The role of microtransactions in impulse buying and purchase intention in the video game market

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ABSTRACT

Despite having great potential, microtransactions are an understudied business model in the video game industry. The current study explores the buying process of microtransactions to highlight the most important factors affecting such behavior. Using pre-validated scales, a questionnaire was administered online to 301 participants who were asked to evaluate their impulse buying tendency (IBT) and purchase intention (PI) for microtransactions within gaming scenarios. The study found a positive relationship between drivers, such as performance, hedonic content and social factors, flow experience, and impulse buying. This tendency leads to a higher intention to purchase microtransactions. Businesses can utilize the paper's findings to tailor their microtransaction content to these drivers, leading to higher profits.

1. Introduction

The video game industry has witnessed a significant transformation with the advent of microtransactions, becoming a crucial revenue source for game developers and publishers. For instance, the global demand for video games reached an estimated market value of $138 billion in 2021 [54]. Within this context, microtransactions involve the sale of virtual goods within games, contributing to the "game as a service" model [60]. These transactions have grown into a $92.6 billion worldwide market, with players purchasing in-game advantages and cosmetic features like skins [2]. Despite the financial importance, these transactions raise concerns regarding their impact on player behavior, such as fairness, transparency, and problematic spending [45]. In a gaming environment, where rewards are the basis of progress, impulse buying can play a significant role. In fact, the enjoyment of online games and social interaction can lead to impulse buying behaviors (Zhang et al., 2021).

The relationship between microtransactions in video games and impulse buying behavior is complex and multi-faceted, drawing insights from various research domains. The mechanics of microtransactions often utilize principles from online shopping environments, where multimedia presentations and hedonic product offerings are known to stimulate emotional responses and induce impulse buying [36]. This connection is relevant in video games, where the excitement and engagement can mirror these online shopping stimuli. Furthermore, the role of physiological arousal can parallel the excitement and urgency often exploited in impulse buying scenarios [4]. The interplay of social dynamics in video games also mirrors factors influencing impulse purchases in different contexts. The significance of social and co-presence in shaping impulse purchase intentions applies to the gaming environment, where social interactions and cooperative play are integral elements [18]. Additionally, insights into how in-game purchases affect game longevity and player retention shed light on the role of microtransactions in fostering sustained engagement [3]. This engagement is crucial when examining impulse buying behaviors in the context of gaming.

Through a systematic literature review, a research gap was uncovered in the research area of consumer behavior, including the works of Guo and Barnes (2029), Cleghorn and Griffiths [9], Lehdonvirta [35], Yoo [65], and Shukla and Drennan [53]. These studies collectively enhance our understanding of the motivations behind virtual item

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purchases and the psychological dimensions influencing these behaviors.

For instance, Guo and Barnes [19] examined individual determinants for buying virtual items to understand player and transaction behavior, uncovering the key motivations for in-game purchases. Cleghorn and Griffiths [9] studied the psychological aspects behind purchase behavior, highlighting factors such as exclusivity, function, and social appeal. Additionally, Lehdonvirta [35] defined drivers for the purchasing of virtual items in game worlds, while Yoo [65] and Shukla and Drennan [53] examined which of those variables were perceived to be of greater value to consumers. However, these studies primarily frame these motivations within a broad online context, lacking an in-depth exploration of the specific relationship between video game-specific features and microtransactions behaviors, suggesting a gap in the literature on how the unique characteristics of video games affect impulse buying behavior—especially, their interactive nature and specific roles of social and performance-related factors. The existing research has focused on general motivations and psychological factors without adequately considering the distinctive features of video games, such as gameplay mechanics, narrative immersion, social dynamics, and competitive elements, which contribute to and shape impulse buying tendencies among players.

Furthermore, the interactions between these game-specific characteristics and impulse buying behavior have not been explored, leading to a gap in the literature, as it fails to account for the complex, multifaced nature of video game environments and how these elements can drive impulse purchases differently compared to other digital or physical goods market.

Accordingly, this study aims to explain (1) which types of virtual items are more closely associated with impulse buying patterns (IBT) and (2) how and if IBT leads to buying intention. Four factors were correlated with IBT: hedonic content, performance, social content, and flow experience. The role of IBT in influencing purchase intent was also explored. The results of this study expect to contribute significantly by providing insights into developing guidelines and policies to ensure fair and transparent microtransaction practices.

2. Review of the literature and model development

2.1. Microtransactions

A microtransaction is a micropayment, i.e., a payment of a small amount of money done online, typically in a game-like environment [12,33,44,68]. In recent years, microtransactions have grown significantly [66], especially among free-to-play mobile games [7,20,34]. The potential profits of the microtransaction business model are what makes it appealing. Competitive gaming involving team play is expected to surpass console and computer game use by a large margin and, as a result, exceed console and computer profits [38]. Such a trend represents a considerable change in buyers ' approach to digital marketing. Microtransactions can theoretically give rise to entirely new financial business models backed by virtual currencies like Bitcoin [30]. It becomes necessary for marketers and managers to consider why and how consumers are motivated to purchase items using microtransactions because of the value of such a potentially profitable new business model.

2.2. Virtual game drivers

Consumers tend to dislike gamers using microtransactions in the same game [16]. This negative feeling is particularly high when microtransactions give advantages in the game, but it is not so strong when those transactions give aesthetic or visual advantages in the game. These findings show marketers must carefully plan the various benefits microtransactions deliver to create enjoyable and healthy gaming experiences.

Also important are factors that influence the buying behavior in

virtual games, such as performance expectation, effort expected, social influence, and the quality associated with the virtual world environment. According to Guo and Barnes [19], trust was not perceived as an essential factor influencing personal purchase decisions in virtual computer game worlds.

Consumer types, as well as their motivations for doing microtransactions, have been analyzed. These could give potential insights and hints about players' reasons for microtransactions. Extended time for playing, access to more features, going after lost credits, and speeding up play are primary motives for consumers to purchase [33]. All those features are attributes based on efficiency.

Lehdonvirta [35] divided virtual item drivers for purchase into functional and cosmetic categories. Performance and functionality constitute sub-branches of functional drivers, which is consistent with the consumer perceived value (CPV) model [56] that considers a functional value for performance/quality (perceived value and expected product impact). Nevertheless, functional value negatively affected purchase intention [65], suggesting a large concept of functional value requiring it to be specifically adapted to a game environment. Therefore, disaggregating this functional value makes sense, as does using Lehdonvirta's [35] functional sub-branches that already have a gaming environment in mind.

2.3. Influence of performance-enhancing microtransactions in IBT

Performance-enhancing microtransactions are relevant in video gaming, where microtransactions have emerged as a business model (Lehdonvirta, 2019). The IBT associated with these transactions is relevant due to the impact of consumer behavior and market dynamics. Impulse purchases are influenced by high hedonic impulses to achieve satisfaction and well-being [46,57]. This exploration is vital given the complexity of these purchases and the consumers' challenge in resisting them, especially in a gaming context where performance enhancement plays a crucial role.

Performance-enhancing microtransactions, as conceptualized in the gaming industry, refer to purchases aimed at improving a player's ability or speeding up their progress, enhancing the gaming experience's intrinsic desires for competence and mastery, impacting their engagement and satisfaction. The impulse to engage in these transactions encompasses cognitive dimensions, such as the absence of planning, and affective dimensions, including the pursuit of pleasure and satisfaction derived from these purchases [59].

Previous studies were conducted on IBT, highlighting the roles of cognitive and affective dimensions in impulse buying behaviour [43]. Impulse buying behavior is significantly influenced by hedonic impulses, with performance-enhancing microtransactions appealing to these affective dimensions by offering immediate gameplay advantages [11,40]. This relationship is supported by self-determination theory, which posits that the need for competence and mastery motivates consumer behavior, particularly in environments where progression is competitive or challenging (Lehdonvirta, 2019).

By examining this specific aspect of microtransactions, this study aims to uncover how the promise of improved gaming performance affects purchasing behavior's rational versus emotional aspects [42,48]. This focus is fundamental for understanding consumer behavior in modern video games' competitive and challenging environments.

Accordingly:

H1: Performance positively influences consumer buying impulse of microtransactions.

2.4. Influence of functionality on consumer buying impulses of microtransactions

Functionality in microtransactions shapes consumer perception and decision-making in digital gaming, directly influencing consumer perception and decision-making [5]. Unlike hedonic purchases driven

by emotional desires, functionality driven transactions hinge on the practical benefits offered by the product, such as unlocking features, accessing new content, or enhancing usability. These dimensions are crucial in shaping how consumers engage with games and make purchasing decisions, highlighting the importance of exploring the rational versus emotional influences on buying impulses in the context of functionality.

Within the context of microtransactions, functionality pertains to the practical aspects that enhance the gaming experience by unlocking features, providing access to new content, or improving the games' usability. These transactions are variably perceived by different segments of the gaming community, with decisions often based on utility, impact on gameplay, and overall value for money [29]. Functionality-driven purchases are characterized by their deliberate and rational nature, reflecting a consumer's evaluation of the long-term benefits of the purchase against its cost.

The decision-making process for functional purchases presents an interplay between rational and emotional factors [62]. While functionality tends to drive more deliberate and rational purchase decisions, the anticipation of an enhanced gaming experience or the satisfaction of unlocking new capabilities can introduce emotional elements into the decision-making process. This blend of rationality and emotion in consumer behavior suggests that the functional aspects of microtransactions appeal to logic and engage the consumer's emotions, creating a complex decision-making landscape [25].

By analyzing how practical benefits, such as enhanced gameplay and new content, influence consumer decisions, this study aims to uncover the intricate balance between rational evaluation and emotional influence. Understanding this dynamic is fundamental for comprehensively acknowledging how functionality impacts consumer behavior in digital gaming, contributing to motivation and understanding behind functional microtransactions and their role in the broader digital economy. Accordingly:

H2: Functionality positively influences consumer buying impulses of microtransactions.

2.5. Hedonic content on IBT transactions

Hedonic content in microtransactions is vital because it directly appeals to the consumers' emotional and pleasure-seeking impulses, significantly influencing their buying decisions. With microtransactions becoming increasingly prevalent in the gaming industry, understanding the impact of hedonic content on impulse buying is crucial for tailoring game designs and marketing strategies that resonate with consumer desires [63].

Hedonic content in microtransactions refers to features or items within video games that provide aesthetic pleasure, narrative depth, or sensory enhancement without offering functional benefits [15]. This content relates to consumer behavior's emotional and pleasure-seeking aspects, distinguishing itself from functional or performance-enhancing microtransactions by focusing on the intrinsic enjoyment and satisfaction of the game experience [19,35].

Previous studies outlined the significance of hedonic attributes in shaping consumer purchase intentions [35,6,49]. Hedonic content, through its emotional value and enhancement of sensory enjoyment, can significantly influence IBT. This relationship is explained by the Consumer Perceived Value model [52], which acknowledges emotional and social values as critical drivers of consumer behavior and satisfaction in the digital ecosystem.

This study aims to provide insights into the interplay between hedonic content and consumer behavior by analyzing the role of aesthetic elements, narrative expansions, and sensory enhancements in eliciting emotional responses and driving spontaneous purchase decisions. Understanding this relationship is vital for developing more engaging and emotionally resonant gaming experiences that align with the hedonic motivations of players, thereby informing strategies for effective

microtransaction implementation.
Accordingly:

H3: Hedonic content positively influences consumer IBT of microtransactions.

2.6. Social content impact on microtransactions ITB

Social content in microtransactions significantly shapes player behavior and decision-making in the gaming ecosystem [41]. Social content, such as items that confer status or interaction facilitators, directly impacts players' perception of their in-game value and social distancing [32]. This, in turn, influences impulse buying tendencies, as players are motivated to make purchases that enhance their social experiences or status within gaming communities [31].

Social content in microtransactions refers to any in-game items or features that enhance a player's social status or ability to interact within the game environment. These can include exclusive cosmetic items, access to particular game areas, or features that increase players' social interaction [41]. Such content appeals to the players' desires for social distinction and connectivity, making it a powerful driver of impulse purchases (Micallef et al., 2021).

Previous studies, such as those by Huang [28] and Zafar et al. [67], have highlighted how social factors like the desire for status and peer influence significantly impact players' impulse buying behavior. The drive to fit in or stand out in a gaming community motivates a player to make purchases that they perceive as enhancing their social standing or gaming experience. This relationship is grounded in social comparison theory (Gupta et al., 2020), which suggests that individuals evaluate their own social and personal worth based on how they stack up against others.

The research seeks to provide insights into the psychological and social mechanisms underlying these decisions by examining the specific social factors that drive impulse purchases within gaming communities. Understanding these dynamics is essential for developing more effective game design and marketing strategies, ensuring that microtransactions align with positive player experiences and sustainable gaming environments.
Accordingly:

H4: Social content positively influences IBT of microtransactions.

2.7. Impact of flow experience on consumers' IBT for microtransactions

Flow experience is essential in understanding consumer buying impulses since it captures the immersive and intrinsically rewarding states that consumers experience during high-flow activities (Herrando et al., 2023). In gaming, where satisfaction and engagement are paramount, identifying how flow influences purchasing behavior offers valuable insights into designing more engaging experiences that could lead to increased impulse buying.

Flow is a state of deep, effortless concentration where an individual's skills perfectly balance the challenge, resulting in intrinsic reward and satisfaction [8,37]. This state is characterized by complete immersion and absorption in the activity, leading to a heightened sense of enjoyment and control.

In gaming, flow contributes to player loyalty and satisfaction, impacting purchasing decisions [61,27]. Flow experience in gaming, driven by quality, gameplay, and entertainment, is linked to impulse buying, suggesting that when players are deeply engaged, they are more likely to make spontaneous purchases [55].

To understand how elements of flow affect consumers' propensity to make impulse purchases, this study seeks to deepen the understanding of the psychological underpinnings of purchasing behavior in digital gaming contexts. Accordingly, we posit that:

H5: High-flow experiences positively influence consumers' IBT for microtransactions.

2.8. Impact of affective online ITB on purchase intentions

Affective online ITB is fundamental to understanding how hedonic impulses influence consumers to make spontaneous purchases, especially in the context of microtransactions in video games. Microtransactions, being low-cost purchases, are expected to facilitate impulse buying due to their low price points, making it easier for customers to act on impulse urges [14,39]. Understanding this tendency is crucial for developing strategies that align with consumer behavior and enhancing the effectiveness of microtransactions as a business model.

IBT can be described as the propensity of consumers to make spontaneous, unplanned purchases online [1]. This behavior is characterized by a complex interplay of hedonic motivations, seeking pleasure, satisfaction, and well-being, and is often driven by emotional responses to product offerings [46,57]. In the context of video games, this includes purchasing virtual items or features that enhance the gaming experience.

The connection between ITB and factors such as performance, hedonic content, social content, and flow experience within gaming scenarios has been studied previously. These studies have revealed that affective factors significantly influence impulse buying, with consumers more likely to engage in impulse purchases when they experience high levels of hedonic arousal [43]. This relationship is supported by the findings that low price points in microtransactions lead to higher purchase levels, suggesting that virtual items' cost-effectiveness can enhance impulse purchase likelihood [14,39].

The current study aims to understand how affective online IBT influences purchase intentions. By examining the impact of hedonic drivers behind impulse buying and their relationship with the consumer's intention to purchase virtual items, it aims to provide insights into the mechanisms that drive the effectiveness of microtransactions. This knowledge is vital for understanding consumer behavior in the digital gaming market and informing the development of microtransaction strategies that effectively lead to consumer impulses.

We therefore posit that:

H6: Affective online IBT positively influences purchase intention.

Fig. 1 presents the conceptual model developed for this study, which outlines the hypothesized relationships between various drivers of IBT and purchase intention within the context of video game microtransactions.

3. Research method

Online social gaming websites and social websites with an emphasis on gaming communities have been used to target potential users. Individuals who played mobile games in the past and had made a purchase were eligible to take part. After about ten weeks, an online survey obtained 301 valid answers using a convenience sampling technique. There were no rewards for collecting the data.

Respondents aged between 17 and 40 years old, averaging 25. Fifty-one percent of respondents were employed. The survey revealed that 42 % of the participants play mobile games between 2 and 7 h weekly, classifying them as causal or low-intensity gamers. Conversely, 41 % engage in mobile gaming for more than 7 h weekly, marking them high-intensity gamers. Additionally, 65 % of the respondents had a university degree or higher.

Participants were asked to consider their favorite mobile game(s) content(s). The survey was divided into two main sections. The IBT scale, composed of the ten affective items along with the drivers and components of mobile games, was introduced in the first part. Lehdonvirta's [35] study was based on performance, functionality, hedonic content, and social constructs. Items from flow experiences were grounded in Wu et al. [61] study. Items of purchase intention came from Drossos et al. [13] and To et al. [58]. The answers were recorded on a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). For each survey, the order of the items was randomized to prevent biased responses.

Partial-least squares structural equation modeling (PLS-SEM) using latent reflective variables was used to test the conceptual model relations [23,24,47,50]. PLS-SEM was used due to its unique advantages for exploring the dynamics of microtransaction behaviors within video games. PLS-SEM is a statistical analysis technique that examines complex relationships between observed and latent variables within theoretical models, which aligns with this study's complexity of data analysis. Its key advantages include the ability to handle complex models with multiple constructs, the minimal requirements for sample size, and its robustness to violations of normal distribution. PLS-SEM is particularly useful in exploratory research, where the goal is to predict key outcome variables or to identify the most significant predictors within a model (Hair et al., 2020). By using PLS-SEM, this study contributes a comprehensive analysis that addresses the theoretical and practical implications of microtransactions in the gaming industry, thus providing a robust foundation for future research in this domain [22].

We confirmed that the sample collected was sufficient to be used in PLS-SEM based on Henseler et al. [26] and Cohen [10] sample size recommendations for a statistical power of 80 %. We have a maximum of five arrows pointing to a construct. Therefore, according to the authors, to achieve 80 % statistical power, we should have at least 147 participants to detect R^2 values of 0.10 at a significance level of 5 %. We also used G*Power [17] to calculate the minimum number of participants for an effect size of 0.15, the same significance level and statistical power. G*Power suggested a minimum of 92 participants. Therefore, 301 was
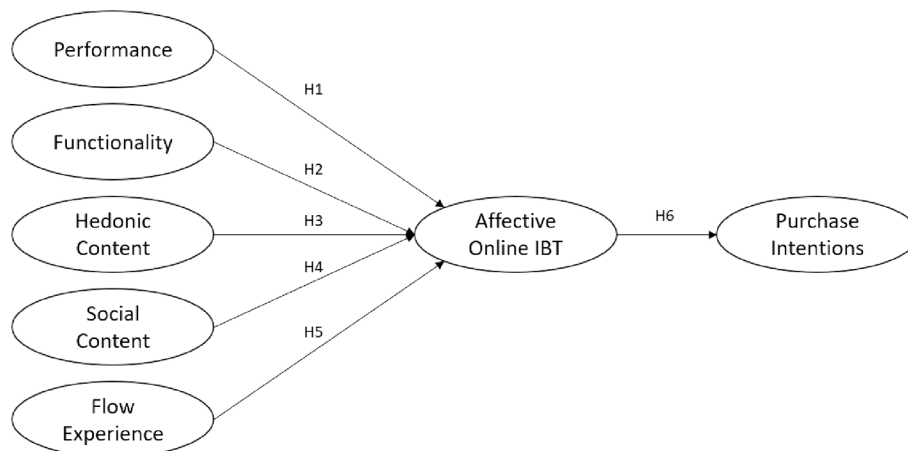

Fig. 1. Conceptual model.

considered enough for the current analysis. Although we collected more than 300 responses in the current study, PLS-SEM is often more appropriate and has higher statistical power than CB-SEM when dealing with Likert scales [21]. One of the reasons for this is that PLS-SEM does not require data to be normally distributed. PLS-SEM also places a greater emphasis on prediction, which is important for increasing the external validity of the results and generalizing to other samples beyond the current study [51]. Additionally, PLS-SEM is better equipped to handle multicollinearity among predictor variables in large-scale models than other SEM techniques [26]. Path coefficients' importance in the structural model was tested using bootstrapping methods.

3.1. PLS-SEM goodness of Fit, reliability and validity tests

Table 1 provides a detailed overview of each construct's reliability and validity metrics. The composite reliability (CR) and Average Variance Extracted (AVE) were assessed for each construct to ensure the measures were reliable and valid. The CR scores exceeded the .70 threshold [26,21], confirming the internal consistency of the constructs, indicating that the items within each construct are coherent and measure the same concept. Similarly, the AVE values exceed the .50 threshold, demonstrating that the variance in the observed variables is accounted for by their respective constructs, further confirming the constructs' convergent validity. Additionally, the outer loadings of individual items within each construct were assessed. Values below the .70 threshold were removed to enhance the construct validity and ensure that the conceptual model is built on measures that accurately reflect the theoretical constructs they are intended to represent. Accordingly, Functionality's item 3 was removed. Regarding collinearity statistics, all items were below the VIF threshold of 3.3 [22], confirming the absence of multicollinearity, thereby ensuring the constructs' independence within the model. All remaining content, convergent, and discriminant validity metrics complied with the recommended guidelines. The estimated model has a SRMR = .057. Table 1 provides a comprehensive overview of the reliability and validity measures for the constructs used in this study, including Affective Oline ITB, Flow Experience, Functionality, Hedonic Content, Performance, Purchase Intentions, and Social Content Table 2.

4. Results

Fig. 2 illustrates the results of the PLS-SEM analysis conducted to explore the relationships between various microtransaction components and their impact on affective online ITB. This analysis used a 10,000-sample bootstrapping to validate the hypothesized model. The six microtransaction component drivers explained 56.7 % of the variance of affective online IBT (R^2 = .567, as seen inside the circle). The strongest path appeared to originate from the flow experience component (β = .307, $p < .01$). The second most significant path came from the social content component (β = .229, $p < .01$), followed by the hedonic content component (β = .206, $p < .01$) and by the performance component (β = .178, $p < .01$). Functionality (β = -.009, p > .05) did not significantly influence affective online IBT[2].

The size effect was low for Functionality (f^2 = .000) while effect sized for flow experience, social content, hedonic content, and performance components had higher f^2 values between .041 and .102, being, however, small size effects on online affective IBT. Concerning purchase intention, the online affective IBT component explained 34.8 % of the variance of purchase intention (R^2 = .339, as seen inside the circle).

Results showed that Performance (PERF) positively influences Affective Online IBT (AFF_IBT) (β = .178, p < .01), confirming H1 and suggesting that enhancements to a player's in-game performance through microtransactions can motivate impulse buying. Contrary to the literature, Functionality (FUNCT) did not show a significant impact on AFF_IBT (β = .009, p > .05), rejecting H2, suggesting that the practical benefits of microtransactions do not directly influence impulse buying behaviors in the gaming context. Hedonic Content (HED) (β = .206, p < .01) and Social Content (SOCIAL) (β = .229, p < .01) significantly contribute to increasing AFF_IBT, supporting H3 and H4. These results suggest that elements enhancing social interaction and providing hedonic value in games encourage impulse buying tendencies. There is a positive influence of Flow Experience (FLOW) on AFF_IBT, with a significant path coefficient (β = .307, p < .01), confirming H5 and suggesting that players who experience high levels of flow are more likely to engage in impulse buying of microtransactions. Finally, AFF_IBT significantly influences Purchase Intention (PURCH_INT) ((β = .583, p < .01), with a large effect size (f^2 = .514), confirming H6, underscoring the critical role of impulse buying tendencies in driving the intention to purchase microtransactions. Table 3 summarizes the results.

Table 1

Reveals theHeterotrait-Monotrait (HTMT) ratio of correlations among the constructs, revealing its discriminant validity (Henseler et al., 2015). Values below the 0.85 threshold guarantee that the constructs are distinct, thereby supporting the discriminant validity of the model. All values are below this threshold, confirming that the constructs do not overlap with one another.

Component	Items	Outer Loadings	VIF	α	CR	AVE
Affective Online IBT	Affective_Online_IBT_Scale_1	.795	2.080	.889	.916	.645
	Affective_Online_IBT_Scale_2	.851	2.628			
	Affective_Online_IBT_Scale_4	.838	2.384			
	Affective_Online_IBT_Scale_5	.802	2.137			
	Affective_Online_IBT_Scale_6	.710	1.606			
	Affective_Online_IBT_Scale_7	.813	2.053			
Flow Experience	Flow_Experience_1	.918	2.825	.884	.928	.812
	Flow_Experience_2	.880	2.190			
	Flow_Experience_3	.905	2.718			
Functionality	Functionality_1	.889	1.603	.760	.893	.806
	Functionality_2	.907	1.603			
Hedonic Content	Hedonic_Content_1	.887	2.067	.881	.926	.807
	Hedonic_Content_2	.916	2.952			
	Hedonic_Content_3	.902	2.753			
Performance	Performance_1	.896	2.152	.841	.904	.759
	Performance_2	.870	2.010			
	Performance_3	.847	1.874			
Purchase Intentions	Purchase_Intentions_1	.926	2.984	.881	.927	.808
	Purchase_Intentions_2	.910	2.884			
	Purchase_Intentions_3	.860	2.035			
Social Content	Social_1	.812	1.634	.844	.906	.764
	Social_2	.918	2.863			
	Social_3	.888	2.531			

Table 2
Heterotrait-Monotrait Ratio (HTMT) criterion.

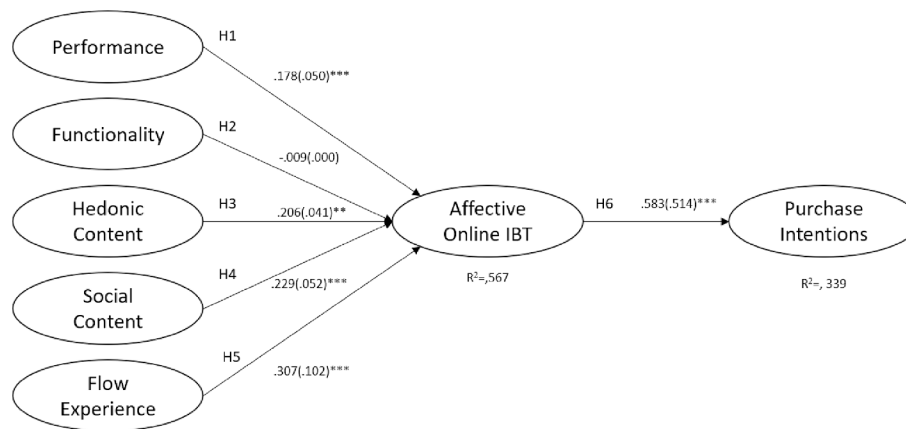|	Affective Online IBT Scale	Flow Experience_	Functionality	Hedonic Content	Performance	Purchase_Intentions	Social Content
Affective Online IBT							
Flow Experience	.727						
Functionality	.158	.419					
Hedonic Content	.723	.709	.202				
Performance	.620	.567	.153	.580			
Purchase Intentions	.653	.504	.042	.525	.467		
Social Content	.715	.626	.138	.785	.559	.577	

Fig. 2. PLS-SEM results. (The ***, **, and * show when p-values are less than.001,.01, and.05 respectively. The paths show the coefficients and the sizes of the effect in parentheses.).

Table 3
Inner model results.

Hypothesis	Relationship	Proposed effect	β	t-value	p-value	f²	Decision
H1	PERF → AFF_IBT	Positive	.178	3.597	.000	0.010	Supported
H2	FUNCT → AFF_IBT	Positive	−.009	0.208	.835	0.058	Not Supported
H3	HED → AFF_IBT	Positive	.206	3.206	.001	0.162	Supported
H4	SOCIAL → AFF_IBT	Positive	.229	3.859	.000	1.330	Supported
H5	FLOW → AFF_IBT	Positive	.307	5.363	.000	0.895	Supported
H6	AFF_IBT → PURCH_INT	Positive	.583	15.986	.000	1.760	Supported

5. Discussion and implications

This study reveals the intricate dynamics of consumer behavior concerning microtransactions in video games, highlighting the significant drivers behind IBT and their influence on purchase intentions. The empirical findings reveal that flow experience is the strongest predictor of IBT, aligning with Wu et al. [61], who highlighted the correlation between engaging gameplay and heightened impulse purchasing. Similarly, social and hedonic content attributes emerged as critical factors enhancing IBT. This result is in accordance with Yoo [65] and Guo and Barnes [19]. These attributes underscore the vital role of emotional and social values in shaping consumer engagement and spending behaviors within virtual environments.

The study's outcomes suggest that functional attributes do not significantly impact impulse purchases, particularly those not offering competitive advantages within games. This revelation explores the general discourse on impulse buying behaviors, predominantly driven by emotional rather than rational motivations [64]. The apparent disinterest in functional benefits for impulse buying among gamers may also be influenced by the community's perception, where functional advantages could be viewed unfavorably, potentially discouraging impulse spending on such items [16].

From a theoretical perspective, this study contributes to the extant literature by providing an understanding of the factors driving microtransaction behaviors in the gaming context. Specifically, it extends the theory on the predominance of emotional and social factors over functional benefits in influencing consumer decisions. Practically, these insights offer game developers and marketers a blueprint for tailoring microtransaction strategies that meet gamers' emotional and social inclinations, thereby fostering an environment conducive to impulse buying. This approach promises enhanced player engagement and opens avenues for ethical and transparent microtransaction practices that balance profitability with consumer satisfaction.

Moreover, the non-significance of functionality in driving IBT presents an intriguing avenue for future research, suggesting a deeper exploration into how different game elements and community perceptions interact to influence consumer behavior. Understanding these dynamics as the digital gaming landscape evolves becomes vital for developing sustainable business models that resonate with consumer preferences and ethical standards.

6. Conclusions

This study addresses the dynamics of consumer behavior in video game microtransactions, highlighting key factors influencing impulse buying tendencies and purchase intentions. By integrating performance,

hedonic, social content, and flow experience, the research unveils that emotional and social values significantly shape consumer engagement and purchasing behaviors in virtual environments. Flow experience is a significant driver, suggesting that engaged and immersed players in gameplay are more likely to make impulse purchases. Additionally, social and hedonic content enhanced IBT, suggesting the importance of social interactions and gameplay pleasure to drive microtransaction behaviors. Conversely, the benefits of microtransactions do not influence IBT, suggesting that impulse buying is more related to the gameplay's emotional and social satisfaction. Accordingly, it is suggested that microtransaction strategies be revised to enhance the emotional and social appeal and highlight the minimal impact of impulse purchases and functional benefits. This shift may boost player engagement and paves the way for ethical microtransaction practices, balancing profitability with consumer satisfaction and sustainable business models in the evolving gaming landscape.

Despite the findings, there are some limitations to the current work. We asked gamers to think about their favorite game, and there is a possibility that different consumers will have different gaming experiences. For example, games based on social content and others based on performance content affect the tendency to impulse buying and purchase intention differently. Therefore, future research may attempt to understand the role of these different types of games as moderating factors. The research also focuses on a specific point in time point. A longitudinal study may reveal a more detailed picture of how consumers evolve throughout the game. Finally, future research could explore how various game genres or player demographics may moderate the relationship observed in this study, providing insights into designing microtransaction strategies that align with diverse player preferences and ethical standards.

CRediT authorship contribution statement

Paulo Rita: Writing – review & editing, Writing – original draft, Resources, Methodology, Investigation, Conceptualization. **João Guerreiro:** Writing – review & editing, Writing – original draft, Investigation, Conceptualization. **Ricardo Ramos:** Writing – original draft, Methodology, Investigation, Conceptualization. **Ricardo G. Caetano:** Writing – original draft, Methodology, Investigation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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