

Achievement Orientation, Personalized Experience, and Social Interaction as Drivers of Purchase Intention: The Mediating Roles of Personal Fulfillment and Social Connectedness in Digital Commerce

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ABSTRACT: The rapid expansion of digital commerce necessitates engaging consumer experiences beyond functional transactions, highlighting gamification as a critical digital marketing mechanism. This study investigates the impact of gamified experiences on consumers' Purchase Intention, specifically examining the mediating roles of Personal Fulfillment and Social Connectedness. Drawing upon Self-Determination Theory (SDT) and the Uses and Gratifications (U&G) perspective, the conceptual framework evaluates three gamification design dimensions: Achievement Orientation, Personalized Experience, and Social Interaction. Employing a quantitative approach, data were collected from 215 digital commerce users via purposive sampling. The structural relationships were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS 4. The empirical results reveal that Achievement Orientation, Personalized Experience, and Social Interaction significantly enhance both Personal Fulfillment and Social Connectedness. Furthermore, these psychological and social benefits positively drive Purchase Intention, with the social pathway demonstrating the strongest substantive contribution. The findings suggest that digital marketers should design gamified environments that not only facilitate individual accomplishments but also foster meaningful community connections to maximize purchase-related outcomes.

KEYWORDS: Gamification, Purchase Intention, Personal Fulfillment, Social Connectedness, Digital Commerce.

1. INTRODUCTION

The rapid expansion of digital commerce has intensified competition for consumer attention, making it increasingly important for platforms to create experiences that extend beyond functional transactions. Gamification has therefore emerged as a prominent digital marketing mechanism for making online experiences more engaging and motivating. However, the presence of gamified features does not necessarily translate into purchase-related responses. Prior research has shown that gamification can enhance engagement in e-commerce and positively relate to Purchase Intention, yet its effectiveness depends on the design of the gamified experience and the psychological mechanisms activated by it (García-Jurado et al., 2021; Yu & Huang, 2022). This issue is particularly important because recent research reviews indicate that the effects of gamification on marketing outcomes are not uniform and frequently operate through intervening psychological mechanisms rather than through a simple direct relationship (Yang et al., 2026).

Building on this perspective, the present study proposes that consumers' Purchase Intention may emerge from three fundamental dimensions of gamified experience: Achievement Orientation, Personalized Experience, and Social Interaction. Achievement Orientation reflects the extent to which gamification provides meaningful achievements, challenges, progress, and a sense of accomplishment; Personalized Experience captures the extent to which the digital experience is tailored to individual preferences; while Social Interaction reflects opportunities to communicate, participate, compete, and connect with other users. These dimensions are conceptually grounded in prior gamification research showing that achievement-oriented and social features can satisfy users' psychological needs, particularly competence, autonomy, and relatedness (Xi & Hamari, 2019). Research in e-commerce further demonstrates that Achievement Orientation, Personalized Experience, and Social Interaction constitute meaningful gamification design dimensions capable of generating motivational incentives and influencing consumer responses (Che et al., 2023). Accordingly, this study conceptualizes Personal Fulfillment and Social Connectedness as two distinct psychological benefits through which gamified experiences may be translated into Purchase Intention.



The originality of this study lies in integrating personal and social pathways within a single framework to explain how gamified experiences contribute to consumers' Purchase Intention in digital commerce. Rather than treating gamification as a single undifferentiated stimulus or assuming that gamification directly produces purchasing responses, the proposed framework distinguishes between benefits directed toward the self and benefits derived from social relationships. This approach is supported by Jang et al. (2018), who found that personal and social integrative benefits generated meaningful marketing outcomes, with social integrative benefits particularly associated with purchase-related outcomes. It also extends previous e-commerce research that has examined gamification and Purchase Intention by shifting attention toward the mechanism through which gamified experiences create personal fulfillment and social connectedness before shaping Purchase Intention. In line with the recent review by Yang et al. (2026), which identifies the need for greater conceptual clarity regarding the mechanisms through which gamification influences marketing outcomes, this study seeks to provide a more integrated explanation of the personal and social processes underlying consumer responses to gamified digital commerce environments.

Accordingly, this study aims to examine the relationships among Achievement Orientation, Personalized Experience, Social Interaction, Personal Fulfillment, Social Connectedness, and Purchase Intention. Specifically, the study investigates whether Achievement Orientation positively influences Personal Fulfillment; whether Personalized Experience influences Personal Fulfillment and Social Connectedness; whether Social Interaction influences Personal Fulfillment and Social Connectedness; and whether Personal Fulfillment and Social Connectedness subsequently enhance Purchase Intention. In addition, the study examines the mediating roles of Personal Fulfillment and Social Connectedness in the relationships between gamified experiences and Purchase Intention. Through these relationships, the study seeks to explain whether consumers become more prepared or inclined to purchase not simply because a digital commerce environment is gamified, but because the gamified experience generates meaningful personal benefits and social connections that facilitate the transition from engagement with the digital environment to purchase-oriented responses. This mechanism is consistent with evidence that gamification can influence purchase-related outcomes through user value, engagement, and psychological benefits (Jang et al., 2018; García-Jurado et al., 2021; Yu & Huang, 2022).

2. THEORETICAL FOUNDATION AND HYPOTHESIS DEVELOPMENT

The proposed framework is developed from the logic of Self-Determination Theory (SDT) and the Uses and Gratifications (U&G) perspective. The source thesis on which this model is based conceptualizes gamification through three design dimensions Achievement Orientation, Personalized Experience, and Social Interaction and explains that these dimensions can generate personal and Social Connectedness that subsequently influence Purchase Intention. In the present study, these concepts are expressed through the proxy constructs Achievement Orientation, Personalized Experience, Social Interaction, Personal Fulfillment, Social Connectedness, and Purchase Intention. The theoretical logic remains consistent with the original conceptual relationships, while the constructs are framed from the perspective of the experience and benefits perceived by consumers. This approach is consistent with recent gamification research emphasizing that the effect of gamification on consumer outcomes is better understood through the psychological experiences generated by specific design features rather than by treating gamification as a single undifferentiated construct (Xi & Hamari, 2019; Yang et al., 2026).

2.1 Theoretical Foundation

Self-Determination Theory proposes that individuals are motivated when an environment supports fundamental psychological needs, particularly competence, autonomy, and relatedness. In gamified environments, achievement-oriented features can provide evidence of competence, personalized features can strengthen autonomy, and social features can facilitate relatedness. Xi and Hamari (2019) demonstrate that gamification features are associated with intrinsic need satisfaction, providing a theoretical explanation for why different forms of gamification can generate distinct psychological experiences. This perspective is highly relevant to digital commerce because gamification combines functional activities with experiential and motivational elements. Che et al. (2023) similarly identify Achievement Orientation, Personalized Experience, and Social Interaction as important gamification design dimensions in e-commerce and argue that these features fulfill different motivational needs before influencing consumer purchasing behavior. Complementing SDT, the Uses and Gratifications perspective explains that consumers actively engage with digital environments because they expect to obtain particular benefits from those experiences. In the gamification context, these benefits can be personal, such as achievement, self-enhancement, and satisfaction, or social, such as recognition, connection, and belonging. Jang et al. (2018) show that personal and social integrative benefits derived from gamified services are associated with

subsequent engagement and purchase behavior. Che et al. (2023) further establish that personal and Social Connectedness can serve as the psychological bridge between gamification design and consumer purchase behavior. Accordingly, the present framework proposes a sequential mechanism in which gamified experiences generate Personal Fulfillment and Social Connectedness, which subsequently shape Purchase Intention.

2.2 Achievement Orientation and Personal Fulfillment

Achievement Orientation refers to the extent to which a gamified environment enables consumers to pursue meaningful Achievement Orientation, complete challenges, monitor progress, and experience accomplishment. The underlying logic is that achievement-oriented gamification allows consumers to evaluate their own progress and recognize evidence of competence. When users successfully complete a challenge or achieve a specific target, the experience can generate feelings of accomplishment, confidence, and personal satisfaction. These psychological outcomes are closely related to the concept of personal fulfillment adopted in this study. From an SDT perspective, achievement experiences strengthen the perception of competence, because consumers receive evidence that they are capable of mastering tasks and progressing within the system. Xi and Hamari (2019) show that gamification features can satisfy competence-related needs, while Che et al. (2023) explain that Achievement Orientation and rewards in e-commerce gamification communicate users' capability and progress and can subsequently generate Personal Fulfillment. More recent evidence from livestreaming commerce also demonstrates that achievement visualization significantly increases consumers' personal integrative needs, indicating that visible achievement can translate into feelings of personal growth, recognition, and self-worth. Thus, consumers who perceive gamified activities as providing clear opportunities for achievement are expected to experience stronger personal fulfillment.

H1: Achievement Orientation has a positive effect on Personal Fulfillment.

2.3 Personalized Experience and Personal Fulfillment

Personalized Experience represents the extent to which a digital gamified environment allows consumers to experience content, features, choices, or Social Interactions that are aligned with their individual preferences. Personalized Experience provides consumers with a sense that the system accommodates their identity and choices rather than imposing a uniform experience. Such experiences can enhance perceived control and satisfaction, which are central components of personal fulfillment. The relationship can be explained through the autonomy dimension of SDT. When consumers are allowed to select preferred features, customize experiences, or make choices that fit their individual preferences, they are more likely to perceive themselves as having control over the experience. Xi and Hamari (2019) establish the relevance of autonomy satisfaction in gamified environments, while Che et al. (2023) identify Personalized Experience as a mechanism through which e-commerce gamification supports consumers' autonomy and generates integration-related benefits. Evidence from mobile shopping research also indicates that gamification and intrinsic motivational experiences can contribute to purchase-related responses through consumers' engagement with the shopping experience (De Canio et al., 2021). Accordingly, a more personalized gamified experience should increase the extent to which consumers perceive the activity as personally meaningful, satisfying, and aligned with their preferences.

H2a: Personalized Experience has a positive effect on Personal Fulfillment.

2.4 Personalized Experience and Social Connectedness

Although Personalized Experience primarily concerns the individual consumer, its effects may also extend to the social dimension of the digital experience. A personalized environment can make consumers feel recognized and understood, thereby strengthening their psychological attachment to the digital community or platform. When individual preferences are acknowledged within a shared environment, consumers may perceive themselves as legitimate and valued participants rather than anonymous users. This relationship can be interpreted through the relatedness dimension of SDT and the U&G notion of social integration. Che et al. (2023) argue that Personalized Experience is not limited to autonomy because personalized experiences can also generate a sense of connection within the broader gamified environment. More broadly, Jang et al. (2018) demonstrate that social integrative benefits are important outcomes of gamified experiences and are subsequently associated with purchase behavior. These arguments suggest that Personalized Experience may indirectly strengthen consumers' perception that they are connected to and recognized within the digital environment. Therefore, consumers who perceive a higher degree of Personalized Experience are expected to experience stronger social connectedness.

H2b: Personalized Experience has a positive effect on Social Connectedness.

2.5 Social Interaction and Personal Fulfillment

Social Interaction refers to the opportunities provided by a digital environment for consumers to communicate, exchange information, participate in shared activities, compete, provide assistance, and receive responses from other users. Social Interaction is therefore not merely a technical characteristic but an experiential component that can influence how consumers perceive themselves and their participation in the digital environment. Social Interaction can contribute to personal fulfillment because participation in a community may provide recognition, feedback, confidence, and opportunities for self-development. Through comparison, contribution, and participation, consumers may perceive that their actions are meaningful and that they possess valuable skills or capabilities. Jang et al. (2018) show that gamified personal integrative benefits are positively associated with marketing outcomes, while Che et al. (2023) argue that Social Interaction within gamified environments can generate both personal and Social Connectedness. However, the empirical literature is not entirely uniform. Yang et al. (2025), examining livestreaming commerce, found that Social Interaction affordance significantly enhanced social integrative needs but did not significantly affect personal integrative needs. This contextual difference suggests that the capacity of Social Interaction to generate personal benefits may depend on the nature of the digital environment. Precisely because prior findings remain mixed, the present study proposes and empirically tests the relationship in a broader digital commerce setting.

H3a: Social Interaction has a positive effect on Personal Fulfillment.

2.6 Social Interaction and Social Connectedness

Among the proposed relationships, the link between Social Interaction and Social Connectedness has the strongest conceptual foundation. Social Interaction provides consumers with opportunities to communicate with others, establish relationships, share experiences, exchange assistance, and become involved in a community. Repeated Social Interaction can consequently transform a functional digital activity into a socially meaningful experience. From the perspective of SDT, Social Interaction facilitates relatedness, which refers to the need to experience meaningful connection with others. Xi and Hamari (2019) identify relatedness as one of the fundamental psychological needs stimulated by social gamification. In addition, Jang et al. (2018) demonstrate that social integrative benefits are important consequences of gamified customer experiences. Recent evidence from livestreaming commerce further indicates that Social Interaction affordance has a significant positive effect on social integrative needs, reinforcing the argument that interactive gamified environments can strengthen consumers' sense of belonging and social connection. Therefore, greater opportunities for meaningful Social Interaction should strengthen consumers' perceived social connectedness.

H3b: Social Interaction has a positive effect on Social Connectedness.

2.7 Personal Fulfillment and Purchase Intention

Personal Fulfillment represents the personal psychological value consumers derive from participating in a gamified digital environment, including feelings of accomplishment, satisfaction, self-improvement, recognition, and enhanced self-perception. Such benefits can increase the consumer's overall evaluation of the digital environment and strengthen the willingness to continue engaging with it. The relationship with Purchase Intention can be understood through the principle that consumers are more likely to respond favorably to an environment that provides meaningful value beyond the core transaction. Jang et al. (2018), using behavioral data from more than 5,000 users, found that personal integrative benefits were positively associated with marketing outcomes and were particularly relevant to engagement and purchase behavior. Che et al. (2023) likewise propose that Personal Fulfillment provide an important psychological bridge between gamified experiences and consumer purchase behavior. These findings suggest that when gamification provides consumers with personally meaningful benefits, the digital commerce environment may become more valuable and engaging, thereby increasing their intention to transact.

H4: Personal Fulfillment has a positive effect on Purchase Intention.

2.8 Social Connectedness and Purchase Intention

Social Connectedness refers to the extent to which consumers feel connected to others, recognized by a community, and included in a shared digital environment. Such social benefits can influence purchase-related responses because purchasing in a digitally connected environment may become embedded within interpersonal relationships, social identity, and community participation. Jang et al. (2018) provide strong evidence that social integrative benefits are associated with purchase behavior and identify them as particularly important predictors of purchase outcomes in a gamified setting. Similarly, recent research in

livestreaming commerce found that social integrative needs positively affect Purchase Intentions, suggesting that a stronger sense of belonging and social identification can facilitate consumers' willingness to purchase. This relationship is also consistent with the broader literature indicating that gamification can influence purchase-related behavior through social and experiential mechanisms rather than solely through functional product considerations (García-Jurado et al., 2021; Yu & Huang, 2022). Thus, stronger social connectedness is expected to enhance consumers' intention to make a purchase within the digital commerce environment.

H5: Social Connectedness has a positive effect on Purchase Intention.

2.9 The Mediating Role of Personal Fulfillment

The previous arguments imply that gamified experiences may influence purchase-related responses through the personal psychological benefits they generate. Achievement Orientation can provide evidence of competence and accomplishment, while Personalized Experience can provide autonomy and personal relevance. Social Interaction may additionally provide recognition and opportunities for self-enhancement. These experiences can accumulate into Personal Fulfillment, which subsequently influences Purchase Intention. This indirect mechanism is consistent with the broader gamification literature. Jang et al. (2018) demonstrate that gamified benefits are associated with purchase outcomes, while Che et al. (2023) explicitly position Personal Fulfillment as a mechanism connecting gamification design with consumer purchase behavior. A recent review of gamification marketing likewise concludes that gamification effects frequently operate through mediators rather than exclusively through direct effects, reinforcing the need to examine the psychological pathway connecting gamification and consumer outcomes. Accordingly, the following mediation hypotheses are proposed:

H6a: Personal Fulfillment mediates the relationship between Achievement Orientation and Purchase Intention.

H6b: Personal Fulfillment mediates the relationship between Personalized Experience and Purchase Intention.

H6c: Personal Fulfillment mediates the relationship between Social Interaction and Purchase Intention.

2.10 The Mediating Role of Social Connectedness

A parallel mechanism can be proposed through the social pathway. Personalized experiences may make consumers feel recognized within a digital environment, while Social Interaction creates opportunities to communicate, cooperate, compete, and develop relationships. These experiences can strengthen Social Connectedness, which in turn creates a social basis for purchase-related responses. The literature provides substantial support for this mechanism. Jang et al. (2018) found that social integrative benefits are important predictors of purchase behavior, while Che et al. (2023) conceptualize Social Connectedness as a link between gamification design and shopping behavior. Recent evidence from livestreaming commerce further demonstrates that gamification affordances can influence Purchase Intention through social integrative psychological needs. This suggests that the value of gamification may arise not only from individual accomplishment but also from the social relationships and sense of belonging created through participation. Therefore, the following mediation hypotheses are proposed:

H6d: Social Connectedness mediates the relationship between Personalized Experience and Purchase Intention.

H6e: Social Connectedness mediates the relationship between Social Interaction and Purchase Intention.

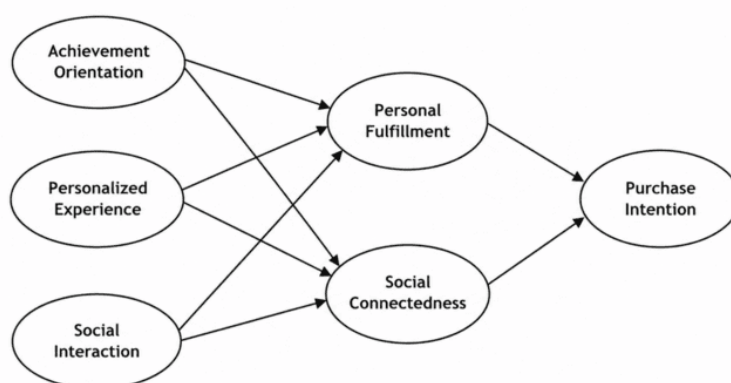


Figure 1. Comceptual Framework

3. MATERIALS AND METHODS (OR METHODOLOGY)

3.1 Target Population

The target population comprised consumers who use digital commerce platforms and have prior experience with gamified features incorporated into digital commerce environments. To ensure that respondents were able to evaluate the phenomena examined in this study based on actual experience rather than hypothetical assumptions, participants were required to be at least 17 years old and to have previously interacted with gamified features. The geographical scope was defined as consumers residing in Java. This population was considered appropriate because the research focuses on how consumers interpret achievement-oriented, personalized, and socially interactive experiences within digital commerce and how such experiences subsequently generate personal and social benefits that may influence Purchase Intention. The original study similarly defined its population as e-commerce users residing in Java and justified the regional focus based on the concentration of digital commerce activity in the region.

3.2 Sample Size and Sampling Technique

This study employed purposive sampling, a non-probability sampling technique in which respondents are selected according to predetermined characteristics relevant to the research objectives. The use of purposive sampling was appropriate because experience with gamified digital commerce was an essential prerequisite for assessing the proposed constructs. The screening process therefore excluded individuals who had never interacted with gamified features. The study initially targeted a minimum of 200 respondents and subsequently obtained 215 valid responses, all of which met the predetermined screening criteria and were retained for analysis. The source study likewise applied purposive sampling to active e-commerce users aged at least 17 years who had previously experienced gamified features and obtained 215 valid observations.

Data were collected through an online questionnaire administered using Google Forms. Screening questions were placed at the beginning of the questionnaire to ensure that only respondents with relevant experience proceeded to the main survey. In the original data collection, the questionnaire was distributed through online communication and social media channels, and the data collection period extended for approximately eleven weeks, yielding 215 usable observations.

3.3 Respondent Profile

The final sample consisted of 215 respondents, with women accounting for 60.7% and men for 39.3%. In terms of age, respondents were concentrated in the younger age groups, with 34% aged 17–20 and 48% aged 21–25, resulting in approximately 82% of the sample being between 17 and 25 years old; the remaining respondents were aged 26–30 (12%), 31–35 (3%), and above 35 years (3%). This composition provides a relevant empirical setting for examining gamified digital commerce because the sample is strongly represented by younger consumers who are likely to have substantial exposure to digitally mediated and interactive experiences. At the same time, the relatively limited representation of older consumers suggests that the findings should be interpreted cautiously when generalized across age groups.

3.4 Variable Definitions and Measurement

All constructs were measured using a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. The measurement framework was adapted from the conceptual and measurement logic of prior gamification research, while the construct labels were reframed to correspond with the proposed model.

3.4.1 Achievement Orientation

Achievement Orientation refers to the extent to which a gamified digital commerce environment enables users to pursue meaningful Achievement Orientation, complete challenges, monitor progress, and experience a sense of accomplishment. The construct emphasizes the achievement-oriented nature of gamified experiences, particularly the extent to which clear objectives and progress information facilitate consumers' perception of competence and continued participation (Hamari et al., 2018; Che et al., 2023). Achievement Orientation was measured using six indicators: "The available games provide me with Achievement Orientation to achieve," "The available games set Achievement Orientation that I want to accomplish," "The available games provide challenging but achievable Achievement Orientation that motivate me," "The available games show my progress toward achieving the Achievement Orientation," "The Achievement Orientation in the available games are easy to understand," and "The available games set a time limit for achieving the Achievement Orientation." These indicators are based on the original measurement of the Achievement Orientation dimension.



3.4.2 Personalized Experience

Personalized Experience refers to the extent to which users perceive that their gamified digital commerce experience is adapted to their individual preferences, choices, and needs. Personalized Experience allows consumers to exercise greater control over the digital experience and increases the perceived relevance of the activities provided by the platform (Hannak et al., 2017; Che et al., 2023). The construct was measured through six indicators: “I can use personalized decorations or features to help me complete the available games,” “I can choose the level available in the games,” “I can independently choose my preferred decorations or features in the games,” “I can choose the type or theme of the game according to my preferences,” “The available games provide recommendations for games or challenges that match my preferences,” and “I can save my Personalized Experience settings in the games.”

3.4.3 Social Interaction

Social Interaction refers to the extent to which a gamified digital commerce environment facilitates communication, participation, competition, connection, and reciprocal assistance among users. The construct captures the relational dimension of gamification, through which consumers can interact with other users and participate in shared activities (Bitrián et al., 2021; Che et al., 2023). Social Interaction was measured using six indicators: “I can connect with friends, colleagues, and family through the available games,” “I can invite friends and family to participate in the available games,” “I can interact with other participants in the available games,” “I can see my ranking compared with other users in the available games,” “I can send help to other users in the available games,” and “I can receive help from other users in the available games.”

3.4.4 Personal Fulfillment

Personal Fulfillment refers to the personal psychological benefits experienced by users as a result of their participation in gamified activities, particularly feelings of accomplishment, pride, satisfaction, personal improvement, recognition, and motivation to achieve higher performance (Jang et al., 2018; Che et al., 2023). The construct captures the extent to which gamified participation provides personally meaningful outcomes beyond the immediate gaming activity. Personal Fulfillment was measured using six indicators: “I feel proud of myself when I win or complete the available games,” “I receive praise from others when I win or complete the available games,” “I can influence others to participate in the available games when I win or complete them,” “I feel satisfied when I successfully complete the available games,” “I feel that my abilities improve when I play the available games,” and “I feel more motivated to achieve higher accomplishments after playing the available games.”

3.4.5 Social Connectedness

Social Connectedness refers to the extent to which users perceive that participation in gamified digital commerce activities enables them to maintain relationships, strengthen interpersonal bonds, participate in a community, engage in shared activities, and receive social support. The construct reflects the relational and belonging-oriented benefits generated through Social Interaction within a gamified environment (Xi & Hamari, 2019; Jang et al., 2018). Social Connectedness was measured using six indicators: “The available games help me stay connected with friends, colleagues, classmates, family, and others,” “The available games make it easier for me to stay connected with friends, colleagues, classmates, family, and others,” “The available games strengthen the bonds between me and my friends, colleagues, classmates, family, and others,” “I feel that I am part of a user community through the available games,” “The available games give me opportunities to engage in activities with other people,” and “I receive social support from other people through the available games.”

3.4.6 Purchase Intention

Purchase Intention refers to the degree to which consumers demonstrate willingness, intention, and preparedness to undertake a purchase when a relevant need or opportunity arises in a digital commerce environment. Conceptually, the construct is closely related to Purchase Intention, which reflects consumers' willingness and planned tendency to purchase through a digital platform (Kurumbatu, 2024; Che et al., 2023). Purchase Intention was measured using six indicators: “I am willing to purchase products through a digital commerce platform,” “I plan to purchase products through a digital commerce platform,” “I am likely to purchase products through a digital commerce platform in the near future,” “When I need a product, I intend to purchase it through a digital commerce platform,” “I intend to complete the checkout process when shopping through a digital commerce platform,” and “I intend to purchase products again through a digital commerce platform in the future.” These indicators retain the conceptual dimensions of willingness, planning, likelihood, need-based intention, checkout completion, and rePurchase Intention contained in the original measurement.



3.5 Statistical Method

The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. PLS-SEM was selected because the proposed model contains multiple latent constructs and several simultaneous direct and indirect relationships. The analysis was conducted in two stages. First, the measurement model was assessed through indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Second, the structural model was evaluated using path coefficients, coefficient of determination (R^2), effect size (f^2), and bootstrapping to assess the significance of the hypothesized relationships. The indirect effects were examined to determine whether Personal Fulfillment and Social Connectedness mediate the relationships between the three antecedent constructs and Purchase Intention. The methodological procedure follows the analytical approach used in the source study, which employed SmartPLS to examine latent constructs and their relationships simultaneously.

4. RESULTS

4.1 Data Collection and Respondent Characteristics

Data were collected through an online questionnaire administered via Google Forms. Before the main survey, the instrument was pilot-tested with 10 respondents to assess the clarity and comprehensibility of the questionnaire items. The main survey was subsequently distributed to e-commerce users residing in Java through online communication and social media channels. A screening question was placed at the beginning of the questionnaire to ensure that only respondents who had previously experienced gamified features were included in the analysis. The data collection process generated 215 valid responses, all of which satisfied the predetermined eligibility criteria.

Table 1. Respondent Characteristics

Characteristic	Category	n	%
Gender	Female	131	60.7
	Male	84	39.3
Age	17–20 years	72	34.0
	21–25 years	102	48.0
	26–30 years	26	12.0
	31–35 years	7	3.0
	>35 years	6	3.0
	Total	215	100.0

Source: Authors' data (2026).

The sample is predominantly composed of younger consumers, with 82% of respondents aged 17–25 years. This composition provides a particularly relevant empirical context for examining gamified digital commerce because younger consumers constitute the largest segment represented in the sample and are likely to have substantial exposure to digitally mediated and interactive experiences. Female respondents also constituted the larger share of the sample (60.7%). These characteristics indicate that the empirical setting is particularly reflective of younger consumers' experiences with gamified digital commerce, although the relatively small representation of older respondents warrants caution when extending the findings across age groups.

4.2 Descriptive Statistics

Descriptive statistics were examined to identify the central tendency and dispersion of the constructs. As shown in Table 4.2, the mean scores range from 3.730 to 4.020, suggesting generally favorable evaluations of the gamified experience and its associated consumer benefits. Purchase Intention records the highest mean value ($M = 4.020$), followed by Social Connectedness ($M = 3.933$) and Personal Fulfillment ($M = 3.913$). In contrast, Social Interaction has the lowest mean ($M = 3.730$). The relatively high mean values across the constructs indicate that respondents generally perceived the gamified environment positively and reported relatively strong purchase-related intentions.

Table 2. Descriptive Statistics

Construct	Mean	SD
Achievement Orientation	3.765	0.704
Social Interaction	3.730	0.692
Personalized Experience	3.766	0.678
Personal Fulfillment	3.913	0.431
Social Connectedness	3.933	0.417
Purchase Intention	4.020	0.421

Note: SD = standard deviation. Source: SmartPLS 4 output, processed by the authors (2026).

The relatively small standard deviations for Personal Fulfillment, Social Connectedness, and Purchase Intention suggest a comparatively consistent pattern of responses among respondents, whereas Achievement Orientation, Social Interaction, and Personalized Experience display somewhat greater response variation. This variation is substantively useful because it indicates that respondents did not evaluate all dimensions of the gamified experience identically, providing sufficient variability for subsequent structural analysis.

4.3 Measurement Model Assessment

The measurement model was assessed before examining the structural relationships. The evaluation covered indicator reliability, internal consistency reliability, convergent validity, discriminant validity, and common method bias. Following the criteria applied in the study, indicator loadings above 0.70, Cronbach's alpha, rho_A and composite reliability above 0.70, and AVE above 0.50 were considered satisfactory (Hair et al., 2021).

4.3.1 Indicator Reliability, Internal Consistency and Convergent Validity

Table 4.3 presents the measurement results. All indicator loadings exceed 0.70, ranging from 0.702 to 0.830, indicating satisfactory indicator reliability. Cronbach's alpha ranges from 0.846 to 0.886, rho_A from 0.852 to 0.891, and composite reliability from 0.886 to 0.913. All values exceed the recommended threshold of 0.70. Furthermore, AVE ranges from 0.566 to 0.637, exceeding the minimum criterion of 0.50. These results indicate that the constructs demonstrate adequate internal consistency and convergent validity.

Table 3. Measurement Model Results

Construct	Cronbach's α	rho_A	Composite reliability (pc)	AVE
Achievement Orientation	0.886	0.891	0.913	0.636
Social Interaction	0.886	0.888	0.913	0.637
Personalized Experience	0.878	0.881	0.908	0.621
Personal Fulfillment	0.864	0.865	0.898	0.596
Social Connectedness	0.865	0.866	0.899	0.597
Purchase Intention	0.846	0.852	0.886	0.566

Source: SmartPLS 4 output, processed by the authors (2026).

The findings provide consistent evidence that the indicators adequately represent their respective latent constructs. Notably, the lowest loading is 0.702 for PI4, which remains above the 0.70 threshold. Consequently, no indicator required removal based on the loading criterion. The combination of satisfactory loading values and AVE values above 0.50 confirms that each construct captures a sufficient proportion of the variance of its indicators.

4.3.2 Discriminant Validity

Discriminant validity was assessed using the heterotrait-monotrait ratio (HTMT). The results are presented in Table 4.4. The HTMT values range from 0.119 to 0.860, with all values remaining below the 0.90 threshold. The highest value is observed between Social Connectedness and Purchase Intention (0.860), while the lowest occurs between Achievement Orientation and

Personalized Experience (0.119). These findings indicate that the constructs exhibit adequate empirical distinctiveness and are not excessively overlapping.

4.3.3 Common Method Bias

Common method bias was assessed using the indicator-level variance inflation factor (VIF) approach. The results are summarized in Table 4.4. Across all constructs, VIF values range from 1.586 to 2.367, remaining below the 3.3 threshold used in the study. The lowest VIF occurs for Purchase Intention, whereas the highest is observed for Social Connectedness.

Table 4. Common Method Bias Assessment

Construct	VIF range
Achievement Orientation	1.872–2.208
Social Interaction	1.840–2.071
Personalized Experience	1.677–2.095
Personal Fulfillment	1.782–2.196
Social Connectedness	1.855–2.367
Purchase Intention	1.586–2.165

Source: SmartPLS 4 output, processed by the authors (2026).

The VIF results indicate that none of the constructs exhibits problematic collinearity attributable to the measurement method. Since all values remain below 3.3, the study finds no substantive evidence of common method bias. The data can therefore be considered suitable for subsequent structural model assessment.

4.4 Structural Model Assessment

After establishing the adequacy of the measurement model, the structural model was assessed using R^2 and f^2 to evaluate the explanatory capability and substantive contribution of the predictor constructs.

4.4.1 Coefficient of Determination (R^2)

The coefficient of determination was used to assess the proportion of variance in the endogenous constructs explained by their respective predictors. As shown in Table 4.5, the model explains 47.0% of the variance in Personal Fulfillment, 50.7% of the variance in Social Connectedness, and 64.4% of the variance in Purchase Intention.

Table 5. Coefficient of Determination

Endogenous construct	R^2	Adjusted R^2
Personal Fulfillment	0.470	0.462
Social Connectedness	0.507	0.502
Purchase Intention	0.644	0.641

Source: SmartPLS 4 output, processed by the authors (2026).

The results indicate that the model has relatively stronger explanatory capability for Purchase Intention than for the two mediating constructs. Specifically, the predictors in the model jointly explain 64.4% of the variance in Purchase Intention, leaving 35.6% attributable to factors outside the proposed model. For Personal Fulfillment, 47.0% of its variance is explained, while 50.7% of the variance in Social Connectedness is explained. The corresponding adjusted R^2 values remain close to the unadjusted values, indicating that the explanatory capability is relatively stable after accounting for the number of predictors.

4.4.2 Effect Size (f^2)

Effect size was assessed to determine the substantive contribution of each exogenous construct to the endogenous constructs. Following the thresholds applied in the study, f^2 values of approximately 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively (Hair et al., 2021).

Table 6. Effect Size (f^2)

Structural relationship	f^2	Effect size
Achievement Orientation $\rightarrow$ Personal Fulfillment	0.210	Medium
Personalized Experience $\rightarrow$ Personal Fulfillment	0.230	Medium
Social Interaction $\rightarrow$ Personal Fulfillment	0.278	Medium
Personalized Experience $\rightarrow$ Social Connectedness	0.352	Large
Social Interaction $\rightarrow$ Social Connectedness	0.581	Large
Personal Fulfillment $\rightarrow$ Purchase Intention	0.270	Medium
Social Connectedness $\rightarrow$ Purchase Intention	0.495	Large

Source: SmartPLS 4 output, processed by the authors (2026).

The f^2 results indicate that all structural relationships included in the model make at least a medium substantive contribution. The effects of Achievement Orientation, Personalized Experience, and Social Interaction on Personal Fulfillment are medium in magnitude, with Social Interaction showing the largest contribution among the three ($f^2 = 0.278$). In the social pathway, both Personalized Experience and Social Interaction demonstrate large effects, with Social Interaction exhibiting the strongest contribution to Social Connectedness ($f^2 = 0.581$). Furthermore, Social Connectedness has a large effect on Purchase Intention ($f^2 = 0.495$), while Personal Fulfillment has a medium effect ($f^2 = 0.270$). These findings suggest that the social dimension of the gamified experience makes a particularly substantial contribution to the variance in purchase-related outcomes in the observed model.

4.5 Hypothesis Testing

Hypothesis testing was conducted using the bootstrapping procedure in SmartPLS 4. The significance of each structural relationship was assessed based on the path coefficient (β), standard deviation, t-statistic, and p-value. A relationship was considered statistically significant when the p-value was below 0.05. The results of the direct effects are presented in Table 4.8.

Table 7. Direct Effects

Hypothesis	Structural relationship	β	SD	t-statistic	p-value	Decision
H1	Achievement Orientation $\rightarrow$ Personal Fulfillment	0.337	0.060	5.654	<0.001	Supported
H2a	Personalized Experience $\rightarrow$ Personal Fulfillment	0.389	0.044	8.806	<0.001	Supported
H2b	Personalized Experience $\rightarrow$ Social Connectedness	0.538	0.039	13.883	<0.001	Supported
H3a	Social Interaction $\rightarrow$ Personal Fulfillment	0.382	0.064	5.963	<0.001	Supported
H3b	Social Interaction $\rightarrow$ Social Connectedness	0.352	0.077	4.583	<0.001	Supported
H4	Personal Fulfillment $\rightarrow$ Purchase Intention	0.419	0.044	9.465	<0.001	Supported
H5	Social Connectedness $\rightarrow$ Purchase Intention	0.517	0.064	8.113	<0.001	Supported

Source: SmartPLS 4 output, processed by the authors (2026).

All seven hypothesized direct relationships are positive and statistically significant. The strongest direct relationship is between Personalized Experience and Social Connectedness ($\beta = 0.538$, $t = 13.883$, $p < 0.001$), followed by Social Connectedness and Purchase Intention ($\beta = 0.517$, $t = 8.113$, $p < 0.001$). The smallest coefficient is observed for the relationship between Achievement Orientation and Personal Fulfillment ($\beta = 0.337$, $t = 5.654$, $p < 0.001$). Overall, the findings provide empirical support for the proposed direct relationships in the model. The mediating relationships were examined through the indirect effects obtained from the bootstrapping procedure. The results are reported in Table 4.9.

Table 8. Indirect Effects

Mediation path	β	SD	t-statistic	p-value	Decision
Achievement Orientation $\rightarrow$ Personal Fulfillment $\rightarrow$ Purchase Intention	0.129	0.037	3.454	0.001	Significant
Social Interaction $\rightarrow$ Personal Fulfillment $\rightarrow$ Purchase Intention	0.148	0.032	4.613	<0.001	Significant
Social Interaction $\rightarrow$ Social Connectedness $\rightarrow$ Purchase Intention	0.278	0.040	6.999	<0.001	Significant



Personalized Experience → Social Connectedness → Purchase Intention	0.217	0.037	5.891	<0.001	Significant
Personalized Experience → Personal Fulfillment → Purchase Intention	0.134	0.041	3.283	0.001	Significant

Source: SmartPLS 4 output, processed by the authors (2026).

The results demonstrate that all five tested indirect pathways are statistically significant. The strongest indirect relationship is observed for Social Interaction through Social Connectedness ($\beta = 0.278$, $t = 6.999$, $p < 0.001$), followed by Personalized Experience through Social Connectedness ($\beta = 0.217$, $t = 5.891$, $p < 0.001$). The indirect effect of Achievement Orientation through Personal Fulfillment is comparatively smaller ($\beta = 0.129$, $t = 3.454$, $p = 0.001$), although it remains statistically significant.

4.6 DISCUSSION

4.6.1 Achievement Orientation and Personal Fulfillment

The findings demonstrate a positive and significant relationship between Achievement Orientation and Personal Fulfillment ($\beta = 0.337$, $t = 5.654$, $p < 0.001$), supporting H1. This result indicates that clearly defined Achievement Orientation and challenges within a gamified environment contribute to users' perceptions of personal achievement. When users can identify what they need to accomplish and monitor their progress, successful completion provides psychological evidence of competence and accomplishment. The finding is consistent with the theoretical logic of gamification in which goal-oriented mechanisms facilitate achievement experiences and stimulate users' psychological motivation. The source study also relates this relationship to prior work showing that gamification Achievement Orientation can strengthen participation and perceived accomplishment. The result is also consistent with Xi and Hamari's (2019) argument that gamification features can satisfy users' competence-related needs. Achievement-oriented Achievement Orientation do not merely provide an activity structure; they enable users to recognize progress and evaluate their own performance. Thus, the personal benefit generated by gamification is partly derived from the perception that users are capable of accomplishing meaningful objectives.

4.6.2 Personalized Experience and Personal Fulfillment

H2a is supported, with Personalized Experience positively influencing Personal Fulfillment ($\beta = 0.389$, $t = 8.806$, $p < 0.001$). The relatively strong coefficient suggests that personalized experiences are closely associated with users' perceptions of personal value and fulfillment. When consumers are able to select features, levels, themes, or other elements according to their own preferences, they obtain greater control over the experience. Such control can increase the perceived relevance of the activity and contribute to satisfaction and self-enhancement. This finding is consistent with the source study's theoretical explanation that Personalized Experience strengthens autonomy by allowing users to shape the digital experience according to their own preferences. From an SDT perspective, autonomy is a fundamental psychological need, and personalized environments provide consumers with greater opportunity to exercise choice. Consequently, the personal value of gamification extends beyond entertainment because the consumer can perceive the experience as more personally meaningful.

4.6.3 Personalized Experience and Social Connectedness

The relationship between Personalized Experience and Social Connectedness is positive and statistically significant, with the highest coefficient among the antecedent relationships to the two integration benefits ($\beta = 0.538$, $t = 13.883$, $p < 0.001$). H2b is therefore supported. This finding suggests that Personalized Experience may have a broader role than simply improving individual satisfaction. When users can express their preferences and create individualized experiences within a shared digital environment, Personalized Experience may also facilitate social recognition and a greater sense of belonging. This result is particularly noteworthy because Personalized Experience is commonly interpreted as an individual-level feature. However, the findings indicate that its consequences can extend into the social domain. A personalized experience may become a means through which individuals express identity, differentiate themselves, and participate meaningfully in a community. The source study similarly argues that Personalized Experience may generate both personal and Social Connectedness because users can experience individual control while simultaneously becoming more connected to the broader digital community.

4.6.4 Social Interaction and Personal Fulfillment

The results show that Social Interaction has a positive and significant effect on Personal Fulfillment ($\beta = 0.382$, $t = 5.963$, $p < 0.001$), supporting H3a. The finding indicates that Social Interaction can generate personal psychological benefits in addition to social outcomes. Opportunities to compete, exchange assistance, communicate with others, and receive feedback may enable users to obtain recognition and affirmation of their own capabilities. This relationship can be understood through the reciprocal nature of

gamified Social Interaction. Users do not merely participate in social exchanges; they also receive feedback about their contributions and performance. Consequently, Social Interaction can strengthen feelings of competence, achievement, and personal recognition. The result corresponds with the source study's argument that active Social Interaction can simultaneously create personal recognition and meaningful social relationships.

4.6.5 Social Interaction and Social Connectedness

H3b is supported, with Social Interaction positively influencing Social Connectedness ($\beta = 0.352$, $t = 4.583$, $p < 0.001$). The result confirms that Social Interaction is an important mechanism through which gamification creates social value. Communication, competition, assistance, and shared participation provide opportunities for users to establish and maintain relationships, thereby strengthening perceptions of belonging. The result is consistent with the relatedness dimension of SDT. Xi and Hamari (2019) demonstrate that social dimensions of gamification are associated with the satisfaction of relatedness needs. In a similar vein, the source study explains that Social Interaction provides the foundation for social connectedness because users can communicate with other participants, exchange assistance, and participate in shared activities. The empirical result therefore reinforces the argument that gamification can operate as a social environment rather than merely as a collection of game mechanics.

4.6.6 Personal Fulfillment and Purchase Intention

The findings indicate that Personal Fulfillment significantly and positively influence Purchase Intention ($\beta = 0.419$, $t = 9.465$, $p < 0.001$), supporting H4. This result implies that consumers who obtain personal benefits from a gamified environment are more inclined to consider purchasing through the platform. Personal accomplishment, pride, satisfaction, and perceived improvement can increase the psychological value attached to the digital environment. Jang et al. (2018) provide a related explanation by showing that personal integrative benefits from gamified services are associated with engagement and purchase-related outcomes. In the present context, this relationship suggests that Purchase Intention may emerge partly because consumers perceive that participation generates meaningful benefits for themselves. Thus, the commercial consequence of gamification may arise after the consumer perceives value and fulfillment from the experience rather than solely from the game mechanics themselves.

4.6.7 Social Connectedness and Purchase Intention

Social Connectedness have the strongest direct relationship with Purchase Intention in the model ($\beta = 0.517$, $t = 8.113$, $p < 0.001$), supporting H5. The result indicates that consumers' sense of connection, belonging, social recognition, and interpersonal support is strongly associated with their purchase-related intentions. This finding suggests that purchasing within a gamified digital environment may be influenced by the broader social experience surrounding the platform. When users perceive themselves as part of a community, recommendations, shared experiences, recognition, and interpersonal Social Interactions can become part of the consumption process. The source study similarly identifies Social Connectedness as an important mechanism for converting participation in gamified activities into Purchase Intention. The magnitude of this relationship is also reflected in the f^2 result: Social Connectedness $\rightarrow$ Purchase Intention has an f^2 of 0.495, compared with 0.270 for Personal Fulfillment $\rightarrow$ Purchase Intention. This pattern indicates that the social pathway has a comparatively greater substantive contribution to Purchase Intention in the observed sample. It should be interpreted as a characteristic of this empirical model rather than a universal conclusion across all digital commerce settings.

4.6.8 Mediating Role of Personal Fulfillment

The indirect-effect results provide evidence that Personal Fulfillment act as an important pathway linking gamification experiences to Purchase Intention. Specifically, Achievement Orientation influence Purchase Intention through Personal Fulfillment ($\beta = 0.129$, $t = 3.454$, $p = 0.001$), while Social Interaction also influences Purchase Intention through Personal Fulfillment ($\beta = 0.148$, $t = 4.613$, $p < 0.001$). Personalized Experience demonstrates a statistically significant indirect effect through the same mediator ($\beta = 0.134$, $t = 3.283$, $p = 0.001$). These findings suggest that gamification does not function solely as an external mechanism for stimulating purchase-related responses. Rather, achievement, Personalized Experience, and Social Interaction can first generate psychological benefits at the individual level, after which those benefits are associated with stronger Purchase Intention. This interpretation is consistent with Jang et al. (2018) and Che et al. (2023), who emphasize the role of psychological and integrative benefits in explaining how gamified experiences translate into purchase-related outcomes.

4.6.9 Mediating Role of Social Connectedness

The results also demonstrate significant mediation through Social Connectedness. Social Interaction has a significant indirect effect on Purchase Intention through Social Connectedness ($\beta = 0.278$, $t = 6.999$, $p < 0.001$), while Personalized Experience

demonstrates a significant indirect effect through the same mediator ($\beta = 0.217$, $t = 5.891$, $p < 0.001$). Among the indirect pathways reported in the model, the Social Interaction $\rightarrow$ Social Connectedness $\rightarrow$ Purchase Intention pathway has the largest coefficient. This result reinforces the importance of social mechanisms in the conversion of gamified participation into purchase-related responses. Social Interaction creates opportunities for communication, reciprocal assistance, comparison, and community participation; these experiences may increase consumers' sense of social connectedness, which subsequently relates to stronger Purchase Intention. The result is consistent with the source study's argument that social integration represents an important mechanism through which Social Interaction and Personalized Experience can contribute to purchase-related outcomes. At the same time, the finding should be interpreted in the context of the sampled consumers and the particular gamified environment examined, rather than generalized as evidence that social benefits always outweigh personal benefits.

5. CONCLUSION

This study demonstrates that gamification influences Purchase Intention through both personal and Social Connectedness. Achievement Orientation, Personalized Experience, and Social Interaction significantly enhance these benefits, while both personal and Social Connectedness significantly increase Purchase Intention. The findings further indicate that the social pathway provides a stronger contribution to Purchase Intention, highlighting the importance of socially embedded gamified experiences in digital commerce.

5.1 Future Directions

This study is limited by its demographic coverage, platform-specific setting, and geographical focus on Java, which may constrain the generalizability of the findings. Future research should examine broader consumer segments, compare gamification across multiple digital commerce platforms, and incorporate additional moderators or mediators such as customer engagement, perceived value, or trust. Digital commerce platforms should design gamification around three mechanisms: clear achievement Achievement Orientation, meaningful Personalized Experience, and Social Interaction. In practice, platforms can implement progressive challenges, preference-based game experiences, leaderboards, multiplayer activities, and reward-sharing features. These features should be connected directly to relevant shopping opportunities so that psychological and social engagement can be translated into purchase responses. The stronger role of social integration also suggests that community-oriented gamification deserves particular managerial attention.

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Cite this Article: Triyanto, H., Haryanto, B., Arrayan, F.D. (2026). Achievement Orientation, Personalized Experience, and Social Interaction as Drivers of Purchase Intention: The Mediating Roles of Personal Fulfillment and Social Connectedness in Digital Commerce. International Journal of Current Science Research and Review, 9(10), pp. 5297-5311. DOI: <https://doi.org/10.47191/ijcsrr/V9-i10-08>
