

Impact of gamification on Gen Z impulse buying behavior: Evidence from Shopee application in the Vietnamese market

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ABSTRACT

In the expanding e-commerce landscape, customer purchasing behavior, such as impulse purchases, has become more unpredictable. Online shopping applications are incorporating gamification techniques to increase user satisfaction and encourage unplanned purchases. This study employs the Theory of Mind (Tom) and PLS-SEM to determine the impact of these gamification elements on impulsive purchasing behavior as measured by individual cognitive responses. Six of the eight hypotheses are supported by the results of an online survey and data analysis, indicating that random rewards do not significantly influence impulsive purchasing. This demonstrates the need for administrators of e-commerce platforms to refine their gamification strategies and suggests that Generation Z consumers can adapt their purchasing behavior accordingly.

KEYWORDS: gamification, Gen Z, impulsive buying, SOR framework

1. INTRODUCTION

In recent years, according to the Ministry of Industry and Trade (2022), there has been a substantial increase in global e-commerce. In 2021, this sector generated a substantial amount of revenue totaling 4,921 billion USD. In the next four years, this amount is anticipated to rise to \$7,384 billion USD, according to projections. Notably, the countries with the largest market share in e-commerce in 2021 were, among others, China (52%), the United States (19%), the United Kingdom (4.8%), and Japan (3%). According to the Ministry of Industry and Trade, Vietnam's e-commerce revenue in Southeast Asia reached \$13 billion in 2022, putting it on par with Singapore but behind Malaysia, Thailand, and Indonesia. By 2025, Vietnam's e-commerce revenue is expected to reach \$39 billion, according to projections. Moreover, Shopee emerges as the dominant player in the Vietnam e-commerce market, capturing a significant market share of 63.1% in terms of revenue among the top 5 e-commerce platforms. This platform's sales surpassed 24.7 billion VND, with 289,7 million consignments delivered successfully by 211,609 sellers. Multiple e-commerce platforms, including Shopee, Lazada, Tiki, and others, incorporate gamification elements today. According to studies conducted by Sarah et al. (2021) and L. Zhang et al. (2021), these factors have been found to have the potential to affect impulsive purchasing behavior. According to research conducted by Jung-Yong Lee et al. (2019), game elements have a significant impact on customers' impulsive purchasing behavior. Moreover, according to Lo et al. (2016), there are two primary types of purchasing behavior on e-commerce platforms: rational shopping and impulsive buying. Forty percent to eighty percent of individuals engage in aimless shopping (Rodrigues et al., 2021). This statistical evidence suggests that numerous influential factors are likely to influence the impulsive purchasing behavior of customers.

This research has the potential to contribute to the e-commerce platform by providing valuable insights into the purchasing behavior of Generation Z on the Vietnamese market. The lack of research articles in this field on the Vietnamese market presents a challenge for platforms attempting to identify domestic examples. The application of gamification theory and theory of mind (ToM) (Russell et al., 2009; X. Zhang, 2006) enables the audience to gain insights that may be useful in formulating development strategies. In addition, the present study has referenced three widely recognized and utilized gamification elements in order to assess individuals' subjective responses when interacting with these elements and to motivate them to make purchases (Bítrián et al., 2021; L. Zhang et al., 2021). The objective of this research is to ascertain the stimuli that impact online impulse buying behavior by examining affective and cognitive responses. Furthermore, the objective of this research is to examine the degree to which gamification elements, namely badges upgrade, points, and random rewards, influence

individuals' cognitive and emotional responses. The present study will incorporate and build upon the findings of prior research conducted by Azmi et al. (2021) and Tarmidi & Gumilang Setiawan (2022).

The subsequent sections of the research are organized as follows. In this study, we begin by examining relevant literature theories, such as research framework, gamification, and theory of mind, in order to clarify the relationship between these constructs. Following this, we will discuss methodological considerations and data associated with the research model in an effort to identify the factors that lead to online impulse purchases. In conclusion, we will present the findings and discuss their significance.

2. LITERATURE REVIEW, THEORETICAL FRAMEWORK AND METHODOLOGY

2.1 Literature Review

2.1.1 Stimulus-Organism-Response (SOR) framework

According to Xue Li et al. (2021), the SOR model is frequently used to examine human responses. According to Chan et al. (2017), the phenomenon of perceiving external stimuli from the environment leads to the development of a behavioral tendency characterized by both approach and avoidance. Kimiagari and Asadi Malafe (2021) have also emphasized the suitability of the SOR model for studying consumer psychology, as it clarifies the interaction between individuals' intentions and subsequent behaviors. This study focuses on the phenomenon of online impulse purchases. The Stimulus-Organism-Response (SOR) framework is used to explain the mechanism by which external events lead to impulsive purchasing behavior, with the organism's internal reaction serving as the intermediate process (Vazquez et al., 2020). Chan (2017) asserts that the SOR framework consists of three primary elements arranged in a specific order. The first element is the stimulus (S), which is the variable that has the potential to influence the consumer's emotional and cognitive states (O). The consumer's response (R) is subsequently determined based on the aforementioned factors.

A stimulus (S) is an agent that elicits a reaction from consumers. According to Chen and Yao (2018), the presence of more internal contextual factors within a digital store is positively correlated with the promotion of desirable internet user behaviors. According to the research of Tommy K.H. Chan (2017), stimuli fall into two distinct categories: external and internal. This study focuses on the influence of external stimuli, specifically gamification, on consumers' perceptions of online purchasing platforms and their impulse purchasing behavior. According to the research conducted by Hashmi et al. (2019), individuals who engage in impulsive purchasing tend to be more susceptible to various stimulus components than their counterparts who do not engage in impulsive purchasing. The process of making impulsive purchases is facilitated, particularly for individuals who use web browsers or online shopping applications.

The organism (O) represents the second element of the SOR framework within the context of this study. To provide a more comprehensive understanding, it can be conceptualized as the internal response of each individual and further classified into two distinct dimensions, cognitive and affective. Cognitive responses refer to the cognitive processes involved in information utilization (Chan et al., 2017; Zheng et al., 2019). Positive cognitive reactions serve as stimulants for consumers' impulse purchases, whereas negative cognitive reactions act as deterrents (Chan et al., 2017; Kimiagari & Asad Malafe, 2021). Moreover, Chan et al. (2017) and Kimiagari et al. (2021) have clarified that affective responses encompass the emotional reactions that occur when individuals interact with available information. In addition, customers are more likely to make impulsive purchases when they are experiencing positive emotions such as enjoyment, desire, or pleasure.

Li et al. (2021) examine, with reference to the term "response" (R), the influence of stimuli and organism on decision-making and behavior. When consumers are exposed to positive stimuli, the occurrence of impulse buying is frequently observed (Bigne et al., 2020; Tang et al., 2019). The purpose of this study is to investigate Generation Z's shopping habits on the Shopee app in Vietnam. Due to their extensive online network usage and familiarity with e-commerce platforms, it is anticipated that this demographic will find it relatively easy to make impulsive purchases. When consumers engage in online activities such as advertising, promotion, sales, and receiving a large number of recommendations, they may be more likely to make impulsive purchases.

2.1.2 Gamification

According to Zhang et al. (2021), scholars began to recognize and pay attention to gamification around the year 2010. Aparicio et al. (2021) define gamification as the use of mechanisms or elements to facilitate the incorporation of gaming activities in non-traditional game domains. This involves incorporating gaming elements to influence human behavior in non-gaming contexts. (Xi & Hamari, 2020) Gamification is a design approach that aims to generate similarly rewarding experiences to those found in games, thereby influencing user behavior

and cognitive processes. In addition, Yu and Huang (2022) have demonstrated that gamification can elicit emotional and cognitive responses from individuals. These responses may be influenced by addiction, perceived value, pleasure, and curiosity, among other factors. According to Hwang and Choi (2020), gamification is fundamentally distinct from game playing, as the latter is primarily intended for recreational purposes. According to Hwang and Choi (2020), four distinct gamification characteristics can be identified. These include: (1) the presence of progression pathways that are determined by regulation and increasing levels of difficulty; (2) the provision of feedback and rewards to users, such as points and status; (3) the promotion of group dynamics through the establishment of social connections; and (4) the creation of a connection point and user experience that is driven by aesthetics, synthesis, ease of use, and amusement. It is essential to keep in mind that the influence of different elements of game design on the psychological responses and behavioral outcomes of players can vary depending on the research context (L. Zhang et al., 2021).

Shopee's gamification system includes a mechanism for upgrading badges, allowing buyers to increase their Shopee member rank by meeting the prescribed order quantity and total expenditure requirements. The mechanism has four distinct levels, with the enhanced badge level prominently displayed on the buyer's profile. (Koivisto & Hamari, 2019) To achieve the desired outcome, these endeavors require a consistent and persistent effort over an extended period of time. The concept of "accumulating coin points" refers to a digital currency used to accumulate points. When a consumer makes a purchase, these points can be used as a form of currency to expedite the transaction. Users can earn coins by completing a variety of tasks within the Shopee application, including daily check-ins, tree planting, and virtual pet care. Shopee frequently employs the use of random rewards as a gamification mechanism. This category includes games comparable to a self-selected lottery, such as "What Number is This?" Participants have the opportunity to obtain coupons or coins upon selection, thereby accumulating points. In the event of a fortunate outcome, participants may be awarded a significant number of points or prizes, contingent on the alignment of their selected numbers with those generated by Shopee's daily spin. Another game in this category is "Lucky Wheel," in which all players are guaranteed a prize, although the size of the prize is determined by chance.

2.1.3 Impulse Buying Behavior

L. Zhang et al. (2020) define impulse buying as the phenomenon in which consumers experience a sudden desire to purchase a specific product without engaging in extensive cognitive deliberation. Numerous scholars have elaborated on the notion of "impulse buying intent," which refers to the sudden, frequently intense, and persistent desire to make an immediate purchase. It is essential to remember that there is frequently a short window between the identification of a desirable product or service and the subsequent decision to acquire it. Impulsive purchasing may be accompanied by emotional conflict and a diminished capacity to consider the repercussions of one's actions. Recent research by Huang et al. (2020) demonstrates that the influence of time scarcity on impulse purchase behavior varies across customer segments, as opposed to exhibiting consistent effects. When faced with scarcity as a result of a limited window of opportunity, Huang et al. (2020) discovered that customers with a heightened sense of power have a greater intention to make a purchase. Li et al. (2021) found that the moderating effect of consumers' impulsive traits on the relationship between time constraints and impulse purchase was not statistically significant. Nonetheless, the researchers suggest that other personal characteristics may play a role in this association. Stern (year) divides online impulse purchases into four distinct categories: planned impulsive buying (PLB), suggestion impulsive buying (SIB), reminder impulsive buying (RIB), and pure impulse buying (PUB).

In the context of examining Shopee as a case study, it is observed that users are required to engage in social interaction activities, such as "Shaking coin to receive a voucher," "Shopee farm," and "Shopee gift," in order to obtain appropriate rewards within the gamified system. The phenomenon of online impulse purchases has had a significant impact on the development of the online shopping paradigm. Customers are required to participate in a game in order to receive a discount voucher for purchases. Afterwards, they can add the desired items to their virtual shopping cart and proceed with payment using any of the Shopee-provided payment methods (Aparicio et al., 2021; Wu et al., 2020; L. Zhang et al., 2021). In addition, Shopee employs persuasive strategies to encourage users to make additional purchases via "Flash sale Shopee." This is accomplished by bombarding users with extensive product information or emphasizing the availability of significant discounts for a limited time only. According to Thoumrunroje (2018), customers may experience a loss of self-awareness and confusion as a result of the overwhelming amount of information they receive when shopping online for goods and services. Therefore, this elevated state of confusion increases the likelihood of engaging in indulgent behavior.

2.1.4 Cognitive and Affective theory of mind (ToM)

The theory of mind is a field of study that investigates the recognition of human emotions and cognitive responses, allowing researchers to deduce and predict the responses of individuals based on these investigations. Two fundamental components comprise the theory of mind: affective and cognitive. As demonstrated in previous research (Chan et al., 2017; Russell et al., 2009; X. Zhang, 2006), these factors contribute to the occurrence of reactions such as online impulse purchases. To gain insight into impulsive purchasing behavior among young individuals, it is essential to identify the various characteristics associated with this behavior. Chan et al. (2017) define cognitive reactions as the mental processes that occur when customers interact with a stimulus. The subject at hand pertains to cognitive reasoning or evaluation, as discussed by Zhang and Sun in their 2006 publication. In the study conducted by Chan et al. (2017), positive cognitive reactions and negative cognitive reactions were distinguished as distinct types. Positive cognitive reactions were found to stimulate the purchasing behavior of customers, while negative cognitive reactions had the opposite effect.

2.2 Theoretical Framework

The process of upgrading badges is a game mechanic that elicits a sense of achievement and competitiveness among players (L. Zhang et al., 2021). As per the findings of Aparicio et al. (2021), customers experience a progression in their status and are awarded an enhanced badge upon reaching a predetermined threshold. According to Zhang et al. (2021), badges serve as a gamification element that is associated with achievement. However, the concept of points and random rewards pertains to the gamification mechanism wherein players have the ability to exchange them for virtual currency, as stated by Zhang et al. (2021). Yu and Huang (2022) argue that the inclusion of gamified systems is intended to enhance operational effectiveness. In addition, the implementation of random rewards elicits a heightened sense of anticipation, as posited by Aparicio et al. (2021), who postulated that players are afforded the prospect of obtaining a reward. Therefore, it is hypothesized that:

H1a: The upgrading of badges has a positive impact on affect.

H1b: The implementation of badge upgrades is associated with a positive influence on cognitive abilities.

The gamification mechanism system of Shopee was developed with the primary objective of enhancing user satisfaction during its utilization (Huang et al., 2019). The aforementioned phenomenon has the potential to result in heightened levels of user engagement and extended periods of system usage (Koivisto & Hamari, 2019; Molinillo et al., 2020). In a study conducted by Muhamad Adhytia Wana Putra Rahmadhan et al. (2023), it was found that elements such as Points or Rewards have an influence on individuals' purchasing behavior. This finding is supported by the research of Lin Zhang et al. (2021), who demonstrated that Points and Rewards can have an impact on impulsive buying behaviors. Based on the preceding discourse, it is postulated that:

H2a: The utilization of random rewards yields a favorable impact on affective outcomes.

H2b: Randomized rewards yield a beneficial impact on cognitive functioning.

H3a: The presence of points is positively correlated with affective outcomes.

H3b: Points exert a positive influence on cognitive functioning.

The experience of pleasure is a prevalent element across various domains of human existence, capable of eliciting positive emotional states in individuals (Oh, 2005). Indeed, individuals who have derived satisfaction from their offline shopping experience may be inclined to sustain their positive affective state, leading to an increased propensity for impulsive buying behavior. This inclination arises from their anticipation of immediate gratification resulting from the act of making a purchase ((Duc Dang Thi Viet et al., 2022; Floh & Madlberger, 2013). According to a study conducted by Chia-Lin Hsu et al. (2012), the flow experience is characterized by a state of positive emotions and intense concentration during the act of making purchases. This heightened state of engagement increases the likelihood of individuals repeating their purchases in the future. Verhagen and van Dolen (2011) conducted a study in which they examined the relationship between impulse buying, browsing behavior, urge to buy, and impulse purchasing behavior. For example, within a digital environment, the level of e-service quality has been found to have a positive impact on user satisfaction, subsequently resulting in increased instances of online impulse purchasing (Chan et al., 2017). According to a study conducted by Chan et al. (2017), customers derive pleasure and arousal from positive affective reactions during impulsive purchasing experiences. In accordance with the topic at hand, a hypothesis is proposed as follows:

H4: Affective reactions exert a positive influence on impulse buying behavior.

According to Shakeel Ahmad Sofi et al. (2020), it is postulated that the information environment for online customers differs significantly from that of customers who engage in shopping at brick-and-mortar stores. The utilization of the vast amount of information and products available on websites, coupled with the continuous cognitive efforts of individuals, has been employed to facilitate customers in locating products with ease and expediting the purchase process (Lee et al., 2021; Sofi et al., 2020). Due to the convenience of online shopping and the allure of rewards offered by e-commerce platforms, it is anticipated that instances of impulsive buying will manifest during the online purchasing journey. Based on our analysis, we propose the following hypothesis:

H5: Cognitive reactions exhibit a positive influence on impulse buying behavior.

The research model depicted in Figure 1

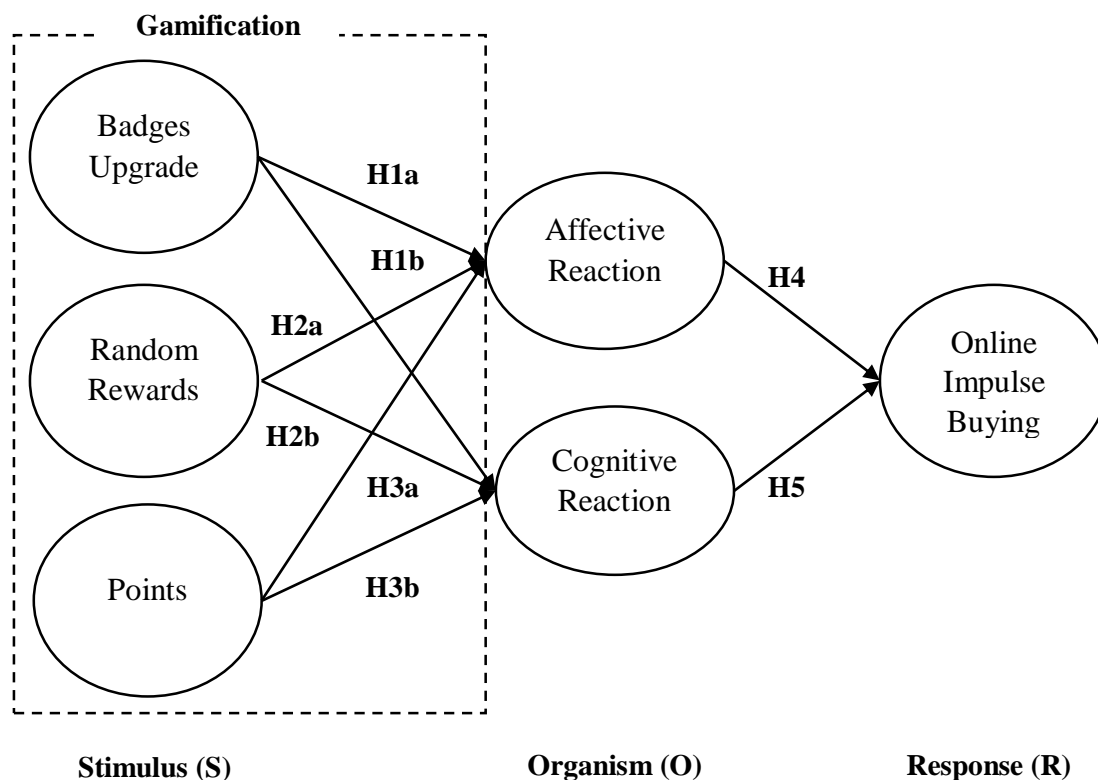


Figure 1. Research model

2.3 Methodology

This study employs convenience and judgmental non-probability sampling methods to gather data. In order to successfully accomplish a task, it is imperative to draw upon the expertise of researchers and ensure that respondents possess the necessary standard characteristics (Quan et al., 2023; L.-T. Nguyen et al., 2023). The participants were requested to provide information regarding their experience and engagement with gamification. The participants of this study are required to belong to the Generation Z demographic, born between the years 1995 and 2012, and possess a familiarity with impulsive buying tendencies and e-commerce platforms (Dang et al., 2023). According to the G*Power analysis, the recommended sample size for the current research is 112. This analysis utilizes F tests for linear multiple regression, with an effect size of 0.15, a significance level (α) of 0.05, a desired power level ($1-\beta$) of 0.8, and a total of 5 predictors. Nevertheless, the data analysis was conducted using a total of 204 responses, surpassing the required sample size of 112 samples.

The survey encompassed inquiries pertaining to demographics, as well as critical inquiries regarding the emotional and cognitive impacts of gamification, and the intention to engage in online impulse buying. The study questionnaire underwent translation into the Vietnamese language to cater to the respondents belonging to the Generation Z demographic in Vietnam. The questionnaire utilized in this study is designed to be contextually adapted, drawing upon previous research findings with Badges Upgrading, Random Rewards, Points adopted

from L. Zhang et al. (2021) and Aparicio et al. (2021) while Affective reaction, Cognitive reaction, and Online impulse buying adopted from Wu et al. (2020) and Koufaris (2002). The participants were asked to rate all items using a seven-point Likert scale, ranging from (1) strongly disagree to (7) strongly agree.

3. RESULTS AND DISCUSSION

3.1 Results

3.1.1 Assessing the outer measurement model

Prior to conducting hypothesis testing within the internal model (structural model), it is imperative to assess the validity (convergent and discriminant validity) and reliability (Cronbach's Alpha and composite reliability) of the study. Partial Least Squares Structural Equation Modeling (PLS-SEM) is a statistical technique used to assess the reliability of constructs, specifically internal consistency reliability. In Table 1, the values presented demonstrate that PLS-SEM can conform to the suggested threshold values for Cronbach's Alpha, which is a measure of composite reliability, with a recommended value of 0.70 (B. H. T. Nguyen et al., 2023; Hair et al., 2016). Consequently, all constructions demonstrate a satisfactory level of internal consistency reliability, as assessed through the utilization of Cronbach's Alpha and composite reliability.

The term "convergent validity" pertains to the assessment of numerous conceptually similar entities. Hair et al. (2016) highlighted that the assessment of convergent validity involves the consideration of two key measures: the average variance extracted (AVE) and the values of outer loadings. It is generally accepted that the AVE should exceed 0.50, while the outer loadings should surpass the threshold of 0.70 (Dang Quan & Tran Thien, 2021; L. T. Nguyen et al., 2022). Table 2 displays the values that are all adjustable to meet the aforementioned requirement. Discriminant validity ensures that the items being examined exhibit strong loadings on the construct of interest, while demonstrating weak loadings on other constructs. Hence, these items can be distinctly distinguished from those of alternative constructions. The Fornell & Larcker's criteria can be utilized to assess the discriminant validity, such as cross loadings and (Fornell & Larcker, 1981; Henseler et al., 2015), which were employed for this purpose. According to the findings presented in Table 2, it is evident that the square root of the average variance extracted (AVE) exhibits a significantly higher value compared to the conventional Fornell-Larcker's criterion.

Table 1. Outer loadings, Cronbach's Alpha and AVE

	Outer loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
BU1	0.852	0.805	0.823	0.628
BU2	0.819			
BU3	0.717			
BU4	0.775			
RRE1	0.833	0.802	0.805	0.717
RRE2	0.829			
RRE3	0.877			
PT1	0.794	0.816	0.846	0.639
PT2	0.759			
PT3	0.769			
PT4	0.870			
AR1	0.935	0.887	0.889	0.816
AR2	0.901			
AR3	0.873			
CR1	0.894	0.858	0.878	0.777
CR2	0.902			
CR3	0.848			
OIB1	0.915	0.791	0.793	0.827
OIB2	0.904			

Table 2. Fornell-Larcker's criterion

	BU	RRE	PT	AR	CR	OIB
BU	0.793					
RRE	0.634	0.847				
PT	0.668	0.676	0.799			
AR	0.602	0.464	0.620	0.903		
CR	0.401	0.377	0.427	0.494	0.882	
OIB	0.518	0.371	0.525	0.685	0.553	0.909

3.1.2 Assessing the inner structural model

The consideration of the structural model will occur subsequent to the confirmation of the measurement model. The procedure entails the computation of the coefficient of determination (R²) and the direct coefficients from 5000 subsamples through the utilization of a bootstrapping methodology. According to the data presented in Table 3, the evaluation of the structural model involves the testing of hypotheses. The results indicate that both H1a and H1b hypotheses are supported, as evidenced by the statistical significance of the p-value, which is less than 0.05. Therefore, the findings indicate that the implementation of badge upgrades has a beneficial impact on both affective and cognitive responses. However, the statistical analysis indicates that there is insufficient evidence to support the hypotheses H2a and H2b, as the calculated p-values are greater than 0.05. Therefore, the findings from the study on random rewards indicate that they have a negligible adverse impact on both affective and cognitive responses. Additionally, the results provide support for hypotheses H3a and H3b, as indicated by the statistical significance ($P < 0.05$). Therefore, the findings indicate that the identified factors have a beneficial impact on both emotional and cognitive responses. Furthermore, statistical analysis indicates that there is significant support for H4 and H5, as evidenced by a P value of less than 0.05. Therefore, the findings indicate that both affective and cognitive responses exert a noteworthy positive influence on online impulsive purchasing behaviour.

Table 3. Hypotheses testing results

Hypotheses	Relationship	Path Coefficients	Standard Deviation	P Values	Decision
H1a	Badges Upgrade (BU) → Affective Reaction (AR)	0.352	0.094	0.000	Supported
H1b	Badges Upgrade (BU) → Cognitive Reaction (CR)	0.175	0.186	0.045	Supported
H2a	Random Rewards (RRE) → Affective Reaction (AR)	-0.035	0.086	0.681	Not Supported
H2b	Random Rewards (RRE) → Cognitive Reaction (CR)	0.104	0.095	0.272	Not Supported
H3a	Points (PT) → Affective Reaction (AR)	0.409	0.095	0.000	Supported
H3b	Points (PT) → Cognitive Reaction (CR)	0.240	0.111	0.030	Supported
H4	Affective Reaction (AR) → Online Impulse Buying (OIB)	0.545	0.073	0.000	Supported
H5	Cognitive Reaction (CR) → Online Impulse Buying (OIB)	0.284	0.082	0.001	Supported

4.2 Discussions

In accordance with the prior research conducted by Zhang et al. (2021), Aparicio et al. (2021), and Bitrián et al. (2021), the inclusion of gamification elements such as Badges upgrade, Random rewards, and Points has been found to exert a favorable influence on individuals' purchasing intentions. These elements possess the potential to serve as stimuli that elicit internal responses within individuals. The findings of this research indicate a significant correlation between gamification and individuals' purchasing intentions, particularly in the context of online impulsive buying. In recent studies conducted by Aparicio et al. (2021), L. Zhang et al. (2021), C.-K. Huang et

al. (2019), and Hwang & Choi (2020), a correlation has been identified between gamification factors and both personal affective reaction and cognitive reaction. The present study reveals that among the three elements under investigation, namely Badges Upgrade (BU), Points (PT), and an undisclosed third element, only BU and PT demonstrate a statistically significant impact on both affective and cognitive reactions. Specifically, the impact of points on both affective and cognitive aspects is more pronounced ($\beta = 0.409$, $\beta = 0.240$) compared to the influence of badge upgrades ($\beta = 0.352$, $\beta = 0.175$). Conversely, random rewards (RRE) do not have an impact on these internal responses. This demonstrates that customers have the ability to express interest and exert influence in relation to rankings, and subsequently receive rewards such as points, digital currency, and vouchers in return. Regarding the random rewards, customers may not experience a significant level of excitement due to the fact that the value derived from these rewards does not surpass the benefits offered by other elements. The allure of predictable and procedural rewards surpasses that of chance-based outcomes. This study demonstrates that internal reactions can significantly influence individuals' inclination to engage in purchasing behavior. The present study examines the impact of affective factors, specifically emotions, and cognitive factors, specifically the perception of experiences, on customer behavior, with a particular focus on online impulse buying on e-commerce platforms. The affective and cognitive responses of individuals play a significant role in serving as a determining factor for the impact of gamification mechanisms on personal impulse buying behavior (Shahpasandi et al., 2020; Wu et al., 2020; Yu & Huang, 2022). The inclusion of game elements within e-commerce platforms has been found to elicit positive emotions and thoughts among users. These factors play a crucial role in influencing users' decision-making processes, ultimately leading them to make purchases or place orders.

4. CONCLUSIONS AND POLICY IMPLICATIONS

This study aims to provide GenZ individuals with a comprehensive understanding of their purchasing perception. The utilization of gamification mechanisms in e-commerce platforms, as well as e-wallet or applications developed by large corporations, serves to alter customers' perceptions and incentivize them to enhance their purchasing capabilities. In light of technological advancements, it is advisable for e-commerce platforms or companies equipped with their own management applications to incorporate a greater range of gamification mechanisms into their operations. Generation Z is characterized by their astute consumer behavior, displaying both a high level of intelligence in making purchases and a propensity for impulsive decision-making. This generation exhibits a tendency to carefully consider their actions in order to maximize personal gain (Accenture, 2017). Hence, it is imperative for e-commerce platforms to offer both services and promotional activities by incorporating gamification elements. Engaging in gaming activities and attaining achievements or economic gains can exert a favorable influence on the psychological and emotional well-being of consumers, particularly those belonging to Generation Z. This, in turn, can elicit a positive reaction towards impulsive purchasing behavior. In addition, it is imperative for website designers to acquire proficiency in supplementary applications in order to enhance the quality of their own applications and foster a user experience that is characterized by approachability and ease of use.

This research investigates and assesses the impact of gamification in e-commerce applications on individual psychological stimuli, subsequently influencing impulsive purchasing behavior. This study aims to draw the following conclusions: (1) The inclusion of gamification elements has been found to elicit more positive affective and cognitive responses in individuals. However, it should be noted that random rewards do not contribute to this positive effect. (2) The affective and cognitive reactions triggered by gamification elements can potentially influence individuals to engage in impulsive online buying behavior. (3) It is worth mentioning that gamification elements generally have a positive impact on online buying behavior, with the exception of random rewards. Similar to the majority of academic research, this study undeniably possesses certain limitations. The primary focus of this study is exclusively on the Shopee platform in Vietnam. Consequently, there may be limitations in terms of the intention and data pertaining to other e-commerce applications such as Lazada, Tiki, and others. Furthermore, the focus of this study is solely on the GenZ population in Vietnam, with particular emphasis on those residing in Ho Chi Minh City, including both temporary and permanent residents. Furthermore, it is important to note that the current study has certain limitations, particularly in terms of sample size and sampling method. The use of an online questionnaire as the primary data collection method may have implications for the generalizability of the findings. Therefore, future research should consider incorporating additional variables and employing a larger sample size to enhance the validity and reliability of the results. In this study, it is important to note that the gamification elements examined do not encompass the entirety of the elements present in the Shopee platform. The authors have selectively chosen specific elements that are familiar to users in order to enhance the identification of gamification. However, it is recommended that future research should encompass all the elements and consider incorporating additional constructs to enhance the diversity of research in this area.

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