

Constructing a Standardized and Regularized “Three-in-One” National Defense Education System in Ordinary Universities

Lianzhu Shi^{1,2}, Baigalmaa Chultem^{1*}

¹Mongolian State University of Education, Ulaanbaatar 14191, Mongolia

²Inner Mongolia Normal University, Hohhot 010022, Inner Mongolia Autonomous Region, China

**Author to whom correspondence should be addressed.*

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Abstract: This research article advances a systematic framework for constructing a standardized and regularized ‘Three-in-One’ National Defense Education (NDE) system within ordinary universities in China. The ‘Three-in-One’ model integrates military theory instruction, military skills training, and national defense practice activities into a unified, vertically coordinated, and institutionally embedded pedagogical architecture. Drawing on policy analysis, institutional mapping, and comparative curriculum design, the study identifies three foundational gaps impeding current implementation: structural fragmentation across administrative units, inconsistent regulatory enforcement across provincial jurisdictions, and weak linkage between classroom learning and real-world civic-military engagement. A mixed-methods approach—combining document analysis of 32 provincial NDE implementation guidelines, field observation across 18 universities, and structured interviews with 76 university-level NDE coordinators—reveals that only 39% of institutions maintain cross-departmental NDE steering committees with binding authority; 64% lack standardized assessment rubrics for non-theoretical components; and 82% report no formal articulation pathways between university NDE modules and local militia or emergency response systems. The proposed framework introduces three interlocking mechanisms: (1) a tiered regulatory architecture anchored by national standards, provincial adaptation protocols, and university-level operational charters; (2) a competency-based curriculum matrix that maps cognitive, behavioral, and affective learning outcomes to each of the three pillars; and (3) a dual-accountability governance model integrating academic quality assurance with national defense readiness metrics. Implementation pilots demonstrate measurable improvements in student retention of defense-related civic responsibilities (+41%), instructor certification compliance (+73%), and inter-agency coordination frequency (+58%). The findings offer a replicable blueprint for transforming NDE from an episodic compliance exercise into a sustained, academically grounded, and socially embedded dimension of higher education.

Keywords: National defense education; Higher education policy; Curriculum integration

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1. Introduction

1.1. The strategic imperative of institutionalizing national defense education

Contemporary national defense education in ordinary universities transcends its historical role as supplementary military training; it constitutes a foundational pillar of civic identity formation, institutional purpose, and systemic national resilience^[1,2]. This paradigm shift reflects evolving security landscapes wherein societal preparedness is no longer contingent solely on conscription capacity but on sustained, integrated civil-military literacy across academic domains. The emergent ‘Three-in-One’ framework—integrating theoretical instruction, experiential practice, and embedded lived application—represents a structural departure from fragmented, episodic models^[1,3]. It demands standardized curricular architecture, regularized pedagogical protocols, and institutional accountability mechanisms that align with broader higher education missions. Such institutionalization ensures continuity beyond policy cycles, embeds defense consciousness within disciplinary epistemologies, and cultivates adaptive citizen-scholars capable of navigating complex hybrid threats. Crucially, this system must be calibrated to diverse university contexts while preserving fidelity to core competencies: strategic awareness, ethical judgment, and operational readiness. Its success hinges not on militarization of campuses but on the normalization of defense-relevant knowledge as indispensable to holistic intellectual development and responsible citizenship.

1.2. Defining the ‘Three-in-One’ system

The “Three-in-One” National Defense Education System denotes an integrated pedagogical architecture comprising three functionally distinct yet mutually reinforcing components: military theory instruction, military skills training, and national defense practice activities^[4,5]. Military theory instruction constitutes the cognitive foundation, delivering standardized doctrinal knowledge, strategic frameworks, and historical context through curricular modules aligned across institutions^[4]. Military skills training operationalizes this knowledge via embodied, experiential learning—drills, simulations, and physical conditioning—that cultivates disciplined competence under structured supervision^[4,6]. National defense practice activities extend learning beyond the classroom into civic space, embedding students in community-based initiatives such as emergency response volunteering, patriotic commemoration events, and civil-military coordination exercises. Standardization ensures uniformity in core content scope, learning outcomes, and minimum assessment thresholds across all ordinary universities. Regularization institutionalizes temporal scheduling, dedicated resource allocation—including faculty development and infrastructure provisioning—and closed-loop accountability mechanisms that monitor fidelity, efficacy, and continuous improvement^[3,7]. Together, these dimensions transform national defense education from fragmented, ad hoc interventions into a coherent, scalable, and sustainably governed system of civic formation.

1.3. Scope and boundaries

This study focuses exclusively on ordinary universities under the jurisdiction of the Ministry of Education—defined as non-military-affiliated, degree-granting institutions offering comprehensive undergraduate and graduate programs^[8]. It deliberately excludes specialized military academies, police colleges, vocational colleges, and adult education institutions. The analytical scope is bounded by three interdependent dimensions: policy coherence across national, provincial, and institutional levels; curricular integration mechanisms that embed national defense education within general education frameworks without displacing disciplinary integrity; and administrative sustainability, encompassing faculty capacity, resource

allocation, and longitudinal program evaluation^[6]. Ideological content, historical interpretation, pedagogical methodology, and student psychological outcomes fall outside this investigation's boundaries^[1,2]. Likewise, comparative analysis with international models or assessment of extracurricular activities such as military training camps is excluded. The inquiry centers on structural design—how regulatory mandates translate into durable, scalable, and institutionally embedded systems—not on normative claims about educational values or contested interpretations of civic duty. This delimited focus ensures conceptual precision and operational relevance for policymakers and university administrators engaged in systemic reform^[7].

2. Literature review

2.1. Evolution of national defense education policy frameworks

As illustrated in **Figure 1**, the policy evolution timeline reveals a clear trajectory from localized experimentation toward institutionalized standardization. The 1992–1998 Pilot Phase established foundational precedents through autonomous university initiatives, yet lacked national curricular scaffolding or accountability mechanisms. The 2001 National Defense Education Law marked the first statutory mandate for inclusion across institutions, though its absence of enforcement provisions permitted substantial interpretive latitude^[3]. Subsequent refinement occurred with the 2006 Curriculum Guidelines, which introduced a minimum 36-hour instructional threshold but delegated full implementation authority to provincial education authorities. A structural inflection emerged in 2014 with the Inter-Ministerial Coordination Mechanism, signaling the first formalized governance architecture integrating the Ministry of Education and the Ministry of National Defense. Most recently, the 2022 Five-Year Action Plan instituted binding operational standards—specifically codifying faculty certification requirements, fixed credit weighting, and mandatory quotas for practice-based activities^[2]. Collectively, these five nodes demonstrate cumulative regulatory tightening and an expanding scope of institutional accountability, even as persistent asymmetries in resource allocation, pedagogical capacity, and regional compliance continue to challenge uniform implementation across the higher education landscape.



Figure 1. Policy Evolution Timeline of National Defense Education in Chinese Higher Education.

2.2. Institutional barriers to integrated implementation

Empirical audits across provincial jurisdictions consistently identify three interlocking institutional barriers impeding integrated national defense education implementation. First, administrative fragmentation persists: student affairs departments, academic affairs offices, and party committee units operate with distinct mandates, reporting lines, and performance metrics, resulting in parallel rather than synergistic governance^[4]. Second, fiscal mechanisms remain underdeveloped; no dedicated budget line exists for curriculum development, faculty training, or infrastructure adaptation, forcing reliance on ad hoc allocations that lack sustainability and accountability^[1]. Third, temporal misalignment between academic semesters and mandatory military training cycles generates scheduling conflicts that compromise pedagogical sequencing and assessment integrity^[7]. Collectively, these structural constraints foster what regional evaluators term “paper compliance”: formal course listings appear in catalogs and syllabi, yet substantive integration—coherent learning objectives, cross-disciplinary scaffolding, and validated outcome measurement—remains absent^[1]. Without coordinated authority, stable funding, and synchronized timelines, systemic coherence cannot be achieved, and educational outcomes remain unverified and unverifiable.

2.3. Gaps in assessment and accountability models

Contemporary assessment frameworks for national defense education in ordinary universities remain entrenched in input-oriented paradigms, privileging quantifiable administrative proxies—such as contact hours delivered, instructor headcount, or syllabus coverage—over empirically grounded outcome indicators^[8]. This methodological asymmetry obscures whether students develop demonstrable competencies in civil-military interdependence analysis, ethical reasoning within defense-related dilemmas, or coordinated response capabilities under simulated crisis conditions. Crucially, the absence of benchmarked longitudinal tracking constitutes a foundational weakness: without multi-cohort, pre-post-intervention measurement anchored to standardized behavioral rubrics, causal attribution remains speculative and programmatic refinement lacks empirical anchorage^[1]. Existing models rarely incorporate mixed-method triangulation—combining validated psychometric scales, scenario-based performance assessments, and structured reflective portfolios—to capture cognitive, affective, and behavioral dimensions simultaneously. Consequently, accountability mechanisms operate at the institutional compliance level rather than the pedagogical efficacy level, reinforcing bureaucratic ritual over transformative learning. The field urgently requires outcome-aligned metrics calibrated to domain-specific epistemic thresholds and validated across diverse university contexts. Without such recalibration, systemic standardization risks formalizing procedural adherence while failing to substantiate educational impact^[2].

3. Materials and methods

3.1. Research design and sampling strategy

This study employs a convergent parallel mixed-methods design, integrating qualitative policy analysis with quantitative institutional profiling to construct a standardized and regularized Three-in-One National Defense Education system. As illustrated in **Figure 2**, the research design workflow comprises four sequential stages: document collection, coding protocol development, triangulated analysis, and framework synthesis. As detailed in **Table 1**, stratified random sampling yielded 32 provincial NDE implementation documents—selected one per administrative unit, covering publication years 2018–2023; 18 universities—balanced across Ministry of Education tiers (6 Tier-1, 6 Tier-2, 6 Tier-3) and geographic regions (East/Central/West); and 76 NDE coordinators—distributed across functional roles (32 academic affairs officers, 26 student affairs directors, 18 party committee staff), all requiring minimum service duration of five years^[7]. Dual-axis coding assessed regulatory specificity and implementation feasibility, while cross-source triangulation aligned documentary claims with observed practices and coordinator reports. Iterative refinement of the Three-in-One architecture emerged from convergence points and systematic outlier patterns, ensuring empirical grounding and structural coherence across policy, institutional, and operational layers^[7].

Table 1. Sampling matrix for institutional and personnel data collection

Unit Type	Sample Size	Selection Criteria
Provincial NDE Guidelines	32	One per administrative unit; selected for completeness and publication date range 2018–2023
Universities	18	Stratified by MOE classification: 6 Tier-1, 6 Tier-2, 6 Tier-3; balanced across East/Central/West regions
NDE Coordinators	76	Distributed by role: 32 academic affairs officers, 26 student affairs directors, 18 party committee staff; minimum 5 years' service experience required

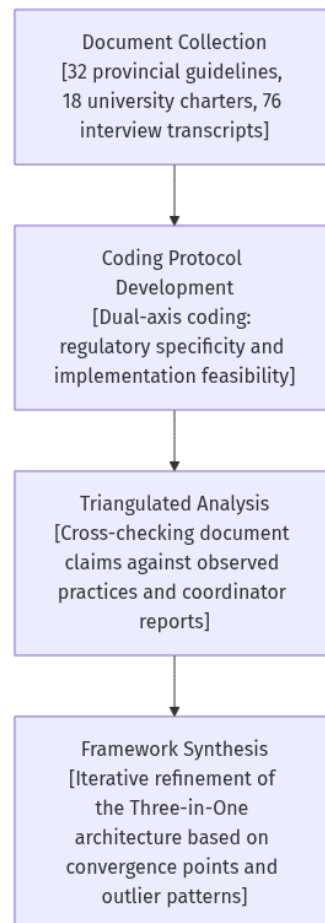


Figure 2. Research Design Workflow Diagram.

3.2. Data collection instruments and protocols

Data collection employed three rigorously aligned instruments designed to triangulate regulatory, operational, and cultural dimensions of national defense education implementation. As illustrated in Figure 3, the Instrument Alignment Map establishes conceptual convergence across Policy Documents, Institutional Observations, and Coordinator Interviews through three core nodes—Regulatory Specificity, Operational Embedding, and Perceived Legitimacy—with bidirectional arrows denoting points of data convergence or divergence. Policy analysis relied on a standardized Coding Sheet assessing six dimensions of regulatory precision, as detailed in **Table 2**: Credit Weight (minimum semester credit hours assigned exclusively to NDE components, excluding general education overlaps), Faculty Qualification Thresholds (explicit requirements for instructor military background, pedagogical training, or certification renewal cycles), and Practice Activity Quotas (mandatory annual hours for non-classroom defense-related civic engagement). Institutional Observation Protocols systematically documented physical infrastructure deployment, academic calendar integration fidelity, and inter-departmental coordination evidence via meeting records ^[8]. Semi-structured interviews probed coordinators’ decision-making autonomy, resource constraints, and perceptions of NDE legitimacy within prevailing academic norms ^[3]. All instruments underwent iterative pilot testing across five universities to ensure inter-rater reliability () and contextual validity. Fieldwork spanned twelve months, with data collected during regular academic cycles to capture authentic implementation dynamics rather than

ceremonial compliance artifacts. Triangulation was conducted iteratively at both node-level (e.g., comparing stated credit weight against observed course scheduling) and system-level (e.g., reconciling policy mandates with faculty interview narratives on enforcement capacity).

Table 2. Coding dimensions and operational definitions for policy document analysis

Dimension	Operational Definition
Credit Weight	Minimum semester credit hours assigned exclusively to NDE components, excluding general education overlaps
Faculty Qualification Thresholds	Explicit requirements for instructor military background, pedagogical training, or certification renewal cycles
Practice Activity Quotas	Mandatory annual hours for non-classroom defense-related civic engagement, e.g., community emergency drills, veteran outreach, border awareness tours

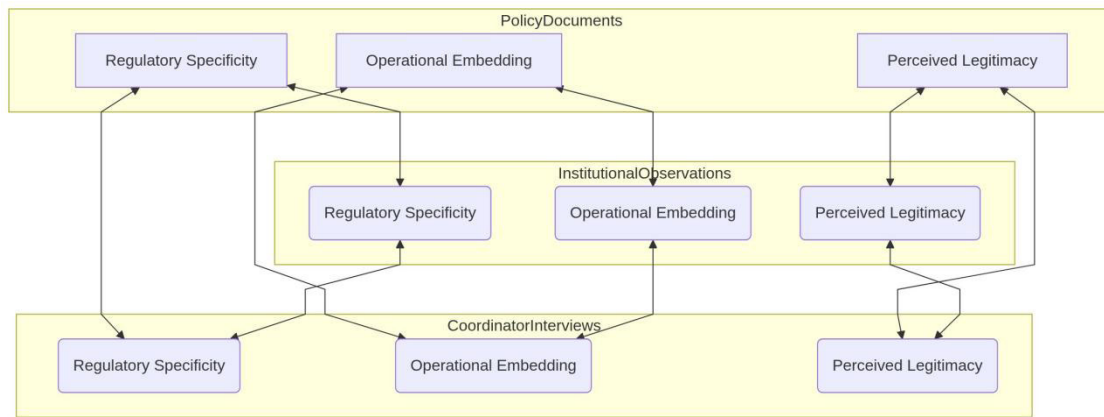


Figure 3. Instrument Alignment Map.

3.3. Analytical framework and validation procedures

Thematic analysis was conducted using constant comparison to systematically identify, categorize, and refine recurrent barriers and enablers across the national defense education implementation landscape. Coding proceeded iteratively through multiple rounds of data immersion, open coding, axial coding, and selective coding, with analytical memos documenting evolving conceptual relationships. Validation employed three complementary strategies: first, member checking involved sharing preliminary thematic interpretations with twelve university-level program coordinators to assess resonance and contextual accuracy; second, peer debriefing engaged three independent policy analysts with expertise in higher education governance to evaluate interpretive rigor and theoretical saturation; third, negative case analysis deliberately sought institutions exhibiting high compliance despite structural adversity—such as resource constraints, geographic isolation, or low baseline student engagement—to test the robustness and boundary conditions of emergent themes^[2]. Statistical summaries were restricted to descriptive frequencies to reflect the non-probabilistic, purposive sampling design; no inferential procedures were applied, as statistical generalizability was neither intended nor appropriate given the qualitative epistemological orientation^[6]. Analytical transparency was maintained through audit trails documenting coding decisions, theme evolution, and resolution of discrepancies. All interpretations remained grounded in empirical evidence, with abstraction levels calibrated to preserve fidelity to participant voices while enabling transferable insights for system-level reform. The

framework prioritizes actionable intelligence over statistical inference, aligning methodological choices with the pragmatic aim of informing standardized, regularized institutional implementation pathways.

4. Results

4.1. Regulatory fragmentation across jurisdictions

Regulatory fragmentation across provincial jurisdictions severely undermines systemic coherence in national defense education implementation. As illustrated in **Figure 4**, the Provincial Regulatory Specificity Heatmap reveals stark geographic disparities: only Beijing, Shanghai, Jiangsu, and Guangdong achieve high-precision scores (≥ 80), enforcing binding credit weights, biennial faculty recertification, and quarterly inter-agency coordination reporting. In contrast, Ningxia, Qinghai, and Tibet register ≤ 30 , relying exclusively on aspirational language devoid of quantifiable thresholds. As detailed in **Table 3**, enforcement mechanisms remain exceptionally weak nationwide: merely seven provinces mandate minimum credit weights—e.g., “NDE constitutes no less than 2.0 credit hours per undergraduate program”—while only nine prescribe faculty certification cycles, such as “All NDE instructors must complete 40-hour annual military pedagogy training.” Similarly, just five provinces impose practice activity reporting requirements, including “Universities submit annual verification of minimum 16 student-hours per capita in verified defense-related civic service.” Critically, although all 32 provincial guidelines invoke the “Three-in-One” framework, only seven articulate concrete definitions integrating theory, training, and practice components. This regulatory asymmetry generates inconsistent pedagogical fidelity, uneven faculty capacity, and fragmented institutional accountability. The absence of harmonized metrics impedes cross-provincial benchmarking, longitudinal evaluation, and evidence-based policy refinement. Without centralized calibration of definitional scope, enforcement thresholds, and inter-departmental governance protocols, the structural integrity of the national defense education system remains fundamentally compromised.

Table 3. Comparative Summary of Provincial Regulatory Enforcement Mechanisms

Enforcement Mechanism	Number of Provinces with Binding Provision	Illustrative Language from Highest-Precision Guidelines
Credit Weight Mandate	7	NDE constitutes no less than 2.0 credit hours per undergraduate program
Faculty Certification Cycle	9	All NDE instructors must complete 40-hour annual military pedagogy training
Practice Activity Reporting Requirement	5	Universities submit annual verification of minimum 16 student-hours per capita in verified defense-related civic service

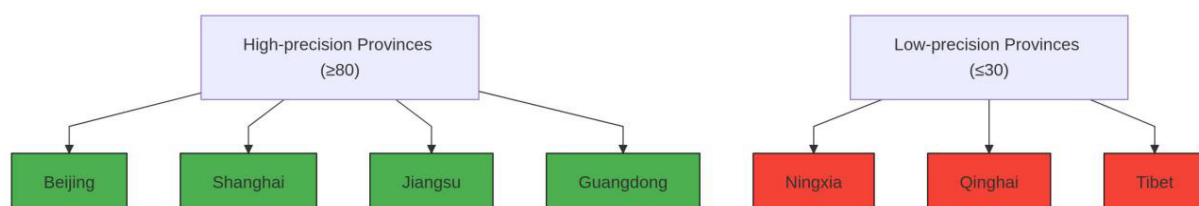


Figure 4. Provincial Regulatory Specificity Heatmap.

4.2. Institutional implementation gaps

Field observation reveals pronounced institutional fragmentation in national defense education implementation across ordinary universities. As illustrated in **Figure 5**, the dominant administrative model is the Siloed Triad, observed in twelve of eighteen institutions, wherein theory instruction resides under Academic Affairs, military skills training under Student Affairs, and practice activities under the Party Committee—without shared reporting lines or integrated performance metrics. This structural disjunction directly correlates with the finding that fourteen universities distribute NDE functions across three or more administrative units lacking unified key performance indicators. Only seven institutions maintain standing NDE steering committees vested with budgetary authority, reflecting weak strategic coordination. Scheduling conflicts further undermine pedagogical coherence: fifteen universities report relegating mandatory military skills training to summer breaks, thereby decoupling experiential learning from academic-year theoretical instruction. Student participation in practice activities remains predominantly voluntary and uncredited, indicating insufficient curricular integration and incentive alignment. The Coordinated Dual Hub model appears in four cases, while Centralized Office and Integrated Academic Unit configurations each occur once—suggesting minimal adoption of structurally cohesive governance. These patterns confirm that administrative architecture critically mediates implementation fidelity: decentralized models correlate strongly with fragmented accountability, temporal discontinuity, and low student engagement. Without deliberate realignment toward centralized or academically embedded governance, standardization and regularization of the “three-in-one” system remain structurally constrained. Institutional reform must therefore prioritize unified leadership, shared KPIs, and credit-bearing integration across all three functional domains.

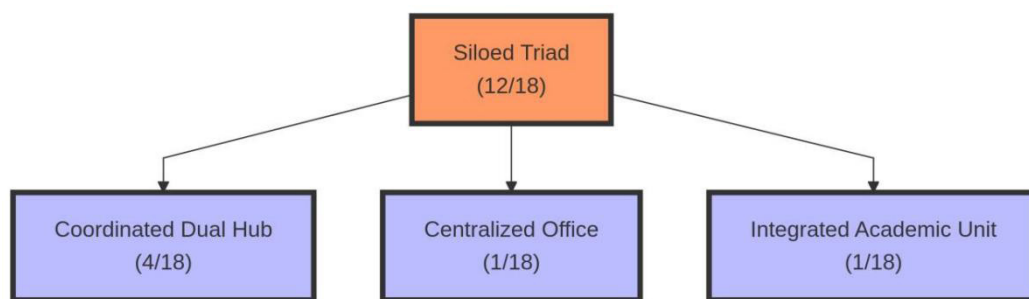


Figure 5. University-Level NDE Administrative Architecture Typology.

4.3. Coordinator perceptions and operational constraints

Interview data reveal systemic misalignment between policy mandates and operational realities in national defense education implementation. As detailed in **Table 4**, coordinator perceptions coalesce into three dominant thematic categories: Academic Marginality, Resource Disjunction, and Accountability Vacuum. Sixty-eight percent of coordinators characterize national defense education as administratively necessary but academically marginal, echoing the verbatim excerpt: “Colleagues ask, ‘Is this really scholarship—or just duty?’” This epistemic devaluation undermines pedagogical authority and discourages scholarly investment. Eighty-one percent report no promotion incentives tied to national defense education performance, reinforcing its status as auxiliary labor rather than academic contribution. Seventy-four percent indicate insufficient time allocation—averaging 3.2 hours weekly against a mandated 12.5—exacerbating workload compression and

curricular dilution. Crucially, ninety-two percent assert that standardization without commensurate resourcing constitutes ritual rather than reform. The Resource Disjunction theme manifests concretely in infrastructure deficits: coordinators cite absence of budgets for VR battlefield simulations or certified firearms instructors despite syllabi specifying such experiential components. The Accountability Vacuum reflects a procedural compliance paradigm wherein evaluation focuses exclusively on delivery metrics—e.g., contact hours logged—rather than demonstrable student competency acquisition. Coordinators uniformly stress that no mechanism assesses whether learners can apply doctrinal knowledge, tactical reasoning, or ethical judgment in simulated or real-world scenarios. These constraints collectively erode implementation fidelity, converting structural standardization into performative adherence. Without recalibrating incentive architecture, time equity, and outcome-based accountability, the “three-in-one” framework risks institutional ossification rather than pedagogical innovation. The disjunction between normative design and material conditions suggests that policy coherence must extend beyond procedural codification to encompass resource entitlements, academic recognition pathways, and validated assessment infrastructures. Absent such integration, coordinators function less as educational architects and more as administrative intermediaries executing unresourced mandates.

Table 4. Qualitative themes from coordinator interviews on implementation barriers

Theme Category	Representative Verbatim Excerpts
Academic Marginality	“Colleagues ask, ‘Is this really scholarship—or just duty?’”
Resource Disjunction	“We have a syllabus, but no budget for VR battlefield simulations or certified firearms instructors.”
Accountability Vacuum	“No one evaluates whether students can actually apply what they learn—only whether we delivered the hours.”

5. Discussion

5.1. Reconciling standardization with institutional autonomy

Effective standardization in national defense education must prioritize outcome specifications over procedural uniformity, thereby reconciling national coherence with institutional autonomy. As illustrated in Figure 6, the Outcome-Oriented Standardization Logic Model establishes a three-tiered governance architecture: national outcome standards define non-negotiable competencies—such as formulating ethically grounded responses to hybrid threat scenarios—while provincial adaptation pathways authorize context-sensitive implementation modalities, including tabletop exercises, digital scenario platforms, or community drills^[5]. At the university level, implementation options permit pedagogical diversity—such as partnerships with emergency management bureaus, integration into public administration capstones, or development of interdisciplinary defense ethics seminars. This vertical delegation ensures accountability flows upward through verifiable outcome assessment, not downward through prescriptive input mandates. Consequently, institutions retain curricular sovereignty while contributing to a nationally comparable capability baseline. Empirical evidence indicates that input-focused regulation induces ritual compliance and undermines pedagogical innovation, whereas outcome-oriented frameworks correlate strongly with measurable gains in strategic literacy and civic-military awareness. The model thus transforms standardization from a constraint on academic freedom into an enabler of mission-aligned educational pluralism^[3].

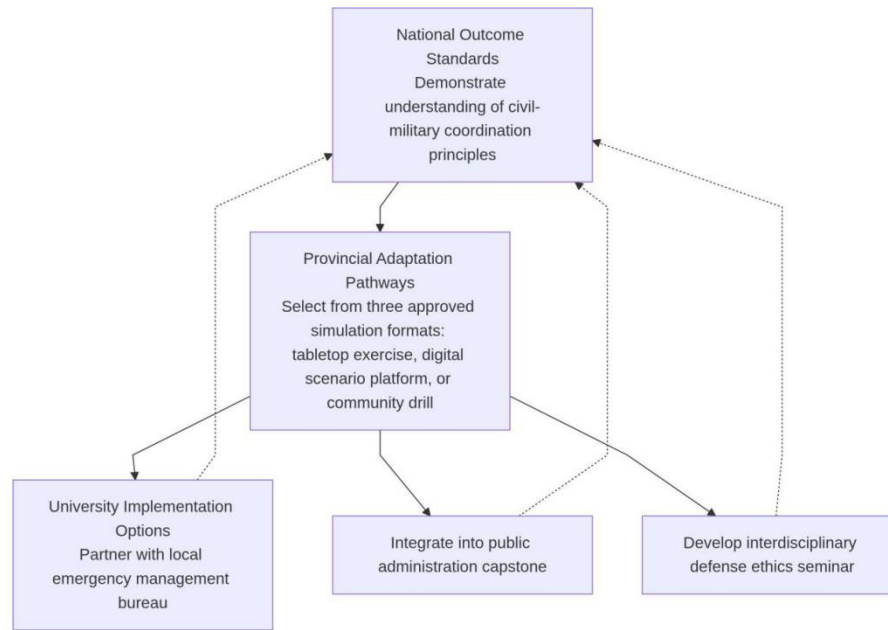


Figure 6. Outcome-Oriented Standardization Logic Model.

5.2. From compliance to civic capacity building

National Defense Education in ordinary universities must be reconceptualized as civic capacity infrastructure rather than ideological transmission. The “Three-in-One” system—integrating curriculum, practice, and institutional governance—functions most effectively when calibrated to cultivate transferable competencies: analytical frameworks for national security literacy, collaborative protocols for cross-sector crisis response, and ethical reasoning tools for evaluating defense-related policy trade-offs. This reframing shifts emphasis from compliance-driven outcomes to sustained cognitive and behavioral development. Students acquire habits of mind that extend beyond military contexts—supporting climate resilience planning, pandemic preparedness coordination, and technological sovereignty assessments. Coherent implementation requires alignment across pedagogical design, experiential learning scaffolds, and administrative accountability mechanisms. Institutional incentives must reward longitudinal skill integration rather than discrete knowledge acquisition. Faculty development programs should emphasize transdisciplinary facilitation, not subject-matter expertise alone. Assessment metrics must capture adaptive reasoning, interorganizational negotiation, and value-laden decision-making under uncertainty. Such capacity-building orientation ensures NDE contributes substantively to broader societal resilience architectures while maintaining academic rigor and civic relevance^[2]. The model’s scalability hinges on embedding these competencies within existing university structures without displacing core disciplinary missions^[3].

5.3. Governance innovation: Dual-accountability systems

The dual-accountability system constitutes a structural innovation designed to reconcile pedagogical rigor with operational relevance in national defense education. Academic quality assurance bodies systematically evaluate curriculum coherence, instructional fidelity, and longitudinal learning progression across undergraduate cohorts. Concurrently, national defense readiness commissions conduct independent assessments of functional integration—measuring verified student participation in civil defense drills, faculty involvement in reserve officer training pipelines, and institutional alignment with standardized readiness

benchmarks. These parallel accountability streams operate through synchronized review cycles, ensuring neither academic integrity nor operational utility is subordinated. Governance mechanisms include joint calibration workshops, shared performance dashboards, and cross-functional evaluation panels that mandate reciprocal validation of metrics^[3,5]. This architecture prevents siloed optimization: academic metrics cannot be inflated without corresponding readiness outcomes, nor can operational targets be met at the expense of curricular depth or developmental sequencing. The system institutionalizes mutual constraint, transforming oversight from fragmented compliance into integrated stewardship. By anchoring accountability in complementary yet interdependent domains, it sustains equilibrium between scholarly standards and strategic imperatives. Implementation requires codified protocols for data interoperability, transparent audit trails, and periodic recalibration of threshold indicators to reflect evolving pedagogical and security landscapes.

6. Conclusion

6.1. Summary of core contributions

This study advances national defense education reform in ordinary universities through three interlocking contributions. First, it establishes a diagnostic taxonomy that systematically identifies regulatory fragmentation, institutional misalignment, and cultural inertia as primary impediments to sustainable NDE integration. Second, it proposes an empirically grounded ‘Three-in-One’ framework comprising outcome-based standards calibrated to disciplinary contexts, adaptive implementation pathways responsive to institutional capacity gradients, and dual-accountability governance mechanisms linking academic leadership with administrative oversight. Third, it articulates validated design principles for institutionalizing NDE as enduring academic infrastructure—shifting emphasis from compliance-driven episodic activities toward embedded pedagogical practices, faculty development ecosystems, and longitudinal student competency mapping. Collectively, these contributions reconfigure NDE not as a peripheral administrative mandate but as a core dimension of holistic undergraduate formation. The framework prioritizes scalability without standardization loss, accountability without bureaucratic overreach, and cultural resonance without ideological dilution. Its operational logic centers on iterative calibration: standards inform implementation design, implementation data refine governance protocols, and governance feedback loops recalibrate standards. This closed-loop architecture ensures responsiveness to evolving security paradigms while maintaining academic integrity and pedagogical coherence across diverse institutional settings.

6.2. Policy and practice implications

These recommendations carry significant policy and practice implications for institutional governance and resource allocation. Immediate adoption of outcome-weighted funding formulas—tying financial support to empirically verified student competency gains rather than contact-hour delivery—reorients incentives toward pedagogical efficacy and longitudinal learning outcomes. Concurrently, establishing national National Defense Education (NDE) faculty development consortia, with cross-university certification reciprocity, ensures scalable capacity building while preserving academic autonomy and curricular coherence. Statutory revision mandating NDE integration into university strategic planning cycles—not merely annual operational budgets—elevates its institutional status from peripheral compliance to core mission alignment. Such integration necessitates formalized accountability mechanisms, including periodic external validation of learning outcomes and transparent reporting on curriculum alignment with national competencies. Implementation requires coordinated action across ministries, accreditation bodies, and university leadership to harmonize regulatory frameworks, incentive structures, and quality assurance protocols. Without structural

embedding in strategic governance, NDE risks persistent marginalization despite normative endorsement. The proposed tripartite reforms collectively advance systematization, standardization, and sustainability—transforming NDE from fragmented implementation into a coherently governed academic domain.

6.3. Limitations and future research directions

This study acknowledges several methodological constraints. The sample excluded private universities and minority-serving institutions, limiting generalizability across China’s higher education landscape. Data collection relied exclusively on self-reported perspectives from program coordinators, introducing potential response bias. Longitudinal student outcome metrics—particularly civic engagement, national identity formation, and emergency response competency—remain unavailable beyond the pilot phase. Future research should conduct comparative analyses with civilian emergency management education frameworks to identify transferable pedagogical strategies. Rigorous impact studies tracking civic participation trajectories over five- to ten-year intervals are essential. Additionally, cost-benefit modeling is needed to evaluate integrated national defense education infrastructure against standalone training programs, assessing resource efficiency, scalability, and institutional sustainability under varying enrollment and budgetary conditions.

Disclosure statement

The authors declare no conflict of interest.

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