

Gamification or Gamipulation ? A Conceptual Framework for Ethical Practices in Higher Education among Generation Z

Ahmad Syahmi Ahmad Fadzil^{1*}, Amir Imran Zainoddin², Muhammad Zulqarnain Hakim Ab Jalal³,
Muhammad Majid⁴, Mohammad Faizal Ramli⁵

^{1,4,5}Faculty of Business and Management, Universiti Teknologi MARA, Johor Branch, Segamat Campus,

²Faculty of Business and Management, Universiti Teknologi MARA, Selangor Branch, Puncak Alam Campus,

³Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, Johor Branch, Segamat Campus

*Corresponding Author

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ABSTRACT

Gamification has become an increasingly prominent strategy in higher education, including in digitally mediated learning environments where many contemporary students encounter interactive platforms, rapid feedback, and visible progress indicators. However, the use of game elements such as points, badges, leaderboards, progress indicators, and rewards does not automatically produce meaningful learning, nor should Generation Z students be treated as a homogeneous group with uniform technological preferences. This conceptual paper distinguishes pedagogical gamification from gamipulation, defined as the manipulative use of game mechanics to control student behavior through excessive surveillance, artificial urgency, public comparison, punishment, or overreliance on extrinsic rewards. Drawing on literature on motivation, ethical gamified education, and Generation Z learning preferences, the paper proposes a conceptual framework for evaluating whether gamified practices support or undermine educational integrity. The framework examines four dimensions: motivation, student agency, social dynamics, and feedback loops. It argues that ethical gamification should align game mechanics with learning outcomes, foster autonomy and competence, protect learner dignity and privacy, encourage collaboration, and provide constructive feedback for mastery. In contrast, gamipulation risks reducing learning to compliance, performance metrics, and superficial participation. The paper concludes that game-based practices in higher education should be designed as pedagogical scaffolds rather than behavioral control systems. For diverse Generation Z learners, ethical gamification is most valuable when it supports meaningful participation, reflection, and intrinsic motivation while avoiding coercive or anxiety-inducing design choices.

Keywords: Gamification; Gamipulation; Higher Education; Generation Z; Ethical Instructional Design

INTRODUCTION

Higher education institutions increasingly rely on innovative digital strategies to maintain student engagement in both online and traditional classroom environments. Gamification has emerged as a dominant trend, which may transform learning dynamics by incorporating badges, leaderboards, progress bars, and point systems. Instructors and faculties are increasingly adopting these mechanics to address the needs of the shifting educational landscape, where traditional pedagogical approaches often struggle to sustain learner motivation and active participation (Khaldi et al., 2023). Numerous platforms offer ready-made tools that may facilitate immediate engagement beyond traditional classroom practices. However, it is essential to distinguish pedagogical gamification the intentional application of game design elements through tools such

as Kahoot!, Quizizz, Plickers, and Moodle to foster meaningful learning from gamification, which may prioritize superficial engagement over pedagogical objectives.

Generation Z's learning experiences are often shaped by digital environments that emphasize interactivity, rapid feedback, collaboration, and visible progress, but these tendencies should be understood as contextual patterns rather than fixed learner traits. Although Gen Z learners are frequently described as digitally familiar, research cautions that digital exposure does not automatically translate into identical preferences, equal access, or sophisticated digital learning strategies. Studies of gamification and Gen Z in higher education suggest that game-based features may support engagement and motivation when they are connected to meaningful academic tasks and active participation, but these effects remain dependent on learner diversity, disciplinary context, access to technology, and instructional design (Saxena & Mishra, 2021; Alruthaya et al., 2021; Chan & Lee, 2023). In higher education, gamification refers to the deliberate use of game elements such as challenges, points, badges, levels, feedback, and narratives in non-game learning contexts; it does not necessarily involve creating a complete educational game (Li et al., 2024). Its value may therefore depend not on the presence of game mechanics alone, but on how effectively they support learning objectives, autonomy, competence, collaboration, and reflection.

This distinction appears essential for differentiating gamification from gamification. In this paper, gamification may be understood as the manipulative use of game mechanics to control student behavior through excessive surveillance, artificial urgency, external rewards, punishment, or public comparison. Whereas pedagogical gamification invites students to engage with content, monitor their progress, and develop mastery, gamification encourages compliance without necessarily promoting understanding. A leaderboard, for example, may provide useful feedback when it functions as a voluntary and contextualized indicator of progress; however, it can become manipulative when it publicly ranks students, intensifies anxiety, or reduces achievement to competition. Research similarly suggests that challenge and personal mastery may be more educationally valuable than rankings and peer comparison alone (Dichev & Dicheva, 2017).

Accordingly, gamification in higher education should be approached as a pedagogical design choice rather than a guaranteed solution to declining attention. Game elements should be aligned with disciplinary content, learning outcomes, and inclusive assessment practices that are closely related to the course learning outcome rather than an instant attention check. They should also preserve students' autonomy by allowing meaningful choices and supporting sustained engagement beyond the reward system (Gao, 2024). Ethical implementation may require faculty attention to accessibility, privacy, emotional well-being, fairness, and different levels of competitiveness among the students. For Generation Z learners in particular, the central question may not be whether education resembles a game, but whether game-based practices can create a meaningful learning experience. Despite its widespread adoption, the practical execution of gamification may easily fall into "gamification." Gamification may occur when game mechanics are implemented uncritically, prioritizing behavior modification, artificial urgency, and excessive competition over conceptual mastery. When students perform actions solely to avoid point loss or climb a visual ranking rather than to master material, educational integrity is potentially compromised. Hence, this paper proposes a conceptual framework to help educators differentiate between genuine pedagogical gamification and manipulative design choices.

LITERATURE REVIEW

Gamification

Gamification may be delineated as the strategic integration of game design elements such as points, badges, and leaderboards into non-game contexts to stimulate user motivation and engagement (Galstyan, 2025). Gamification is grounded in several complementary theories of motivation and learning, most prominently Self-Determination Theory, which proposes that students are more likely to develop sustained and intrinsically oriented motivation when learning environments support autonomy, competence, and relatedness (Sailer & Homner, 2019). From this perspective, game elements should provide meaningful choices, achievable challenges, informative feedback, and opportunities for social connection rather than

merely offering external rewards. Feedback is particularly important because it can help students interpret their performance, regulate their learning, and recognize progress toward mastery (Sailer & Homner, 2019). Other perspectives, including behaviorist approaches, explain how points, badges, and levels can reinforce desired behaviors, while constructivist and active-learning theories emphasize interaction, problem solving, collaboration, and the active construction of knowledge.

However, the literature indicates that gamification does not produce uniform outcomes; its effectiveness depends on the design of the intervention, its alignment with learning objectives, and the characteristics of the learners and educational context (Alsawaier, 2017). Studies in higher education have associated well-designed gamification with improved motivation, engagement, participation, learning outcomes, and autonomous learning skills, although these benefits should not be treated as automatic or universally applicable (Murillo-Zamorano et al., 2021). This concern is especially relevant when game mechanics become detached from disciplinary content and encourage students to complete tasks for points without developing conceptual understanding. For Generation Z, who commonly encounter interactive technologies in their everyday lives, gamification can serve as a contextual motivator that makes academic participation more immediate and socially connected (Saxena & Mishra, 2021). Research on this cohort suggests that group-based motivation and feedback mechanisms can strengthen engagement, but educators may therefore need to avoid treating Generation Z as a homogeneous population or assuming that digital familiarity guarantees a preference for competitive learning (Chan & Lee, 2023). Ethical gamification therefore requires educators to use game elements to support meaningful academic participation while preserving student choice, privacy, dignity, and opportunities for reflection. When participation is compulsory, rewards condition behavior, or ranking systems intensify surveillance and comparison, gamification may undermine autonomy and reproduce coercive power relations rather than support learning (Klock et al., 2023).

Gamipulation

Gamipulation can be understood as the instrumentalization of game-like mechanics to engineer behavioral compliance, often prioritizing task completion over the deeper cognitive or affective processes necessary for academic growth (Bai et al., 2022). This design approach frequently relies on extrinsic motivators, such as "dark patterns" or artificial scarcity, which can erode student agency by steering learners toward performative engagement rather than genuine curiosity (Li et al., 2023; Tsay et al., 2018). Although conventional gamification can use points, badges, levels, challenges, and feedback to encourage participation, gamipulation prioritizes compliance, measurable activity, and externally defined performance indicators. Its design may involve excessive surveillance, artificial urgency, public rankings, punishment through point loss, or rewards that pressure students to participate without genuine interest in the learning process. Whereas competition can scaffold engagement when employed judiciously, its uncritical adoption may also delineate the threshold at which pedagogical gamification gives way to gamipulation. Rankings and leaderboards may offer contextual feedback when they are voluntary, developmental, and interpreted as indicators of individual progress. However, public comparison can intensify anxiety, stigmatize lower-performing students, and reduce achievement to competition. Research suggests that challenge, mastery, and overcoming obstacles may be more valuable for engagement than rankings and peer comparison alone (Dichev & Dicheva, 2017). Consequently, the architecture of gamified learning environments may benefit from foregrounding the cultivation of personal progress and mastery, rather than sustaining constant comparison among classmates. The ethical literature further delineates the problem of involuntary participation, a condition under which institutional prerogatives may circumscribe student volition. When students are required to use a gamified system, or when assessment depends on participation in a particular game-based activity, gamification can reinforce unequal power relations. Such practices may prioritize institutional efficiency or external evaluation over students' educational needs and preferences (Klock et al., 2023). Gamipulation therefore becomes especially problematic when students cannot opt out, when their personal data are collected without adequate safeguards, or when participation is treated as evidence of learning regardless of whether the game mechanics support conceptual understanding.

The relationship between gamipulation and Generation Z therefore requires cautious framing. Rather than assuming that all Generation Z students are naturally motivated by digital rewards or competitive interfaces,

this paper treats digital familiarity as a background condition that varies across students and contexts. Some learners may respond positively to rapid feedback, interactive tasks, or collaborative challenges, whereas others may experience the same mechanics as distracting, stressful, inaccessible, or coercive. The risk of gamipulation may be heightened by the immediacy of digital feedback. Frequent notifications, countdowns, progress indicators, and reward cycles can encourage students to remain continuously active, but constant activity is not equivalent to meaningful engagement. When these mechanisms generate pressure or make students feel that they are being watched, they may undermine autonomy and emotional well-being. Ethical concerns are particularly significant when participation is compulsory, personal information is insufficiently protected, or students are publicly juxtaposed with their peers (Klock et al., 2023). Ultimately, such systems risk fostering a shift from intrinsic motivation toward a reliance on external validation, potentially diminishing the internal desire to learn and inducing anxiety (Covrig et al., 2023; Šević & Šević, 2025).

Table 1 Conceptual comparison of gamification-related concepts

Concept	Primary purpose	Ethical boundary	Typical design features	Distinctive risk or contribution
Gamification	Uses game elements in non-game learning contexts to increase engagement, participation, and progress visibility.	Ethically acceptable when mechanics are aligned with learning outcomes and do not replace learning with point accumulation.	Points, badges, leaderboards, levels, challenges, progress bars, quests, and rewards.	Contributes a flexible pedagogical strategy, but may become superficial when reduced to external rewards.
Meaningful gamification	Uses gameful and playful layers to help learners develop personally relevant connections with academic tasks.	Ethically strongest when it supports autonomy, competence, relatedness, reflection, and long-term motivation rather than dependence on rewards.	Choice, narrative, personalization, reflection, collaboration, constructive feedback, and mastery-oriented progression.	Clarifies how gamification can deepen intrinsic motivation when learners perceive activities as meaningful.
Gamipulation	Uses game mechanics to steer, pressure, or control student behavior in ways that prioritize compliance over understanding.	Crosses the ethical boundary when students have limited agency, limited transparency, or limited ability to opt out of reward, ranking, or surveillance systems.	Compulsory streaks, punitive point loss, forced participation, public rankings, artificial urgency, excessive notifications, and opaque analytics.	Provides the paper's key conceptual contribution by naming the shift from pedagogical support to manipulative compliance.
Coercive design	Constrains users' choices or makes non-participation costly, difficult, or socially disadvantageous.	Becomes ethically problematic when participation is not meaningfully voluntary or when penalties pressure conformity.	Mandatory pathways, locked alternatives, penalty-based progression, hidden costs of opting out, and assessment-dependent participation.	Explains the power relation through which gamified systems can pressure students even without deception.
Dark patterns	Use interface or interaction design to exploit psychological tendencies in ways that may conflict with users' best interests.	Ethically unacceptable when design nudges become deceptive, opaque, addictive, or difficult to resist.	Fear-of-missing-out prompts, artificial scarcity, endless rewards, confusing choices, social pressure, and attention-capturing loops.	Provides a broader design-ethics category; gamipulation is narrower because it concerns game mechanics in educational power relations.

This comparison clarifies that gamipulation is not merely ineffective gamification or a synonym for dark patterns. Its distinctive conceptual focus is the educational threshold at which game mechanics cease to function as scaffolds for autonomy, competence, and relatedness, and instead become instruments for behavioral control. Meaningful gamification emphasizes personal relevance, student agency, and sustained motivation; gamipulation, by contrast, describes the erosion of these conditions when mechanics compel participation, amplify comparison, or reward compliance without supporting conceptual learning. The concept therefore helps educators evaluate not only whether game elements are present, but whether their use preserves ethical learning conditions in higher education.

DISCUSSION

This section articulates a conceptual framework designed to distinguish pedagogical gamification from manipulative gamipulation, grounded in an analysis of instructional design, learner autonomy, and the alignment between game mechanics and intended learning outcomes. The framework treats gamification as ethically defensible when it supports meaningful participation, competence development, collaboration, and reflective learning, while recognizing that Generation Z learners may respond positively to interactive feedback mechanisms and socially connected activities without assuming that all students share identical preferences (Chan & Lee, 2023; Saxena & Mishra, 2021). Because gamification is not effective by default, its value depends on whether its mechanics are theoretically justified, contextually appropriate, and integrated with disciplinary content rather than added as superficial rewards (Bai et al., 2022). To prevent gamification from devolving into gamipulation, educators must design interventions grounded in ethical, student-centered principles. The distinction can be examined through the proposed conceptual framework on four analytical dimensions.

The four framework dimensions were derived by translating the three core psychological needs in Self-Determination Theory; autonomy, competence, and relatedness into evaluative design conditions for gamified learning environments. Motivation and feedback loops primarily correspond to competence because they assess whether game mechanics help students experience progress, mastery, and constructive guidance, or whether they merely reinforce compliance through rewards and repeated prompts. Student agency operationalizes autonomy by examining whether learners retain meaningful choice, transparency, informed participation, and control over how they engage with gamified tasks. Social dynamics operationalizes relatedness by evaluating whether game elements promote collaboration, belonging, and peer support, or instead intensify public comparison, exclusion, and anxiety. In this framework, gamification remains educationally ethical when these psychological needs are supported; it moves toward gamipulation when the same mechanics frustrate autonomy, competence, or relatedness in pursuit of behavioral control.

Table 2 Conceptual model of the pathway from game mechanics to meaningful learning or manipulative compliance

Game mechanics	Ethical design conditions	Supported SDT needs	Ethical pathway	Gamipulative pathway
Points, badges, leaderboards, levels, quests, progress indicators, rewards, notifications, and feedback loops	Alignment with learning outcomes; transparency; meaningful choice; proportional use of rewards; privacy protection; inclusive participation; reflection; constructive feedback	Autonomy, competence, and relatedness	When ethical conditions are present, game mechanics function as pedagogical scaffolds that support mastery, reflection, collaboration, and meaningful learning.	When ethical conditions are absent, the same mechanics can become instruments of pressure, surveillance, comparison, reward dependence, and manipulative compliance.

The model illustrates that game mechanics are ethically neutral at the point of selection; their educational value depends on the design conditions through which they are implemented. When these conditions support autonomy, competence, and relatedness, gamification can encourage meaningful engagement, mastery-oriented learning, and reflective participation. When the same mechanics are implemented without transparency, choice, proportionality, or pedagogical alignment, they may redirect students toward compliance, constant activity, and external validation. Thus, the proposed pathway positions gamipulation not as the mere presence of game elements, but as the outcome of game mechanics passing through ethically deficient design conditions.

Table 3 Conceptual Framework for Ethical Practices on Gamification

Dimension	Recommended Practices (The Do's)	Practices to Avoid (The Don't's)
Motivation	Foster intrinsic growth: Align badges, challenges, and rewards with meaningful mastery of complex concepts, allowing external feedback to support developing competence.	Depend on extrinsic incentives: Award points for low-level participation, such as merely logging into a portal, thereby shifting attention from learning outcomes to visible activity.
Student agency	Provide autonomy: Offer reasonable choices among learning pathways, quests, collaboration formats, or assignment modes, and explain how data and rewards are used.	Enforce coercive traps: Force rigid pathways or use punitive loss mechanisms, such as missed daily streaks, that make participation compulsory rather than educationally meaningful. Ethical systems may be expected to preserve informed choice, opt-in participation where feasible, and appropriate anonymization.
Social dynamics	Encourage collaboration: Design team-based challenges, peer feedback loops, and shared problem-solving activities that promote relatedness without reducing achievement to peer comparison.	Deploy leaderboards coercively: Display public rankings that expose low-performing students, intensify anxiety, or stigmatize learners who do not wish to compete; personal progress and mastery are generally safer reference points than constant comparison.
Feedback loops	Offer informative mastery feedback: Provide continuous, constructive information that identifies errors, guides revision, and helps students monitor progress toward disciplinary objectives.	Exploit fear of missing out and urgency: Use artificial countdown timers, scarcity, notifications, or repetitive reward cycles which may compel engagement and sustain activity that is unrelated to conceptual understanding.

Together, these dimensions may establish that the central difference between gamification and gamipulation lies not in the presence of points, badges, challenges, or rankings, but in how those elements shape students' motives, choices, relationships, and understanding. The framework therefore suggests that educators evaluate each intervention according to whether it strengthens autonomy, competence, and relatedness; whether it remains transparent and proportionate; whether it accommodates diverse learners; and whether its success is measured through meaningful learning rather than compliance alone. This approach appears particularly important in higher education, where interactive technologies may make participation more immediate for many contemporary students, including some Generation Z learners, but where digital familiarity should not be interpreted as universal preference, digital competence, consent to surveillance, or willingness to engage in continuous online activity (Chan & Lee, 2023; Saxena & Mishra, 2021; Alruthaya et al., 2021). Educators may consequently test an ethically designed system for unintended effects, revise it in response to student feedback, and remove or redesign it when its mechanics produce anxiety, reward dependence, superficial learning, or inequitable participation (Covrig et al., 2023; Klock et al., 2023). By shifting the focus from behavioral compliance to the synthesis of game design with instructional theory, this framework may enable digital interventions to function as scaffolds for academic self-efficacy rather than as instruments of coercion.

The importance of being ethical in gamified higher education rests on the fact that pedagogical design is never value neutral. Game mechanics shape how students interpret effort, achievement, failure, and recognition; hence, they also shape the moral conditions under which learning occurs. An ethical approach requires educators to ensure that engagement strategies do not substitute measurable activity for intellectual growth, nor convert students into objects of behavioural control. This is especially significant when gamified systems collect data, rank performance, or condition participation through rewards and penalties. If these mechanisms are not proportionate and pedagogically justified, they may intensify social comparison and reduce learning to compliance. Ethical practice therefore protects the dignity of learners while preserving the academic purpose of education. It demands that gamification be judged not only by whether it increases participation, but by whether it cultivates competence, fairness, reflection, and responsible agency. In this sense, ethical responsibility functions as a safeguard against gamipulation as it prevents instructional innovation from becoming coercive, and it ensures that digital tools remain servants of learning rather than instruments of control.

CONCLUSION

Educational gamification may need to transition from a superficial strategy of incentivized compliance to a theoretically sound pedagogy that enhance deeper learning and intrinsic motivation. This transition may be advanced by ensuring that all game-based interventions remain rigorously aligned with well-defined pedagogical objectives and the diverse developmental needs of the modern student body (Alcalá et al., 2025; Tokzhigitova et al., 2023). Thus, the successful integration of these technologies appears to hinge upon a commitment to ethical design principles that prioritize student well-being over metrics of engagement. By integrating principles of Self-Determination Theory into instructional practice, educators may create learning structures that respect student autonomy while providing meaningful pathways for personal and academic growth. Future empirical validation should move beyond general claims about engagement and test the proposed framework through a staged research agenda. First, researchers could develop and validate a diagnostic measure of gamipulative practice by translating the four framework dimensions motivation, student agency, social dynamics, and feedback loops into observable indicators. Such an instrument might assess the extent to which a gamified activity relies on extrinsic rewards, restricts meaningful choice, exposes students to coercive comparison, uses opaque data practices, or produces repetitive feedback loops unrelated to mastery. Scale development could begin with expert review and student interviews, followed by exploratory and confirmatory factor analysis to examine whether the four proposed dimensions are empirically distinguishable and theoretically coherent. Second, future studies could test the framework across different higher-education contexts, including large lectures, blended courses, online learning environments, professional programmes, and collaborative project-based modules. Comparative studies across disciplines would help determine whether the risk of gamipulation varies according to assessment structure, class size, digital infrastructure, and learner diversity. Third, longitudinal and mixed-methods designs could examine whether ethically designed gamification produces sustained autonomy, competence, relatedness, and learning outcomes, while manipulative designs produce reward dependence, anxiety, superficial participation, or reduced intrinsic motivation. Experimental or quasi-experimental studies might compare mastery-oriented feedback, private progress tracking, and voluntary collaboration with public leaderboards, compulsory streaks, or punitive point-loss systems. Finally, empirical work should include diverse student voices rather than treating Generation Z as a uniform group; subgroup analyses and qualitative reflections could reveal how prior digital access, competitiveness, disability, culture, language background, and disciplinary expectations shape students' experiences of gamified learning. The adoption of this reflexive, user-centered approach may allow institutions to mitigate the risks of superficial engagement while cultivating environments where learning serves as its own inherent reward. This developmental trajectory may require educators to continuously re-evaluate their digital tools to ensure they function as catalysts for critical inquiry rather than mechanisms for behavioral conditioning.

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