Understanding the Effects of Gamification in E-Commerce on User Engagement, Motivation, and Loyalty: A Review and Conceptual Framework

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***Abstract*—Gamification has become a key strategy in E-commerce, enhancing user engagement, motivation, and loyalty. While prior research has examined individual gamification elements, fewer studies have explored their interactions or how their effectiveness varies across different platforms and user demographics. This paper reviews the existing literature to classify gamification elements into transaction-based, achievement-based, and social influence-based categories, and analyzes their roles in shaping engagement, satisfaction, and behavioral intention. Additionally, it highlights the importance of understanding how platform characteristics and user demographics moderate the impact of gamification. To address these gaps, we propose a conceptual framework that examines how gamification interactions shape engagement and motivation, which mediate loyalty, while platform and demographic factors moderate these effects. This framework offers a structured perspective on gamification design, providing insights into optimizing engagement and loyalty across different E-commerce platforms.**

***Keywords*—gamification, E-commerce, user engagement, loyalty, motivation**

I. Introduction

Gamification refers to the application of game-like mechanics in non-gaming environments, such as education, healthcare, and business, to drive user engagement, motivation, and behavior (Koivisto and Hamari, 2019). In E-commerce, gamification is widely adopted to increase customer engagement, sustain motivation, and foster brand loyalty. Engagement refers to a user's active interaction with the platform, such as browsing, clicking, and engaging with the platform's features. Motivation, both intrinsic and extrinsic, drives users to continue engaging over time. Loyalty is the ultimate goal of E-commerce as it ensures that users return consistently, make purchases, and prefer the platform over competitors.

The effectiveness of gamification varies across platforms, user experiences, and demo graphics. While some elements work independently, others interact, reinforcing or diminishing engagement, motivation, and loyalty. Certain combinations may enhance user experience, while others risk disengagement or frustration. Platforms must strategically implement gamification to balance effectiveness, user preferences, and resource constraints, as no single approach fits all user groups.

Although gamification in E-commerce is widely studied, gaps remain in understanding the effects of individual elements, their interactions, and their impact across different platforms and demographics. This paper addresses these gaps by systematically reviewing gamification strategies, identifying key gamification elements, and assessing their influence on engagement, motivation, and loyalty. We propose a generalizable conceptual framework that integrates gamification elements, user experience mediators, and platform and demographic moderators. This structured approach provides a foundation for empirical validation and offers actionable insights for E-commerce platforms to optimize gamification strategies. Accordingly, this framework guides investigations into the following research questions:

RQ1: How do different gamification elements influence consumer engagement, motivation, and loyalty in E-commerce platforms, both directly and indirectly?

RQ2: How do interactions between different gamification elements shape user engagement, motivation, and loyalty in E-commerce?

RQ3: How do gamification effects on loyalty vary across E-commerce platforms and demographics (e.g., age, income, shopping frequency)?

The remainder of this paper is structured as follows: Section II reviews the theoretical background of gamification in E-commerce, identifying key elements and research gaps. Section III presents the proposed conceptual framework, outlining key variables and relationships. Section IV summarizes key findings and discusses future research directions.

II. Literature Review

A. Gamification: Motivation and Engagement Theories

Gamification enhances user experience by engagement, intrinsic motivation, and extrinsic motivation. Self-Determination Theory (SDT) explains motivation as both intrinsic (personal satisfaction) and extrinsic (external rewards), driven by autonomy, competence, relatedness, and recognition (Ryan and Deci, 2000). Intrinsic motivation arises from personal enjoyment, curiosity, or satisfaction rather than external incentives, leading to voluntary participation and deeper engagement. Research suggests that self-driven users exhibit sustained involvement and long-term commitment (Legault, 2016). In E-commerce, this

can arise from interactive features, product discovery, or personalized experiences. Meanwhile, extrinsic motivation relies on external rewards like discounts, badges, or leaderboards. While effective for initiating engagement, over-reliance can weaken long-term retention. Balancing intrinsic and extrinsic motivators is crucial for sustaining user loyalty in gamified E-commerce environments (Shang *et al.*, 2005).

Beyond SDT, Flow Theory further explains engagement by describing a state of deep focus and immersion achieved through balanced challenges, clear goals, and timely feedback (Csikszentmihalyi, 1990). While initially applied to various domains, including online experiences (Novak *et al.*, 2000), flow-based engagement strategies can also inform E-commerce gamification, where structured challenges and real-time feedback improve user retention. By integrating SDT and Flow Theory, our framework positions engagement, intrinsic motivation, and extrinsic motivation as key mediators of gamification's impact on loyalty, reinforcing the need for a well-balanced gamification strategy in E-commerce.

B. Gamification Elements

Gamification uses various game features like points, badges, leaderboards, and challenges to increase user engagement in different settings. Mekler *et al.* examine how individual gamification elements influence users' motivation and task performance. Their findings indicate that points often increase task output but do not necessarily improve intrinsic motivation. Levels provide a sense of progression, fostering short-term engagement. Badges can evoke a sense of accomplishment, though their impact on intrinsic motivation varies. Leaderboards may increase effort through competition but can also reduce intrinsic motivation if users feel pressured. Robson *et al.* further highlights the importance of aligning gamification mechanics with user motivations, emphasizing that engagement is most effective when tailored to different player types. Based on these insights, the authors offer guidelines for effectively employing gamification to influence behavior.

In E-commerce, gamification elements such as loyalty tiers, progress bars, and referral incentives are strategically applied to enhance user experiences. Hamari (2013) investigates the effect of badges in a peer-to-peer training platform, demonstrating their ability to increase engagement and foster loyalty. Che *et al.* (2023) categorize gamification elements into achievement, personalization, and social interaction, proposing a structural model based on the use and gratification theory to explain how these elements influence consumer purchase behavior. By integrating these elements effectively, E-commerce platforms can drive sustained engagement, strengthen user satisfaction, and encourage long-term platform commitment.

C. Comprehensive Literature Review and Research Gap

Gamification in E-commerce has gained increasing attention, with studies exploring its impact on engagement, motivation, and loyalty. Prior research has examined various gamification strategies, which we categorize into three types: transaction-based (T), achievement-based (A), and social influence-based (S). These elements influence user behavior differently, with some driving short-term engagement and others fostering long-term loyalty.

A comprehensive literature review was conducted using journal and conference papers from 2018 to 2025, extracted from Scopus and Web of Science, selected based on titles, key words, and abstracts containing "Gamification" and "E-commerce." While previous review papers have synthesized research on gamification broadly, this section focuses on empirical studies that examine gamification elements and their influence on user experience factors such as engagement, satisfaction, loyalty, and behavioral intention. Table 1 summarizes these studies, categorizing gamification elements, their impact on user experience, and platform moderators. Three key observations emerge from the literature:

- Limited focus on multi-element interactions: Most studies analyze single gamification elements in isolation, with fewer exploring their combined effects on user behavior (e.g., Aparicio *et al.*, 2021; Kusumawardani *et al.*, 2023). Understanding how different gamification mechanisms interact remains an open research question.
- Variability across platforms and regions: While some studies examine multiple platforms (e.g., Aparicio *et al.*, 2021), many focus on a single platform (e.g., Tsou & Putra, 2023; Tu & Binh, 2023; Mou *et al.*, 2024), limiting broader cross-platform comparisons. Even within the same platform, regional adaptations (e.g., Shopee in Thailand vs. Shopee in Indonesia) may lead to different gamification designs and strategies tailored to local user preferences.
- Contradictions in gamification outcomes: Transaction-based elements effectively boost short-term engagement (e.g., Xu *et al.*, 2020) but may not always translate into long-term loyalty unless structured as cumulative rewards (e.g., Aparicio *et al*., 2021). The impact of social influence-based elements is mixed. Some studies find leaderboards and referrals enhance engagement (e.g., Kusumawardani *et al.*, 2023), while others suggest they may discourage participation due to competitive pressure (e.g., Zhang *et al.*, 2021).

These inconsistencies in gamification effectiveness highlight that gamification is not a one-size-fits-all solution and must be tailored to platform context and user behavior. This underscores the need for an integrated approach that accounts for individual gamification elements, their interactions, and platform-specific adaptations. These findings reinforce the necessity of a framework that not only categorizes gamification elements but also examines their interactions and moderating influences, an area that remains underexplored. To bridge this gap, we propose a conceptual framework that investigates gamification interactions and their combined effects on engagement and motivation, which in turn mediate long-term loyalty. The framework further incorporates platform and demographic moderators, providing a holistic perspective on gamification effectiveness across diverse E-commerce settings. While generalizable to various regional platforms, we aim to empirically validate it through a study on Shopee and Lazada users in Thailand, a context not yet explored in prior research. This investigation will provide practical insights into the real-world impact of gamification strategies, contributing to data-driven E-commerce design and optimization.

Table 1. Summary of empirical gamification studies in E-commerce.

Authors (year)	Gamification elements				User experience factors	Platform & moderators
	T	A	S	Others		
Meder *et al*. (2018)	✓	✓			-User behavior -Motivation	-German E-commerce -Mobileusers
Sukmaningsih *et al.* (2020)	✓	✓	✓		-Engagement	-Shopee -Age, Gender, Shopping frequency
Xu *et al.* (2020)	✓	✓	✓	-Competition	-Purchase intention	-Taobao -Age, Gender, Education
Raman (2021)	✓	✓	✓		-Behavioral intention	-Multiple platforms -Age, Income, Shopping behavior
Aparicio *et al.* (2021)	✓	✓	✓	-Competition -Win states	-Loyalty -Repurchase intention	-Multiple platforms -Age, Education
García-Jurado *et al.* (2021)	✓	✓	✓		-Engagement	-Amazon -Product review behavior
García-Jurado *et al.* (2021)		✓			-Intrinsic motivation	-Amazon -Millennial reviewers
Hajarian&Hemmati (2021)	✓		✓	-Online quizzes	-Word of mouth-Sales	-Digikala
Zhang *et al.* (2021)	✓	✓			-Impulse buying	-Multiple platforms -Age, Gender
Sundjaja *et al.* (2022)	✓	✓			-Loyalty	-Shopee -Age, Education, Occupation
Kusumawardani *et al.* (2023)		✓	✓	-Recognition -Reciprocal benefits	-WOM -User satisfaction	-Multiple platforms -Game players , Income
Che *et al.* (2023)		✓	✓	-Personalization	-Purchase behavior -Motivation	-Multiple platforms -Age, Education, Occupation, Income
Tsou&Putra (2023)	✓	✓		-Enjoyment	-Engagement -Immersion -Brandlove	-Shopee -Immersion
Tu&Binh (2023)	✓	✓			-Satisfaction -Impulse buying	-Shopee -Gen Z
Thi (2024)	✓	✓			-Engagement -Brand loyalty	-Vietnam E-commerce -Age, Occupation,
Mouetal. (2024)	✓		✓		-Stickiness	-Credamo -Age, Gender
Sujarwo&Wijayanti (2025)	✓				-Behavioral intention	-Shopee -Gameplayers
Proposed framework	✓	✓	✓	-Element interactions	-Engagement -Intrinsic motivation -Extrinsic motivation	-Multiple platforms -Age, Occupation, Income

Note: T=Transaction-based (e.g., rewards, points, limited-time sales, vouchers), A=Achievement-based (e.g., progress bars, levels, challenges, badges), S=Social Influence-based (e.g., referrals, reviews, leaderboards).

III. Conceptual Framework

E-commerce platforms integrate gamification elements to enhance engagement, motivation, and loyalty, but implementing all features is costly and may overwhelm users. Their effectiveness varies based on user experience, platform characteristics, and demographics, making it essential to understand their contextual impact. Some elements may also reinforce each other to amplify engagement and motivation, highlighting the need to explore their interactions.

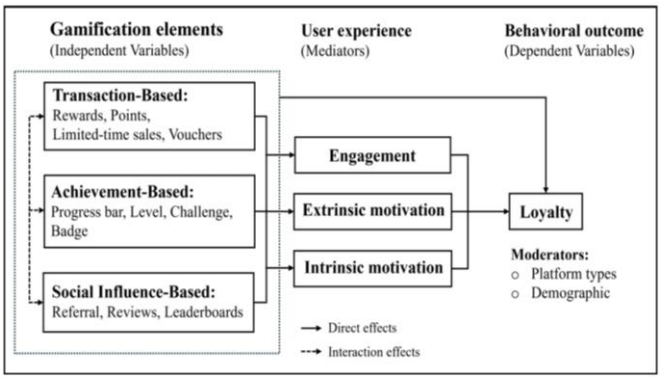

Fig. 1. Conceptual framework.

A primary goal of E-commerce platforms is to foster long-term loyalty, which is the key contributor to maximizing profit. Understanding how gamification drives these behaviors is crucial for designing effective engagement strategies. This paper presents a conceptual framework (Fig. 1) that examines how gamification elements influence engagement, motivation, and loyalty based on different platforms and user demographics. The following outlines the framework's components and relationships.

A. Gamification Elements and User Experience

Gamification in E-commerce enhances user experience by influencing engagement, intrinsic motivation, and extrinsic motivation, which in turn drive long-term loyalty. We classify gamification elements into three main types based on their role in shaping user behavior:

- **Transaction-based gamification** provides monetary incentives such as discounts, cashback, and exchangeable points, primarily enhancing extrinsic motivation. These elements create short-term engagement, with activity spiking during promotions but often declining afterward. However, they can also

foster intrinsic motivation when users find satisfaction in accumulating rewards or participating in time-limited sales.

- **Achievement-based gamification** encourages goal-driven engagement through structured progress and measurable achievements. It reinforces extrinsic motivation by offering badges or status recognition while fostering intrinsic motivation as users gain satisfaction from progressing and overcoming challenges. Users may remain engaged in unlocking higher membership tiers or exclusive privileges tied to long-term participation.
- **Social influence-based gamification** drives engagement through peer competition and recognition. Users are extrinsically motivated by rankings and incentives linked to competition, while intrinsic motivation arises from community belonging and social recognition. For example, users may leave reviews or make frequent purchases to earn "Top Reviewer" or "Top Spender" status.

Gamification elements can also interact, either reinforcing or diminishing the user experience. For instance, transaction-based gamification can complement achievement-based strategies by offering better rewards at higher levels. In contrast, social influence-based gamification amplifies both by encouraging competition for leaderboard positions tied to incentives. Understanding these help platforms determine which gamification elements and combinations are effective in enhancing user experience while minimizing unintended adverse effects.

B. Gamification's Influence on Loyalty: Mediating and Moderating Factors

Gamification influences user experience by driving engagement and motivation, which in turn mediates its impact on loyalty. Loyalty refers to a user's long-term commitment to a platform and serves as the behavioral outcome in our framework. While gamification may have a direct influence on loyalty, its primary effects occur through engagement and motivation. Frequent engagement fosters familiarity and convenience, increasing the likelihood of repeat usage and long-term retention. Intrinsic motivation, driven by enjoyment, challenges, and community contribution, strengthens emotional attachment and a sense of belonging, reinforcing loyalty. Extrinsic motivation, influenced by external rewards, rankings, and incentives, can encourage continued participation but may not sustain loyalty if users perceive the rewards as insufficient or temporary.

However, the impact of gamification varies based on platform characteristics and user demographics. Platform design and target audiences shape how effective gamification strategies are, as a strategy that succeeds on one platform may not work for another. Demographic factors also moderate user responses to gamification. Younger users may engage more with social elements, while frequent shoppers may favor progression-based features such as membership tiers. By understanding these moderating effects, platforms can tailor gamification strategies to align with user preferences, ensuring greater engagement and sustained loyalty.

IV. Conclusion

This paper examines the role of gamification in E-commerce, focusing on its impact on user engagement, motivation, and loyalty. Through a systematic review, we classify gamification elements into transaction-based, achievement-based, and social influence-based categories. We propose a conceptual framework that integrates user experience as a mediator and platform characteristics and demographics as moderators. This framework highlights that gamification fosters engagement and motivation, which, in turn, sustains long-term platform loyalty. Additionally, we emphasize the importance of interactions between gamification elements, as certain combinations may enhance or diminish user experience.

Despite extensive research, gaps remain in understanding how these interactions influence user behavior across different platforms and demographics. To address this, we introduce an integrative framework that considers both individual and interactive effects while incorporating key moderation factors. However, the proposed framework remains conceptual, and empirical validation is necessary to assess its applicability in real-world settings. As the next step, future research will empirically validate this framework using survey-based data collection and Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze the relationships between gamification elements, user engagement, motivation, and loyalty. While our framework is designed to be generalizable, this study will specifically test it with Shopee and Lazada users in Thailand, a context that has not been explored in prior research. By doing so, this study contributes to both theoretical and practical understandings of gamification in E-commerce, offering insights into how platforms can optimize gamification strategies for sustained user engagement and loyalty.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Pavinee Rerkjirattikal, Thant Thant Sin Han, SangGyu Nam worked on ideation; Pavinee Rerkjirattikal, Thant Thant Sin Han, Anderson Kevin Gwenhure reviewed the literatures; Pavinee Rerkjirattikal, Thant Thant Sin Han, SangGyu Nam conceptualized the framework; Pavinee Rerkjirattikal, Thant Thant Sin Han, SangGyu Nam wrote/edited manuscript; all authors had approved the final version.

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