for supervisor support and peer support, .517 for supervisor support and reflective practice, and .467 for peer support and reflective practice. All values were below .85, indicating acceptable discriminant validity among the three dimensions.

Table 6. HTMT values for discriminant validity

Construct 1	Construct 2	HTMT
Supervisor support	Peer support	.697
Supervisor support	Reflective practice	.517
Peer support	Reflective practice	.467

4.4 Common Method Considerations

Two statistical checks were used to assess common method concerns. For the 15 subscale parcels, the first unrotated factor explained 34.97% of the variance, below the commonly used 50% warning level. The one-factor CFA model also fitted substantially worse than the three-factor model. These findings suggest that common method bias was unlikely to account for the main measurement pattern, although common method variance cannot be ruled out in a cross-sectional self-report survey (Podsakoff et al., 2003).

5. Discussion

5.1 Discussion of Findings

The findings provide empirical support for the proposed three-dimensional model of workplace learning at the subscale level. The poor fit of the one-factor parcel model indicates that students' responses to supervisor support, peer support, and reflective practice should not be treated as a single undifferentiated score. The good fit of the three-factor and higher-order parcel models, together with positive second-order loadings, suggests that the dimensions are distinguishable yet coordinated. This is consistent with workplace learning theory, which treats learning through work as a negotiated relationship between workplace affordances and learner engagement (Billett, 2001, 2004).

Supervisor support emerged as the strongest component of the higher-order model. This pattern is plausible in HVE contexts, where students often depend on supervisors to gain access to meaningful tasks, feedback, norms of professional conduct, and work-related networks. The result aligns with internship research showing that supportive supervisors shape students' learning and satisfaction (Ali et al., 2022; To & Lung, 2020). In this study, supervisor support carried a large share of the common variance captured by the broader workplace learning factor.

Peer support is often treated as secondary to formal supervision, but students frequently rely on peers for immediate clarification, emotional reassurance, and shared problem solving. The moderate correlation between supervisor support and peer support indicates that the two mechanisms are related, while the acceptable HTMT values and the better fit of the three-factor model suggest that they should not be collapsed into one generic support factor.

Treating supervisor support and peer support as related but distinct also strengthens the practical usefulness of the model. If the two are collapsed into a single social support score, institutions may miss different intervention targets. Supervisor support may require training workplace mentors to provide autonomy-supportive guidance, regular feedback, respectful communication, and access to professional networks. Peer support may require different arrangements, such as cohort-based placement grouping, peer debriefing sessions, online placement communities, or structured opportunities for students to exchange workplace problems.

Reflective practice also contributed to the higher-order structure, although its second-order loading was lower than those for supervisor support and peer support. This lower loading suggests that reflective practice overlaps less strongly with the two social dimensions and captures a more distinct aspect of workplace learning: the learner's own interpretive work. Reflection may still depend partly on the quality of workplace guidance and peer dialogue available to students, but it should remain conceptually distinct within the model.

The item-level results support the convergent validity of the first-order dimensions. All first-order dimensions showed acceptable composite reliability, and their AVE values exceeded .50. These results indicate that the adapted items formed coherent lower-order dimensions before those dimensions were used as parcels in the higher-order workplace learning model. The parcel-level model should be interpreted as evidence for the organization of adapted subscale dimensions rather than as a replacement for item-level scale validation.

5.2 Theoretical Implications

The study contributes to workplace learning research by testing a measurable structure for workplace learning at the subscale level. Rather than treating workplace learning as a broad placement experience, the model distinguishes three dimensions that are relevant to learning in workplace placements. The higher-order model allows researchers to examine workplace learning as an overall construct while retaining the distinctive contribution of its dimensions. This contribution should be understood at the dimension level, because full item-level validation remains a task for future research.

5.3 Practical Implications

For HVE institutions, the findings suggest that improving workplace learning requires more than placing students in work settings. Placement design should intentionally include supervisor preparation, peer learning structures, and guided reflection activities. Supervisors should be encouraged to provide autonomy-supportive guidance, emotional and networking support, and respectful availability. Institutions can also create structured peer exchange sessions before, during, and after placement, allowing students to share problems and interpret experiences together. Reflective journals, debriefing conversations, and evidence-based reflection prompts may help students transform experience into career-relevant learning.

6. Conclusion

This study provides initial subscale-level empirical support for a higher-order model of workplace learning among HVE students in Shanghai, China. Supervisor support, peer support, and reflective practice formed a reliable and well-fitting dimension-level structure. These findings suggest that workplace learning in HVE placements can be examined as an integrated process of guided participation, peer-supported learning, and reflective meaning making. For HVE research and practice, the model offers a practical structure for evaluating and improving the learning quality of workplace placements.

The findings should be interpreted within several boundaries. The study used a cross-sectional self-report design, which limits causal inference and may introduce common method variance. The analysis also relied on subscale parcels, so the full item-level hierarchical structure should be tested in larger and independent samples. Future research could use longitudinal designs, supervisor ratings, placement performance data, or institutional records where feasible, refine translated items where needed, and examine measurement invariance across gender, school, major, and placement duration. Because the sample was drawn from higher vocational colleges in Shanghai, cross-regional, cross-major, and cross-sectoral testing is needed before the model is generalized more broadly.

Funding

There is no funding to report.

Conflicts of Interest

The author(s) declare no conflicts of interest regarding the publication of this paper.

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ISSN 3105-899X | eISSN 3105-9007

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