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FROM CIVIC INSTRUCTION TO EXPERIENTIAL PUBLIC POLICY: A GAMIFICATION-BASED DESIGN FOR INDONESIA'S BELA NEGARA PROGRAM THROUGH G-TAG

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Abstract: National-defence awareness programmes face a policy-design challenge: how can civic commitments be communicated to younger citizens without equating participation with indoctrination or military readiness? Based on an Indonesian doctoral research proposal and a focused synthesis of policy, gamification, and educational research, this article develops a prospective policy-design framework for G-TAG (Guerilla Tactical Games), an interactive laser-based simulation using Multiple Integrated Laser Engagement System (MILES) technology. The manuscript differentiates documented policy premises, transferable evidence from published studies, and hypotheses that require future testing. It specifies a five-stage learning sequence linking policy objectives, participatory missions, structured feedback, civic reflection, and voluntary civic action. A sequential explanatory mixed-methods evaluation is proposed, including a participant survey, interviews, process observation, and delayed measures of behavioural transfer. Published meta-analytic effect sizes are visualised solely as external contextual evidence, not as G-TAG trial results. The framework identifies conditions under which gamification could improve accessibility and engagement while safeguarding inclusion, civilian autonomy, participant safety, and research integrity. The main contribution is an auditable programme logic and evaluation agenda for civic-oriented public policy; the effectiveness of G-TAG remains an empirical question.

Keywords: national-defence awareness; gamification; G-TAG; MILES; civic engagement; behavioural public policy; Indonesia; mixed-methods evaluation.

INTRODUCTION

Indonesia's concept of bela negara connects the preservation of national sovereignty with wider citizen responsibilities. Its application extends beyond formal military functions to education, public participation, and the cultivation of civic responsibility (Spasenovski, 2022). The policy challenge is therefore not simply to communicate national values, but to design experiences that allow citizens to reason about, question, and enact these values in their own social contexts (Foglia, 2024). Presidential Regulation No. 115 of 2022 and Ministerial Regulation No. 8 of 2022 provide institutional reference points for the development of national-defence awareness (Dewaelheyns et al., 2025).

A digital generation may encounter civic messages through interactive formats rather than solely through lectures and ceremonial programmes (Babatunde et al., 2023). However, participation in an enjoyable game cannot be treated as proof of national-defence commitment.

This distinction motivates an examination of the policy mechanisms connecting simulated experiences with learning, reflection, and subsequent voluntary civic behaviour (Howlett, 2023).

The dissertation proposal identifies a potential mismatch between conventional communication formats and the experiences of Indonesian Generation Z (Fels, 2022). This represents a plausible design hypothesis rather than a quantified nationwide participation gap. Digital citizenship and national resilience are interconnected but distinct concepts (Straßheim, 2023). The former concerns practices of informed participation, whereas the latter concerns the capacity of society and institutions to address collective risks. Recent Indonesian scholarship illustrates why defence awareness should be examined within the broader digital environment and national-resilience debate.

The conceptual domain is also contested. Civic responsibility may involve cooperation, respect for public institutions, critical literacy, and lawful participation (Brunnschweiler et al., 2024). Militarisation, by contrast, involves a narrower orientation towards military organisation and techniques. A public policy centred on civilians should not collapse these domains into a single concept. Indonesian legal scholarship distinguishes the normative scope of bela negara from the assumption that every citizen should undergo military socialisation. Debates concerning the relationship between patriotism, nationalism, and militarisation further reinforce the importance of maintaining this distinction (Graaf et al., 2021).

The proposed case is G-TAG, described in the submitted research proposal as a tactical, game-based activity using MILES-compatible laser simulation, competitive tasks, and real-time feedback (Gantman & Paluck, 2022). Contemporary public reporting confirms that G-TAG demonstrations and community activities have occurred in Indonesia. However, public coverage alone cannot establish learning effects, inclusion, or lasting civic outcomes. Therefore, the present analysis examines the potential transferability of this format to civilian education programmes rather than presenting G-TAG as a proven intervention (Chater, 2022).

The first research gap is conceptual, as studies on gamification frequently measure engagement, enjoyment, or knowledge acquisition, whereas public policy seeks broader and more sustainable civic outcomes (Newall, 2022). The second gap is institutional, because integrating experiential technologies into official programmes requires appropriate governance arrangements, safeguards, and clear accountability mechanisms. The third gap is methodological, since the submitted proposal does not contain completed research datasets (Ball, 2022). Consequently, the proposed hypotheses must first be translated into testable research designs before causal or statistical conclusions can be established.

Three research questions guide this conceptual analysis. First, how can Indonesia's bela negara policy accommodate a non-coercive and participatory learning instrument? Second, which G-TAG mechanisms might influence participant engagement and understanding, and under what conditions could these effects extend beyond the gaming environment? Third, what research and governance safeguards are necessary to evaluate programme effectiveness credibly? The principal contribution is the development of a structured programme theory that distinguishes policy objectives, hypothesised mechanisms, anticipated outputs, and longer-term outcomes, together with specific criteria for evaluating each component.

Policy experimentation is particularly vulnerable to exaggerated technological claims. When simulations are introduced in defence-related contexts, researchers must distinguish recruitment,

entertainment, education, and public communication rather than assuming that the same motivational design serves all these purposes (Tagat & Kapoor, 2023). The following conceptual discussion therefore establishes these distinctions before examining the proposed research methodology (Frerich, 2025).

A comprehensive approach to national-defence awareness must begin with the role of civilian participants rather than the technology employed (Sugden, 2023). The intended educational outcome is informed civic agency, defined as the capacity to understand shared challenges, engage responsibly with others, and make decisions consistent with legal principles and democratic accountability (Bellavista et al., 2022). Programme designers should distinguish knowledge of public responsibilities from attitudinal endorsement and participation in everyday community activities. Each represents a different construct and consequently requires a different form of empirical assessment.

National resilience narratives frequently address diverse security concerns, including disinformation, cyber risks, and indirect conflicts (Kout & Lambrinou, 2021). Contemporary discussions of proxy warfare demonstrate that security environments may involve actors and arrangements extending far beyond conventional battlefield encounters. Research on civic education also connects teaching quality, knowledge, and political interest with young people's willingness to participate, highlighting the importance of evaluating learning environments alongside participation rates. These perspectives demonstrate the need to distinguish the broader security context from measurable civic-learning mechanisms. Neither independently establishes that tactical games improve national resilience (Lin & Hess, 2022).

The policy argument therefore requires a carefully structured chain of inference. Exposure to civic content may improve information recall, while reflection may support a more reasoned understanding of public responsibilities (Shanker, 2025). Cooperative tasks may also provide opportunities to develop short-term coordination and communication skills. However, establishing long-term behavioural change requires evidence collected in settings beyond the simulation environment. This distinction becomes particularly important when programme designers suggest that a relatively brief activity can influence political or national identity. Such claims should remain hypotheses unless supported by independent empirical assessment (Francis & Gerhardstein, 2023).

Civic engagement is defined in this article as voluntary participation in socially beneficial activities while respecting pluralism, lawful processes, and the rights of others. Relevant examples include constructive community volunteering, responsible digital communication, preparedness education, and participation in public consultations (Setiawan et al., 2021). These activities should not be equated with willingness to fight or agreement with every government policy. Accordingly, the term national defence is retained as the Indonesian policy category, while its educational indicators are operationalised through civilian and non-partisan forms of participation (Kowalski et al., 2023).

This proposed definition also establishes ethical boundaries for programme evaluation. Participants should not be assessed through compulsory declarations of loyalty or measures of political conformity. More appropriate indicators include knowledge, procedural reasoning, teamwork, practical problem-solving, and willingness to undertake voluntary forms of civic contribution (DeHaven & Dennis, 2023). This approach remains consistent with the central

research objective of examining whether interactive educational formats can provide more accessible learning experiences for younger participants (Bogliacino et al., 2022).

Digital media exposure provides relevant background for considering interactive programme formats, but generational classifications should not be interpreted as representing a single learning preference (Meng et al., 2025). Studies of technology self-efficacy and preferences for contactless services indicate differences in technology adoption and comfort across user groups. These observations provide contextual insights rather than evidence that all Generation Z participants prefer simulated tactical activities. Communication research similarly identifies heterogeneous generational practices rather than universal behavioural patterns (Mirzaei & Esmaeilzadeh, 2025).

Programme designers should therefore recruit participants from diverse backgrounds and evaluate differences associated with prior gaming experience, disability access, gender, geographical location, educational opportunities, and willingness to participate (Cameron, 2023). A game-based programme may initially attract individuals who already have an interest in strategy or national-defence subjects. Without documenting this selection process, higher levels of enthusiasm following participation could be incorrectly attributed to programme design rather than participants' pre-existing motivation (Xu et al., 2022).

Gamification generally refers to the incorporation of game-design elements into non-game activities, whereas serious games are complete games developed for purposes such as learning, training, or public communication (Stephen et al., 2025). G-TAG combines an organised simulation environment with game mechanics, and its classification should reflect the actual programme structure rather than simply the presence of points and scores. Existing meta-analytical research indicates that gamification can produce improvements in cognitive, motivational, and behavioural outcomes, although the magnitude of these effects varies according to research contexts and study designs (Shen et al., 2025).

Other research syntheses have identified an overall improvement in educational performance through gamified learning interventions while also acknowledging positive learning experiences and potential anxieties arising from competition and reward systems (Thakuri et al., 2025). These findings demonstrate that participation intensity should not automatically be equated with educational benefits. Evaluation must distinguish experiential immersion, instructional quality, learner autonomy, meaningful feedback, and opportunities to apply learning beyond the immediate activity (Leong et al., 2024).

Research guidance on digital game-based learning emphasises the importance of aligning instructional objectives with the selected evaluation methodology. For G-TAG, this means that civic-learning objectives should be established before competitive features are specified or technology providers are selected.

Mechanisms such as feedback, clearly structured challenges, and meaningful choices may support psychological need satisfaction under certain conditions (Maclure & Weinstock, 2023). Indonesian research on technology-based education also identifies opportunities for gamification without necessarily establishing its effects on civic participation. These mechanisms should not automatically be interpreted as promoting civic virtue. A reward system, for example, may

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increase task persistence while leaving participants' reflective understanding and ethical judgement unchanged (Hajibadali et al., 2025).

Different systematic reviews provide further justification for investigating game-based education while cautioning against directly transferring average research effects to specialised programmes. Comparative meta-analyses of gamification and game-based learning identify variations in their effects on academic achievement and motivation (Mertens, 2023). Other educational reviews similarly report improvements alongside differences in programme duration, implementation quality, and targeted outcomes. Research examining game-based science learning also demonstrates potential improvements in academic achievement, although such findings concern educational attainment rather than the internalisation of national values and should therefore be interpreted within their original research context (Fitzgerald et al., 2025).

The popularity of points, badges, levels, and leaderboards can obscure the more important question of which design elements actually contribute to learning. Frameworks for actionable gamification emphasise motivational factors that extend beyond simple external rewards (Hujanen et al., 2021). Revised approaches to game-based thinking in education, public administration, and social impact similarly highlight the importance of aligning objectives, incentives, and the wider institutional environment. These perspectives support the development of an intervention in which facilitated reflection, rather than winning alone, becomes the central educational mechanism (Bowen et al., 2021).

Game environments can represent borders, belonging, citizenship, and exclusion in ways that require critical examination (McElroy-Heltzel et al., 2024). Research examining nationalism in the game Papers, Please demonstrates why game mechanisms should be understood as rhetorically and politically consequential rather than neutral (Chudleigh, 2024). This perspective is particularly relevant to national-defence education because participants should not be encouraged to associate fictional enemies with actual civilian groups or to define civic worth through hostility.

Military learning literature provides additional perspectives for understanding the potential application of gamification. Research in military higher education examines how gamified approaches may support structured decision-making and participation (Berger et al., 2021). Research on digital civic education considers how rewards, competition, and opportunities for self-expression relate to intrinsic motivation and learning among young citizens (Nurfitria & Ghazali, 2023). Studies of virtual military training demonstrate the potential of simulated practice for developing specific skills, while related research examines gamified learning motivation among military English students. Collectively, these studies explain why tactical formats may provide engaging learning environments. However, they do not establish political, civic, or behavioural outcomes among Indonesian civilian populations.

The transferable proposition is therefore limited and testable: appropriately facilitated simulation activities may provide opportunities to practise coordination and receive feedback (Rizzo & Whitman, 2021). Conversely, success in a simulated mission cannot be considered a valid substitute for evidence of civic awareness. The proposed framework explicitly distinguishes these two propositions to avoid overstating the educational implications of game performance (Behrent, 2021).

Behavioural public policy examines how environments, information, incentives, and social contexts influence individual decisions (Lamb & Steinberg, 2021). Comparisons of policy

instruments demonstrate that developing individual capabilities, providing information, introducing incentives, and encouraging behavioural choices rely on different assumptions. G-TAG should primarily be conceptualised as an educational instrument that strengthens participants' capacity for informed action rather than as a covert mechanism for enforcing particular attitudes (Festré & Østbye, 2024). Participants should understand the programme objectives, retain their autonomy, and remain free to decline participation.

Gamification is not inherently ethical or socially beneficial. Competitive mechanisms may discourage participants with limited gaming experience, while public rankings may expose social differences that have little relevance to actual learning outcomes. Research examining games and military recruitment communication also demonstrates how gaming imagery can acquire symbolic significance beyond its instructional purpose. Programme design must therefore maintain a clear distinction between non-coercive learning, recruitment promotion, political messaging, and public-relations activities.

A policy intervention also requires an appropriate implementation framework. The institution authorising the activity establishes the civic-education objectives, programme facilitators translate those objectives into a safe learning environment, and evaluators examine whether participants actually develop new knowledge or demonstrate subsequent behavioural changes. These institutional responsibilities should not be consolidated into a single report prepared by the programme provider. Independent assessment is particularly important when programme activities involve national identity, defence awareness, or security-related symbolism.

RESEARCH METHODS

This manuscript is a conceptual policy-design article developed from the 40-page dissertation proposal submitted by Iman Widhiarto in 2025. The original proposal contains research questions, hypotheses, a proposed mixed-methods research protocol, and a preliminary conceptual framework. However, it does not contain completed respondent-level datasets, interview transcripts, experimental estimates, or validated outcome measures. Accordingly, the present manuscript constitutes a prospective synthesis of the proposed research design rather than a completed empirical evaluation of G-TAG.

The analytical materials comprise the original dissertation proposal, relevant Indonesian regulations concerning defence awareness, and recent scholarly publications addressing gamification, civic education, military simulation, behavioural policy, and mixed-methods evaluation. The literature was selected purposively to support the development of the conceptual framework. No exhaustive systematic literature search or formal risk-of-bias assessment was undertaken. Therefore, the contribution of this manuscript is assessed in terms of conceptual coherence, source traceability, policy feasibility, and the availability of measurable outcomes for future empirical investigation rather than claimed statistical significance or demonstrated intervention effectiveness.

The analytical process involves five interconnected stages. First, the dissertation research questions are translated into observable policy and educational outcomes. Second, the proposed G-TAG learning experience is structured into five components: orientation, mission activities, feedback, debriefing, and civic transfer. Third, the proposed mechanisms are examined in relation to potential implementation risks, including selection bias, coercion, participant fatigue, unequal access, and technological unreliability. Fourth, a prospective evaluation framework is developed

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to distinguish immediate enjoyment from improvements in knowledge, attitudes, and subsequent civic participation. Fifth, institutional responsibilities are identified for programme sponsors, facilitators, independent evaluators, and data controllers to support accountability and effective governance.

An essential methodological distinction concerns the difference between activities described in the research proposal and outcomes that have actually been observed. The original proposal outlines a quantitative survey involving at least 150 younger participants and a qualitative component involving approximately 20–25 informants. However, it does not establish that participant recruitment or interviews have been completed. The proposal also considers a preliminary pilot involving approximately 30 participants to assess the research instruments. These figures represent prospective research targets and planning assumptions rather than an actual sample, completed data collection, or established analytical population.



Figure 1. Recruitment and pilot targets specified in the submitted proposal; planned values, not collected data.

The dissertation proposes an explanatory sequential mixed-methods design in which quantitative findings provide the foundation for subsequent qualitative investigation. This approach is appropriate for examining interventions that have potentially measurable outcomes but involve implementation mechanisms that remain insufficiently understood. The integration of quantitative and qualitative approaches enables researchers to identify patterns of change and subsequently explore the contextual factors, experiences, and processes that may explain those findings. Therefore, the two research phases should be systematically connected rather than treated as independent methodological components.

The proposed quantitative phase would involve recruiting eligible G-TAG participants according to transparent selection criteria, documenting their programme exposure and baseline characteristics, administering appropriate pre- and post-activity assessment instruments, and, where feasible, incorporating a comparison group. The subsequent qualitative phase would use purposive sampling to select participants, facilitators, programme designers, and relevant public officials. Interviews and other qualitative data collection methods would explore unexpected quantitative findings, implementation constraints, and differences in individual experiences. The integration of both phases would provide a comprehensive interpretation of what changed, which participants experienced those changes, and the conditions under which the observed outcomes occurred.

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A predefined research protocol is essential to maintain methodological transparency and minimise the risk of post hoc adjustments to research outcomes or selective reporting. For policy evaluation, the protocol should include a detailed description of the intervention, informed consent procedures, participant eligibility criteria, sample-size justification, instrument validation procedures, missing-data management strategies, and arrangements for independent oversight. Observational case studies may provide valuable insights into programme feasibility, implementation processes, and participant experiences. However, their findings should not be interpreted as evidence of causal relationships or presented as equivalent to results obtained through controlled experimental designs.

RESULTS AND DISCUSSION

The central conceptual contribution of the proposed model is the establishment of an explicit connection between public-policy objectives and participants' learning experiences. National-defence awareness represents the broader policy framework, while G-TAG serves as a potential instructional medium for delivering experiential learning activities. Facilitated interpretation provides the mechanism through which participants may connect their simulation experiences with broader civic values, responsibilities, and social awareness. Voluntary civic participation represents a potential downstream outcome that requires independent assessment and verification. Maintaining clear distinctions between these elements is essential to ensure that the simulation activity does not become an end in itself, but instead remains a learning instrument directed towards broader educational and civic objectives.

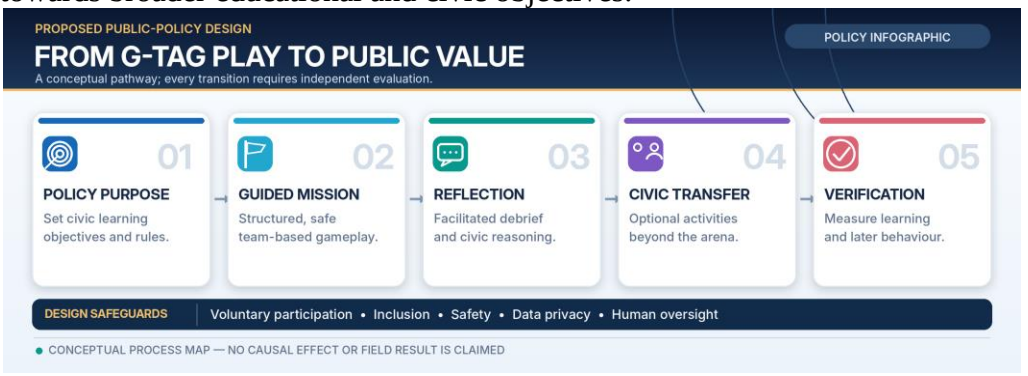


Figure 2. Proposed programme logic connecting policy intent, interactive learning, reflection, and civic action; original conceptual synthesis.

The proposed learning pathway begins with clearly established learning objectives and accessible participation guidelines. A G-TAG mission subsequently provides opportunities for participants to develop coordination, decision-making, and collaborative skills while receiving immediate feedback. The debriefing session encourages participants to critically examine ethical considerations, cooperation, compliance with established rules, individual responsibilities, and respectful disagreement. An optional civic activity then extends the learning experience beyond the simulated environment. However, the successful completion of one stage does not automatically guarantee the achievement of the next. Each transition must therefore be examined independently through systematic evaluation.

This approach has three important implications for policy development. First, programme sponsors should prioritise measurable educational outcomes rather than simply procuring a predetermined number of gameplay sessions. Second, professional facilitators should be held accountable for the quality of reflection and learning outcomes, rather than focusing exclusively

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on the technical operation of the simulation. Third, programme evaluation should incorporate evidence extending beyond the immediate gaming experience, as participant enjoyment alone is insufficient to establish meaningful improvements in civic learning.

Implementation fidelity refers to the extent to which participants receive the educational experience originally planned and specified by the programme. Consequently, attendance records should be complemented by documentation of learning objectives, completed safety orientations, opportunities for feedback, facilitator training, and the quality of debriefing sessions. When an institution modifies mission complexity, instructional procedures, or the role of competition, such changes should be systematically documented rather than treating all programme sessions as equivalent. Maintaining these records is essential for interpreting both positive and statistically insignificant findings and for determining whether observed outcomes reflect the programme design or variations in its implementation.

The proposed programme positions G-TAG as an interactive, laser-based simulation environment rather than a live-fire training exercise. Participants engage in team-based educational activities, make decisions under time constraints, and receive immediate responses from the simulation system. Within this framework, technology functions primarily as a medium for delivering the learning experience, while educational effectiveness depends on how activities are designed, how group interactions are facilitated, and how instructors encourage critical reflection. Therefore, an effective programme should incorporate structured, non-punitive debriefing sessions that connect participants' experiences during the simulation with broader democratic civic values, social responsibility, cooperation, and respect for others.



Figure 3. AI-generated conceptual illustration of a supervised laser-tag learning debrief; not a photograph of actual G-TAG participants or a documented study session.

This illustrative scene is included solely to communicate the proposed format of a facilitated debriefing session and should not be interpreted as empirical evidence. The research proposal does not contain consented documentary photographs or participant images. Any photograph of an actual G-TAG event included in the final publication should be accompanied by verifiable

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licensing information, informed consent where required, an accurate description of the event, and a clear distinction between programme demonstrations and research participation.

A strong civic-learning scenario could encourage teams to cooperate in interpreting incomplete information, manage uncertainty fairly, and consider the consequences of collective decisions. Such activities should remain educational in nature and avoid reproducing operational combat instructions. Instead, the programme should prioritise compliance with established rules, nonviolent problem-solving, effective communication, and accountable leadership rather than aggressive performance or adversarial identity.

Safety and equitable access should be treated as essential programme requirements rather than optional additions. Participants should be provided with alternatives to physically demanding or combat-themed activities. Considerations relating to sensory sensitivity, accessibility, age-appropriate participation, and data security should also be incorporated into programme design and implementation. Participants who decline to participate or choose to withdraw from a session should not face penalties within a civic-education environment.

The proposed model consists of five interconnected instructional stages: orientation and informed consent, structured cooperative challenges, real-time performance feedback, critical reflection and facilitated dialogue, and opportunities for voluntary transfer into civic life. This instructional cycle deliberately positions reflection as its central educational component because simulated cooperation alone cannot establish a comprehensive understanding of public responsibilities, civic rights, or the broader principles of democratic participation.

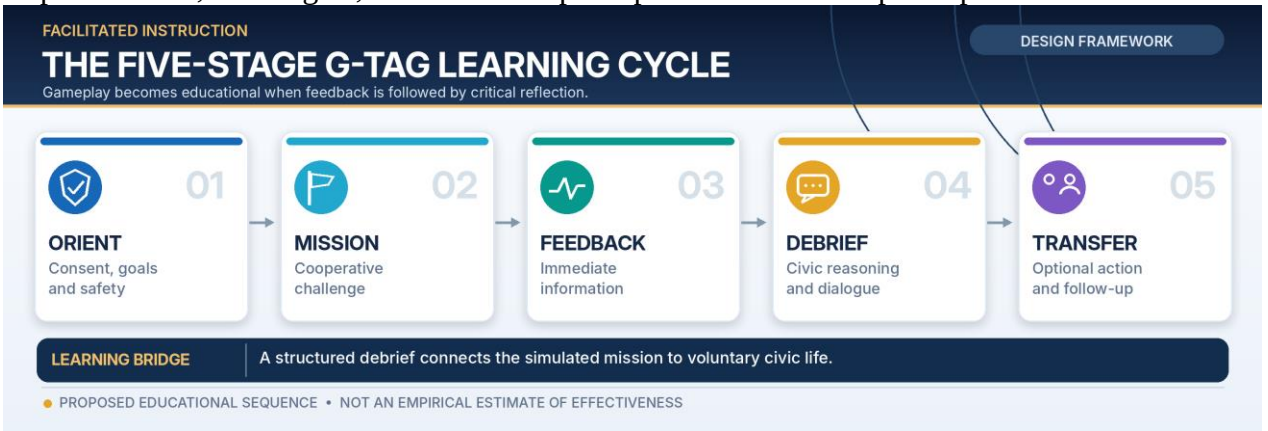


Figure 4. Five-stage G-TAG experiential learning cycle proposed for civic-oriented programme design.

At orientation, facilitators distinguish civilian education from military recruitment, explain safety rules, and invite learners to articulate their expectations. During missions, the programme records engagement, completion, and collaboration without converting scores into judgments of civic commitment. Feedback is delivered constructively, transparently, and comprehensibly. The debriefing session then encourages teams to compare in-game incentives with broader questions concerning lawful public conduct, inclusion, and social trust.

The transfer stage is deliberately voluntary. Potential activities include participation in community disaster-preparedness programmes, civic digital-literacy projects, and facilitated public-interest volunteering. These activities are selected according to local needs and participants' interests. Observable evidence may include subsequent participation and reflective

accounts. However, determining long-term behavioural change requires appropriate follow-up intervals and consideration of alternative explanations.

The relevant policy environment should be examined through the applicable Indonesian legal frameworks rather than inferred from programme branding. Presidential Regulation No. 115 of 2022 establishes the national policy framework for developing defence awareness, while Ministerial Regulation No. 8 of 2022 provides related implementation guidance. This regulation was subsequently amended by Ministerial Regulation No. 41 of 2025. Therefore, programme implementers must refer to the currently applicable legal provisions before determining whether particular programme practices are mandated or permitted. These regulations establish a broader policy framework rather than prescribing specific technological requirements. Consequently, programme implementation should be evaluated in accordance with the operative legal provisions and relevant ethical safeguards.

Published research on gamification provides useful theoretical expectations and empirical foundations for developing testable hypotheses, but it does not establish the effectiveness of the proposed Indonesian G-TAG programme. Previous meta-analytical research has identified statistically significant average effects of gamification on cognitive, motivational, and behavioural learning outcomes, although the magnitude and robustness of these effects vary depending on research contexts and methodological approaches. Other meta-analytical findings have also demonstrated positive effects of gamification on educational performance across different learning interventions.

These effect sizes are presented along the same visual axis solely to facilitate interpretation. They originate from different reviews, outcome measures, and study populations. The figure does not combine the findings statistically, establish the superiority of one effect over another, or predict the potential impact of the G-TAG programme on Indonesian civic education. Furthermore, existing research does not establish that MILES-based tactical activities directly increase nationalism, civic responsibility, or long-term defence awareness.

Accordingly, the principal policy implication concerns the evaluability of the proposed programme. G-TAG has been sufficiently conceptualised to support systematic empirical testing, but its actual effectiveness remains undetermined. An ethical pilot implementation should employ validated measurement instruments, assess potential risks and unintended consequences, and provide meaningful alternatives for participants who choose not to participate. Claims regarding national-level impacts should only be made after sufficient evidence has been collected across diverse implementation settings and independently evaluated.

Evaluation outcomes must also be distinguished from one another. An engaging simulation may generate high levels of immediate enjoyment while producing only modest improvements in learning and no measurable long-term behavioural transfer. Conversely, relatively low entertainment ratings do not necessarily indicate programme failure if improvements in reflective learning and civic understanding can be independently demonstrated. Therefore, the proposed hypotheses should be translated into separate and measurable outcomes rather than combined into a single composite measure of patriotism.

The quantitative evaluation should examine three prespecified relationships derived from the original research proposal: the relationship between perceived game mechanics and participant engagement (H1), the relationship between game experience and civic understanding (H2), and

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the relationship between G-TAG design features and subsequent willingness to participate in civic activities (H3). Since the research proposal contains hypotheses rather than empirical observations, this article does not report statistical coefficients, significance levels, correlations, reliability estimates, or participant demographic findings.

Measurement instruments should be selected according to the specific constructs being investigated. Participant engagement may be operationalised through participation rates, persistence, and validated self-report measures. Civic knowledge should be evaluated using scenario-based questions rather than satisfaction ratings alone. Civic attitudes may be examined through appropriately developed measurement scales while incorporating safeguards against social desirability bias. Furthermore, delayed follow-up assessments should distinguish between participants' stated intentions and their documented voluntary participation in relevant activities. All instruments should undergo translation, cognitive testing, and assessment to identify potential differences in interpretation across participant subgroups.

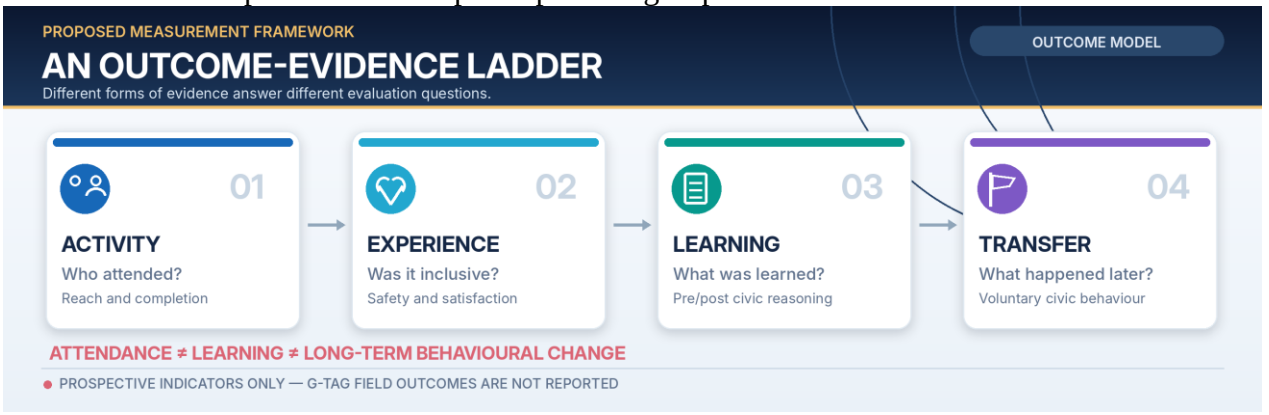


Figure 6. Proposed outcome hierarchy: activity, experience, learning, and behavioural transfer are different measures.

A comparison design would ideally measure outcomes before and after an intervention and use a credible alternative instructional condition, such as a non-gamified workshop with equivalent content and contact time. Where randomisation is infeasible, baseline adjustment, careful matching, or phased implementation may reduce bias, although these approaches cannot guarantee causal identification. Any analysis should report confidence intervals, missing data, attrition, implementation fidelity, and deviations from the agreed research protocol.

The subsequent interview phase should investigate why some participants report greater understanding, why others disengage, and which governance constraints influence programme delivery. Inductive thematic analysis can provide a systematic structure for interpreting these experiences without treating isolated comments as indicators of prevalence. A documented audit trail, reflexive coding practices, and transparent presentation of divergent cases are important for establishing analytical credibility. The pilot findings could then be integrated through a joint display organised around each research question, bringing together quantitative patterns, qualitative explanations, implementation contexts, and alternative interpretations. In the final dissertation-derived empirical article, this integrated interpretation should be grounded in actual anonymised research records rather than hypothetical participant quotations.

The original proposal anticipates the use of Likert-type indicators to assess game elements, civic attitudes, and future participation. Before model estimation, these indicators should undergo expert review, cognitive testing, and appropriate assessments of measurement quality. Clear construct definitions are particularly important because enthusiasm for the game may be confounded with participants' desire to provide socially acceptable responses concerning national

values. Structural equation modelling may be appropriate if the research develops a coherent latent-variable measurement model and satisfies the requirements for sample adequacy, model identification, and data quality. The selection of an analytical method should therefore follow the research objectives, estimands, and measurement properties rather than a preference for complex statistical software. Contemporary guidance on partial least squares modelling can inform the specification of validity, reliability, and structural relationships, but methodological guidance alone cannot justify claims of statistically significant effects without empirical evidence.

The proposal targets at least 150 survey participants; however, the adequacy of this sample cannot be established solely through a general numerical rule. Minimum sample requirements depend on anticipated effect sizes, the number of model parameters, desired statistical power, potential attrition, and the sampling design. A preregistered power analysis and a strategy for managing incomplete responses should therefore be established before recruitment begins. Similarly, interviews targeting approximately 20–25 informants should be guided by the information required to address the research questions and the diversity of relevant perspectives, rather than by the assumption that reaching a predetermined numerical target automatically guarantees data saturation.

At least four groups of programme variables should be recorded prospectively. The first concerns participant characteristics at baseline, including age, educational context, previous gaming experience, and prior civic activity. The second relates to implementation characteristics, such as group size, task difficulty, facilitation quality, technical failures, and the duration of completed debriefing sessions. The third covers contextual influences, including institutional or school-related pressures, community settings, and accessibility provisions. The fourth concerns outcome measures, encompassing immediate engagement, delayed knowledge retention, and subsequent voluntary participation. These variables provide a more comprehensive basis for interpreting programme outcomes and understanding the conditions under which the intervention is implemented.

Several threats to validity require particular attention, including self-selection into tactical games, demand effects in questions concerning patriotism, instructor influence, unequal familiarity with gaming technology, and differences between simulated performance and practical civic competencies. A credible evaluation should systematically measure or document these potential influences rather than incorporating them into an undifferentiated favourable assessment. The analytical protocol should also specify whether the research aims to establish feasibility, describe associations, or estimate causal effects, because these objectives support different levels of inference. A small-scale feasibility study can identify barriers to safe and effective delivery without demonstrating programme efficacy. By contrast, a controlled comparative evaluation may address a more specific causal question, provided that its underlying assumptions and methodological limitations are clearly established.

An important implication of this synthesis is that technology procurement and civic-education policy should not be treated as separate considerations. Institutions should first establish legitimate learning objectives and appropriate participant safeguards before selecting a simulation platform. Procurement specifications should subsequently address demonstrable service requirements, including operational safety, accessibility, data portability, facilitator capacity, and the provision of interpretable feedback. A system that offers realistic effects without adequate educational support may function primarily as an entertainment product rather than as an appropriate instrument of public policy.

Clear separation of institutional responsibilities is essential to effective programme governance. The public sponsor should establish legitimate educational objectives and approve

the evaluation protocol. A trained provider should conduct the activities and document implementation events, while civic educators should facilitate discussions and reflective learning. Independent researchers should assess programme outcomes, and a designated data controller should oversee personal information, access permissions, retention schedules, and incident response. Participants should receive clear information about these responsibilities and be informed whether their activity data will be collected or used for research purposes. Such arrangements can strengthen accountability, clarify institutional obligations, and protect participants throughout programme implementation.

The proposed model should also incorporate a proportionality assessment that balances the potential educational value of immersive simulation against its financial costs, physical accessibility requirements, possible social discomfort, and the availability of equally effective low-technology alternatives. In certain contexts, a structured briefing or collaborative scenario-based exercise may achieve comparable civic-learning objectives at a lower cost and with broader accessibility. Consequently, the adoption of laser-based simulation should be justified through demonstrable educational evidence rather than technological novelty alone.

A public programme designed for a broad citizen population should also be assessed in terms of its potential to exclude particular groups. Training facilities, protective equipment, sound levels, mobility requirements, and strongly competitive formats may discourage or prevent some individuals from participating. The research protocol should therefore provide accessible alternatives that offer equivalent learning opportunities and systematically document the number and characteristics of individuals invited, enrolled, and withdrawn from the programme. Any proposed implementation involving minors would require additional consent arrangements and appropriate safeguarding procedures to protect their rights and well-being.

The distinction between civic education and indoctrination should become particularly evident during the debriefing process. Educators should encourage critical reflection, acknowledge legitimate differences of opinion, and assess the quality of participants' reasoning rather than their conformity with particular political positions. They should also avoid hostile representations of social groups and simulated scenarios that stigmatise minority communities. These principles should not be regarded as obstacles to civic learning; rather, they constitute essential conditions for maintaining the legitimacy, inclusiveness, and public credibility of the educational programme.

Finally, public reporting should provide an appropriately balanced account of both positive and adverse outcomes. Unexpected anxiety, participant discomfort, technical problems, privacy complaints, and increased competitive hostility are relevant findings that should be documented even when overall engagement scores are favourable. Independent complaint mechanisms and transparent incident records can strengthen public trust while providing institutions with evidence to improve programme design and implementation. Through these arrangements, the evaluation of immersive civic education can move beyond immediate participant engagement towards a more comprehensive assessment of educational effectiveness, institutional accountability, inclusion, and long-term public value.

CONCLUSION

G-TAG offers a promising conceptual approach for exploring more participatory, interactive, and engaging methods of delivering Indonesia’s bela negara education. However, the effectiveness of this intervention should not be determined solely by technological innovation, visual presentation, or positive public demonstrations. Its educational and policy value depends on the extent to which game-based experiences contribute to meaningful civic understanding, responsible

attitudes, and sustained participation in national development. A comprehensive policy framework should therefore connect legitimate civic objectives with well-designed learning experiences, effective facilitation, reflective activities, inclusive participation, and responsible data management. Particular attention should be given to ensuring that the educational content remains consistent with national civic values while accommodating differences in age, educational background, digital literacy, and accessibility. Furthermore, the assessment of G-TAG should extend beyond immediate user engagement to examine whether participants demonstrate improved understanding of civic responsibilities, stronger awareness of national identity, and greater willingness to contribute positively to society. The proposed framework consequently positions G-TAG as an educational instrument whose effectiveness must be established through observable learning processes and behavioural outcomes rather than technological novelty alone.

Future research should prioritize a prospectively designed, ethically governed, and preferably comparative evaluation involving clearly defined research indicators and assessment procedures. The evaluation should distinguish between participant engagement, knowledge acquisition, attitudinal development, and longer-term civic participation. It should also consider alternative explanations, differences among participant groups, and potential unintended consequences associated with digital learning interventions. Both positive and adverse findings must be reported transparently to establish a balanced assessment of educational effectiveness. Ultimately, empirical evidence will provide the necessary foundation for determining whether G-TAG generates measurable additional public value compared with conventional approaches to bela negara education and whether its implementation warrants broader policy adoption.

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