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# Factors Influencing In-Game Impulse Purchase Among Last War: Survival Game Players

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**KEYWORD**

In-game impulse purchase; Competitive attitude; The need for popularity; Social competence; Freemium game; Last War Survival.

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**ABSTRACT**

This study aims to analyze the psychological factors that affect impulse buying behavior in the mobile strategy game Last War: Survival, specifically the influence of competitive attitudes and the need for popularity on impulse purchase intentions, as well as the role of social competence moderation. The game implements an aggressive freemium business model and manages to create psychological and social pressures that drive status-based impulsive buying behavior. The research uses a conclusive-descriptive design with a cross-sectional approach. Primary data was collected through an online survey of 175 Last War: Survival players using purposive sampling techniques. All variables were measured with 35 indicators using a seven-point Likert scale. Data analysis was carried out using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results show that competitive attitudes have a positive and significant effect on the need for popularity and impulse purchases in games. The need for popularity also has a significant effect on impulse purchases and has been shown to mediate a full relationship between competitive attitudes and purchasing behavior. Meanwhile, social competence has not been shown to moderate the relationship between variables. These findings confirm that in a highly competitive gaming environment, a player's competitive drive is converted into a need for social status which further triggers impulsive buying behavior, regardless of the player's level of social competence in the real world.

## 1. INTRODUCTION

The mobile gaming industry has become one of the most dominant sectors in the global digital economy, largely driven by the widespread adoption of the freemium business model. This model allows users to access games for free while monetizing gameplay through in-app purchases (IAP). Within this landscape, Last War: Survival (LWS) represents a prominent example of successful freemium implementation. In less than two years since its release, LWS reportedly generated revenues exceeding USD 2 billion, reflecting the effectiveness of its monetization strategy (Astle, 2025; Mandal, 2025).

The commercial success of LWS is closely linked to its game design, which integrates 4X strategy mechanics with a highly competitive social structure. In this environment, players' power, rankings, and achievements are publicly visible and function as symbols of status within the gaming community. Progression systems, leaderboards, and alliance-based competitions create continuous social comparison and competitive pressure, encouraging players to accelerate progress or maintain status through the purchase of premium virtual items. Consequently, purchasing behavior in LWS is not merely utilitarian, but also socially and psychologically motivated.

Previous studies indicate that freemium games commonly employ psychological mechanisms such as progress gating, limited-time events, and exclusive virtual goods to stimulate impulsive purchasing behavior (Hamari et al., 2017; Wohn, 2014). These mechanisms often trigger fear of missing out (FOMO) and social signaling processes, whereby players feel compelled to make purchases in order to avoid lagging behind peers or to signal competence and prestige. In highly competitive games, such pressures are intensified, as success is evaluated not only through gameplay skills but also through visible consumption of virtual goods.

Although research on in-game impulse purchasing has expanded considerably, understanding of the specific psychological pathways underlying this behavior remains limited, particularly in hyper-competitive gaming environments. A recent model proposed by Cengiz et al. (2025) offers a more nuanced explanation by suggesting that competitive attitude does not directly lead to impulse purchasing. Instead, competition stimulates the need for popularity—defined as the desire to be recognized, valued, and acknowledged by others—which subsequently drives impulsive purchasing behavior. Within this framework, social competence is positioned as a moderating factor that may influence the strength of this relationship.

However, empirical testing of this model remains scarce in the context of aggressively monetized 4X strategy games such as LWS. Most existing studies focus on casual or social games, where competitive intensity and hierarchical pressure are relatively lower. Moreover, empirical evidence regarding both the mediating role of the need for popularity and the moderating role of social competence remains inconclusive. It is still unclear whether social competence genuinely protects players from social pressure or whether socially competent players are equally susceptible to status-driven consumption in competitive gaming environments.

Based on these gaps, this study aims to examine the psychological mechanisms underlying in-game impulse purchasing among Last War: Survival players by analyzing the effects of

competitive attitude and the need for popularity, as well as the moderating role of social competence. By positioning LWS as a hyper-competitive social laboratory, this research contributes to a deeper understanding of how competitive motivation is transformed into status-oriented consumption behavior within digital games, while extending the applicability of psychosocial consumption models to extreme freemium contexts.

## 2. LITERATURE REVIEW

This study integrates four main constructs namely in-game impulse purchase, competitive attitude, need for popularity, and social competence to explain the psychosocial mechanisms that drive impulse purchasing behavior in the competitive freemium game Last War: Survival.

### In-Game Impulse Purchase as a Form of Hedonic Consumption

Impulse purchasing is classically defined as a rapid and unplanned action associated with a failure of self-control (Iyer et al., 2020; Rook, 1987). However, modern consumption perspectives conceptualize impulse purchase as a form of hedonic consumption (Hirschman & Holbrook, 1982), namely behavior aimed at creating or maintaining positive emotions. Impulse purchasing is understood as a form of emotional self-regulation that can enhance mood (Lee & Lee, 2019; Mohamad & Metawie, 2015; Verplanken & Sato, 2011). In the context of digital games, the purchase of virtual items reinforces hedonic dimensions such as emotion, fantasy, and role projection (Hollebeek et al., 2022). Players engage in impulse purchases to enhance sensory experiences, enjoy the satisfaction of rapid progression, or display particular identities to other players. Competitive game monetization mechanisms such as progress gating, exclusive items, and instant rewards increase the likelihood of impulse purchasing (Hamari et al., 2017; Wohn, 2014). Because impulse purchases function as a tool to reinforce competitive drive, social status, and emotional experience, factors that intensify competitive experiences are likely to increase the tendency toward impulse purchasing. Therefore, the first hypothesis is proposed as follows:

**H1: Competitive attitude has a positive effect on in-game impulse purchase.**

### Competitive Attitude and the Formation of Consumptive Drives

Competitive attitude refers to an internal drive to compete, outperform others, and achieve superiority (Franken & Brown, 1995). Competition generates arousal, tension, and euphoria, which are core components of hedonic consumption (Redine et al., 2023; Sepehr &

Head, 2018). In the LWS gaming environment, competition is not limited to technical performance but also extends to publicly visible status symbols. Social comparison theory suggests that competition encourages self-evaluation through comparison with others (Festinger, 1954). Under competitive conditions in LWS, players do not merely seek to win, but also to be "seen as winning." Consequently, competition is expected to motivate players to engage in impulse purchases in order to maintain their position, prestige, or symbols of achievement. Therefore, the second hypothesis is proposed as follows:

**H2: Competitive attitude has a positive effect on the need for popularity.**

**The Need for Popularity as a Psychological Mechanism Driving Purchase Behavior**

The need for popularity (NFP) reflects an individual's desire to obtain validation, recognition, and social status (Bukowski, 2011; Santor et al., 2000). In digital environments, the purchase of exclusive items functions as an identity-affirming practice, serving as a means of displaying a desired self-image and positioning oneself within a particular social hierarchy (Veloutsou & Moutinho, 2009). The model proposed by Cengiz et al. (2025) posits that NFP is a primary driver of impulse purchasing, as virtual items provide not only functional benefits but also symbolic status value. In the context of LWS, virtual purchases visibly signal power, achievement, or rare aesthetics, making NFP a strong trigger of consumptive behavior. Therefore, the third hypothesis is proposed as follows:

**H3: The need for popularity has a positive effect on in-game impulse purchase.**

**The Mediating Role of the Need for Popularity in the Relationship Between Competition and Purchase Behavior**

The theoretical model developed by Cengiz et al. (2025) emphasizes that competitive attitude does not directly cause impulse purchasing. Instead, competition stimulates social evaluation, which generates the need for popularity, and it is this need that ultimately drives purchasing behavior as a means of signaling status (Cengiz et al., 2025). In the LWS gaming environment, which integrates social hierarchies, leaderboards, and item exclusivity, competition is almost always public. This implies that players who seek superiority do not merely want to win, but want to be recognized as winners. Accordingly, the psychological pathway that emerges can be described as: competition → need for popularity → impulse purchase. Therefore, the fourth hypothesis is proposed as follows:

**H4: The need for popularity mediates the relationship between competitive attitude and in-game impulse purchase.**

**Social Competence as a Moderating Variable**

Social competence refers to an individual's ability to build effective social relationships, interpret social cues, and respond adaptively (Junge et al., 2020). Individuals with lower social competence often seek alternative means of fulfilling social needs in virtual spaces. In the context of LWS, players with lower social competence are more likely to be vulnerable to the effects of the need for popularity. Due to limited access to real-world social validation, they may rely more heavily on purchasing virtual items as a means of constructing status and gaining recognition. Conversely, individuals with high social competence typically possess stable social networks and sources of validation, reducing their reliance on virtual items for social recognition (Reich, 2017). Therefore, the fifth hypothesis is proposed as follows:

**H5: Social competence negatively moderates the relationship between the need for popularity and in-game impulse purchase.**

## 3. METHODOLOGY

This study employs a conclusive–descriptive research design with a single cross-sectional approach. This design was selected to test the proposed hypotheses and examine the relationships among variables at a specific point in time. Primary data collection was conducted from 1 August 2025 to 1 November 2025. The research population consists of mobile game players of Last War: Survival. The sampling technique used was non-probability purposive sampling. The main inclusion criteria for respondents are as follows: (1) Individuals who are currently active or have previously played Last War: Survival; (2) Individuals who have access to the internet and a mobile device (smartphone or tablet); (3) Individuals who are willing to complete the questionnaire voluntarily. The determination of the minimum sample size was based on the five times rule of thumb, which recommends a sample size at least five times the number of indicators (Malhotra, 2019). With a total of 35 indicators (items) in this study, the minimum required sample size was set at 175 respondents.

**Table 1.** Research Questionnaire

| Variable | Definition | Indicator | Statement |
|---|---|---|---|
| Social | An individual's ability to interact | SC1 | I am good at making friends with |

| Variable | Definition | Indicator | Statement |
|---|---|---|---|
| competence | effectively with others by using social skills, communication, and adaptability to achieve goals within social groups (Junge et al., 2020). | | other players in the Last War: Survival game |
| | | SC2 | I enjoy helping other players in the Last War: Survival game |
| | | SC3 | I often share tips or resources with other players in the Last War: Survival game |
| | | SC4 | I offer assistance to other players in the Last War: Survival game when they need it |
| | | SC5 | I can get along well with various types of players in the Last War: Survival game. |
| | | SC6 | I often do kind things to support other players. |
| The need for popularity | An individual's drive to obtain validation, recognition, and social status from their peer environment (Bukowski, 2011; Santor et al., 2000). | NFP1 | I once did certain things in the game Last War: Survival, just to be more recognized by the Last War: Survival player community |
| | | NFP2 | I have reduced interactions with some friends in the Last War: Survival game because I was worried about being perceived as less popular. |
| | | NFP3 | At times, I ignore certain players in the Last War: Survival game in order to appear more popular in the eyes of other players. |
| | | NFP4 | I try to avoid being perceived as a "weak player" within the Last War: Survival game community. |
| | | NFP5 | It is important to me that other players in the Last War: Survival game consider me popular. |
| | | NFP6 | I have joined certain player groups in the Last War: Survival game mainly because they are popular within the Last War: Survival game community. |
| | | NFP7 | I have purchased items in the Last War: Survival game because those items were considered trendy among players of the |

| Variable | Definition | Indicator | Statement |
|---|---|---|---|
| | | | game. |
| | | NFP8 | At times, I change the appearance of my avatar/character in the Last War: Survival game in order to look more popular. |
| | | NFP9 | I have befriended certain players in the Last War: Survival game solely because they are liked by many other players of the game. |
| | | NFP10 | I have participated in events or activities in the Last War: Survival game solely to be part of an active player community. |
| | | NFP11 | I often do things in the Last War: Survival game simply to appear more popular among other players. |
| | | NFP12 | At times, I play with certain groups of players in the Last War: Survival game so as not to be considered unpopular. |
| In-game impulse purchase | A sudden and strong urge to purchase something without prior planning, driven by the need for instant gratification (Rook, 1987). | IP1 | I feel tempted to purchase items in the Last War: Survival game even though I had no prior intention to buy. |
| | | IP2 | I often feel the desire to purchase additional items in the Last War: Survival game when I see in-game offers. |
| | | IP3 | I tend to purchase unplanned items when browsing the in-game store in Last War: Survival. |
| | | IP4 | While playing Last War: Survival, I often suddenly feel the urge to purchase additional items. |
| | | IP5 | I feel interested in purchasing items in the Last War: Survival game after seeing promotional content within the game. |
| | | IP6 | Advertisements or offers in the Last War: Survival game often make me want to purchase |

| Variable | Definition | Indicator | Statement |
|---|---|---|---|
| | | | items spontaneously. |
| | | IP7 | I feel encouraged to purchase items in the Last War: Survival game after reading detailed product information within the game. |
| | | IP8 | I feel the desire to purchase items in the Last War: Survival game when I first see their quality in the game. |
| | | IP9 | I am easily attracted to purchasing items in the Last War: Survival game because of their appealing visual features. |
| | | IP10 | Even when I enter the Last War: Survival game with a specific plan, I am tempted to purchase other items due to discounts or in-game offers. |
| | | IP11 | Even when I enter the Last War: Survival game with a specific purchase intention, sales promotions within the game often make me want to buy additional items. |
| | | IP12 | I have purchased popular items in the Last War: Survival game simply because many other players own them. |
| Competitive attitude | An internal psychological drive to perform better and outperform others in order to achieve goals perceived as valuable (Franken & Brown, 1995; Helmreich et al., 1980). | CA1 | I feel that I must perform better than other players in the Last War: Survival game in order to succeed. |
| | | CA2 | It is important for me to outperform other players in the Last War: Survival game. |
| | | CA3 | Winning in the Last War: Survival game is very important to me. |
| | | CA4 | I evaluate my success based on whether I perform better than other players in the Last War: Survival game, rather than merely achieving good results. |

| Variable | Definition | Indicator | Statement |
|---|---|---|---|
| | | CA5 | I feel upset when other players in the Last War: Survival game perform better than I do. |

Table 1. presents the primary research instrument in the form of a structured questionnaire, which was distributed online through the Google Forms platform. The questionnaire was disseminated via social media, gaming community forums (Discord), and player discussion channels to reach relevant respondents. This instrument operationalizes four main latent variables adapted from the study by Cengiz et al. (2025). These variables are as follows: (1) Competitive attitude (CA) as the independent variable (5 items); (2) The need for popularity (NFP) as the mediating variable (12 items); (3) Social competence (SC) as the moderating variable (6 items); (4) In-game impulse purchase (IP) as the dependent variable (12 items). All respondents' answers to the 35 statement items were measured using a 7-point Likert scale, ranging from 1 (Strongly Disagree) to 7 (Strongly Agree).

The data analysis method employed was Structural Equation Modeling (SEM) based on Partial Least Squares (PLS), assisted by the SmartPLS 4 software. As the main analytical approach, this study utilized Partial Least Squares–Structural Equation Modeling (PLS-SEM) because this method is predictive in nature, flexible, and capable of handling research models that involve multiple variables, numerous indicators, and simultaneous mediation and moderation relationships. PLS-SEM also does not require normally distributed data, making it particularly suitable for survey data, which typically exhibit high variability across respondents (Hair et al., 2022).

In its application, PLS-SEM consists of two main stages of analysis. The first stage is the evaluation of the measurement model (outer model), which includes testing indicator reliability through outer loadings, assessing construct reliability using Cronbach's Alpha and Composite Reliability (CR), evaluating convergent validity through Average Variance Extracted (AVE), and examining discriminant validity using the Heterotrait–Monotrait Ratio (HTMT). The second stage is the evaluation of the structural model (inner model), which assesses the quality of relationships among latent variables. This evaluation includes examining $R^2$ values to determine the model's predictive power, $Q^2$ values to measure predictive relevance, $f^2$ values to assess the effect size of each relationship, and testing the significance of path coefficients through a bootstrapping

procedure with 5,000 subsamples. At this stage, mediation and moderation analyses were also conducted in accordance with the research framework.

## 4. RESULTS AND DISCUSSIONS

The characteristics of the respondents are presented in Table 2.

**Table 2.** Respondent Characteristics

| Characteristics | | Frequency (f) | Percentage (%) |
|---|---|---|---|
| Gender | Male | 183 | 69,3 |
| | Female | 81 | 30,7 |
| Education Level | High School / Equivalent | 92 | 34,8 |
| | Diploma (D1/D2/D3) | 34 | 12,9 |
| | Bachelor's Degree (S1) | 128 | 48,5 |
| | Master's Degree (S2) | 10 | 3,8 |
| Country of Residence | Singapura | 2 | 0,8 |
| | Malaysia | 16 | 6,1 |
| | Indonesia | 246 | 93,2 |
| Age Group | 15 - 19 years | 29 | 10,98 |
| | 20 - 24 years | 124 | 46,97 |
| | 25 - 29 years | 98 | 37,12 |
| | 30 - 36 years | 13 | 4,92 |
| Frequency of Playing Last War: Survival per Week | Less than once a week | 13 | 4,9 |
| | 1 - 3 times per week | 73 | 27,7 |
| | 4 - 6 times per week | 116 | 43,9 |
| | Every day | 62 | 23,5 |
| Monthly Expenditure on In-Game Purchases in Last War: Survival | Never purchased | 13 | 4,9 |
| | Rp. 1 – Rp. 50.000 | 36 | 13,6 |
| | Rp. 50.001 – Rp. 250.000 | 114 | 43,2 |
| | Rp. 250.001 – Rp. 1.000.000 | 73 | 27,7 |
| | > Rp. 1.000.001 | 28 | 10,6 |

Table 2 shows that 69.3% of respondents in this study were male. Nearly all respondents resided in Indonesia, accounting for 93.2% of the sample. In terms of age, the largest group was in the 20–24 year range, comprising 46.97% of respondents. The educational background of respondents was predominantly at the bachelor's degree (S1) level, which accounted for 48.5%. Regarding playing frequency, the largest proportion of respondents played *Last War: Survival* 4–6 times per week (43.9%). Meanwhile, monthly expenditure patterns indicate that the largest group (43.2%) spent between IDR 50,001 and IDR 250,000 on in-game purchases.

**Table 3.** Results of Outer Model Reliability Testing

| Variable | Cronbach's Alpha | Composite Reliability |
|---|---|---|
| Competitive attitude (CA) | 0,285 | 0,608 |
| In-game impulse purchase (IP) | 0,891 | 0,909 |

| Variable | Cronbach's Alpha | Composite Reliability |
|---|---|---|
| The need for popularity (NFP) | 0,896 | 0,913 |
| Social Competence (SC) | 0,454 | 0,672 |

Based on the reliability test results presented in **Table 4.2**, *in-game impulse purchase* (IP) and *the need for popularity* (NFP) demonstrate very good reliability, as indicated by Cronbach's Alpha and Composite Reliability (CR) values that are entirely above the minimum threshold of 0.70 (Hair et al., 2021). In contrast, *competitive attitude* (CA) and *social competence* (SC) exhibit reliability values below the recommended standard, with Cronbach's Alpha and CR not yet reaching 0.70. Nevertheless, both variables were retained because their indicators are grounded in strong theoretical foundations and play important roles within the research model. In addition, Hair et al. (2021) state that constructs with reliability values approaching 0.70 may still be considered acceptable for further analysis.

**Table 4.** Results of Convergent Validity Testing of the Outer Model Using Outer Loadings and AVE

| Variable | Indicator | Outer Loading | Average Variance Extracted (AVE) |
|---|---|---|---|
| Competitive attitude (CA) | CA1 | 0,509 | 0,263 |
| | CA2 | 0,530 | |
| | CA3 | 0,295 | |
| | CA4 | 0,273 | |
| | CA5 | 0,782 | |
| In-game impulse purchase (IP) | IP1 | 0,508 | 0.457 |
| | IP2 | 0,648 | |
| | IP3 | 0,652 | |
| | IP4 | 0,709 | |
| | IP5 | 0,686 | |
| | IP6 | 0,721 | |
| | IP7 | 0,732 | |
| | IP8 | 0,648 | |
| | IP9 | 0,635 | |
| | IP10 | 0,704 | |
| | IP11 | 0,698 | |
| | IP12 | 0,741 | |
| The need for popularity (NFP) | NFP1 | 0,696 | 0,470 |
| | NFP2 | 0,770 | |
| | NFP3 | 0,779 | |
| | NFP4 | 0,572 | |
| | NFP5 | 0,751 | |
| | NFP6 | 0,685 | |
| | NFP7 | 0,628 | |
| | NFP8 | 0,635 | |
| | NFP9 | 0,635 | |

| Variable | Indicator | Outer Loading | Average Variance Extracted (AVE) |
|---|---|---|---|
| | NFP10 | 0,597 | |
| | NFP11 | 0,715 | |
| | NFP12 | 0,726 | |
| Social Competence (SC) | SC1 | 0,289 | 0,266 |
| | SC2 | 0,559 | |
| | SC3 | 0,379 | |
| | SC4 | 0,619 | |
| | SC5 | 0,638 | |
| | SC6 | 0,518 | |

Based on the convergent validity test results shown in Table 4 none of the variables achieved an average variance extracted (AVE) value of ≥ 0.50, as recommended by Hair et al. (2021). *Competitive attitude* (CA) and *social competence* (SC) exhibit the lowest AVE values (0.263 and 0.266), reflecting a limited ability to explain the variance of their indicators. This finding is consistent with several weak outer loading values, such as CA3, CA4, SC1, and SC3. Meanwhile, *in-game impulse purchase* (IP) and *the need for popularity* (NFP) demonstrate relatively higher AVE values (0.457 and 0.470), and most of their indicators have loadings above 0.6, indicating that these constructs are still represented with reasonable consistency.

According to Hair et al. (2021), AVE values below 0.50 may still be acceptable if the construct has composite reliability (CR) values close to 0.70 and the indicators are empirically adequate. In this study, all four constructs are theoretically well-established and play substantive roles in the research model; therefore, removing variables or indicators could potentially reduce conceptual validity. Consequently, all latent variables were retained for further testing at the discriminant validity stage and for inner model analysis, even though AVE values were not fully ideal.

**Table 5.** Results of Discriminant Validity Testing of the Outer Model Using HTMT

| Variable | CA | IP | NFP | SC x NFP |
|---|---|---|---|---|
| CA | | | | |
| IP | 0,431 | | | |
| NFP | 1.125 | 0.359 | | |
| SC | 1.152 | 0.670 | 0.584 | |
| SC x NFP | 0.276 | 0.148 | 0.110 | |

Based on the results presented in Table 5 most construct pairs meet the Heterotrait–Monotrait (HTMT) ratio criterion of < 0.90, such as the relationships between *in-game impulse purchase* (IP) and *the need for popularity* (NFP) (HTMT = 0.359), *in-game impulse purchase* (IP) and

*social competence* (SC) (HTMT = 0.670), and *the need for popularity* (NFP) and *social competence* (SC) (HTMT = 0.584). These results indicate that the three constructs demonstrate good discriminant validity and do not substantially overlap in their measurement.

However, two relationships exhibit HTMT values greater than 0.90, namely *competitive attitude* (CA) with *the need for popularity* (NFP) (HTMT = 1.125) and *competitive attitude* (CA) with *social competence* (SC) (HTMT = 1.152). Values exceeding this threshold suggest conceptual proximity among *competitive attitude*, *the need for popularity*, and *social competence*. Theoretically, this condition can be explained by the fact that competitive attitudes are often associated with the desire for social recognition as well as with proficiency in social interaction. Despite the elevated HTMT values, the CA construct was retained because it plays a critical theoretical role in the model, and there was no indication of serious multicollinearity within the structural model.

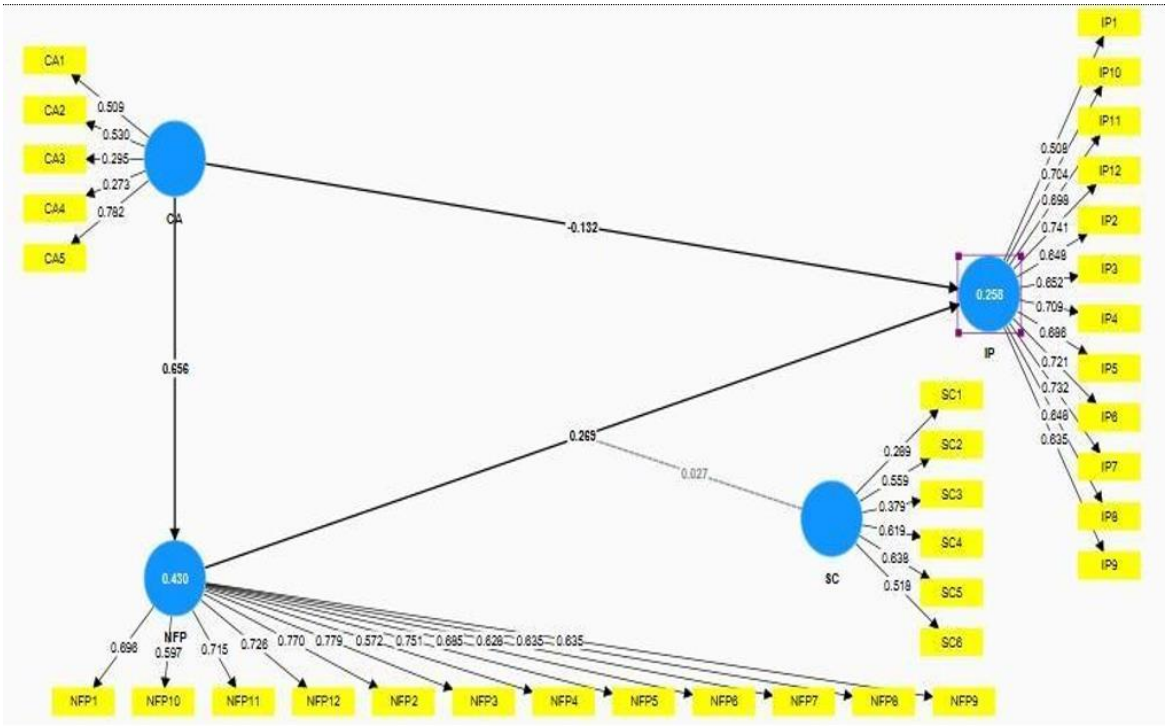


**Figure 1.** Results of Structural Model (Inner Model) Testing Using PLS-SEM

The PLS-SEM structural model diagram in **Figure 1** illustrates how *competitive attitude* (CA), *the need for popularity* (NFP), *social competence* (SC), and *in-game impulse purchase* (IP) are interrelated in explaining the impulsive purchasing behavior of *Last War: Survival* players. On the left side of the model, CA functions as the primary predictor leading to NFP, with a path

coefficient value of 0.686. This value indicates a strong positive relationship, meaning that the stronger a player's competitive drive, the greater their need to attain popularity and social recognition within the game. This finding is consistent with social comparison theory, which suggests that competition tends to encourage individuals to seek external validation.

The NFP construct subsequently plays a crucial role in stimulating impulsive purchases, as indicated by a path coefficient of 0.268 toward IP. This value reflects that players with a high need for popularity are more likely to purchase in-game items spontaneously as a rapid means of obtaining status, visibility, or recognition. Meanwhile, the direct path from CA to IP has a smaller coefficient, approximately 0.132. This indicates that the influence of competition on impulsive purchasing behavior is not particularly strong when operating directly, but becomes more dominant through the mediating mechanism of NFP. Additional calculations indicate that approximately 58% of the total effect of CA on IP is transmitted through NFP, allowing the mediating relationship in this model to be classified as substantial partial mediation.

On the other hand, the SC variable appears to exert a very small influence on IP, as indicated by a coefficient of approximately 0.027 and represented by a dashed line in the diagram. This suggests that players' real-world social abilities do not make a significant contribution to their tendency to engage in impulsive purchases within the game. In other words, whether a player possesses high or low social competence does not substantially affect their purchasing decisions in a virtual and competitive gaming environment.

The $R^2$ values of the two endogenous constructs also provide insight into the explanatory power of the model in accounting for variance in the dependent variables. An $R^2$ value of 0.430 for NFP indicates that approximately 43% of the variance in the need for popularity is explained by CA, a level that can be categorized as moderate to strong. Meanwhile, an $R^2$ value of 0.268 for IP indicates that approximately 26.8% of the variance in impulsive purchasing behavior is explained by the combined effects of CA, NFP, and SC. This value is considered moderate and suggests that there are still other variables outside the model that may influence players' impulsive purchasing behavior.

Overall, the diagram demonstrates that the most dominant pathway in the model is CA → NFP → IP, illustrating that players' competitive motivation tends to generate a need for popularity, which ultimately becomes the primary driver of impulsive purchasing behavior. The direct effect of CA on IP remains present but relatively small, while the contribution of SC is shown to be very weak. These findings strengthen the argument that social–psychological

mechanisms, particularly the need for recognition, play a major role in shaping digital purchasing decisions in games with aggressive monetization systems such as *Last War: Survival*.

Furthermore, to understand how each construct is manifested in player behavior, this study evaluates the dominant indicators that form each variable. For the *competitive attitude* variable, the findings indicate that the competitive stance of *Last War: Survival* players is represented by feelings of irritation when observing other players perform better, suggesting that competition is driven more by affective factors than by objective victory goals. Players interpret success as a relative position compared to other players rather than merely as the completion of in-game missions. Two other strong representations—namely the desire to outperform other players and the drive to consistently perform better than other players—reinforce the notion that social aspects are central to competitive motivation. Meanwhile, indicators related to objective victory are not as strong as those with social nuances. These findings suggest that competition within the game functions as an arena for self-affirmation; therefore, when a player's social position is threatened, an emotion-based corrective drive emerges. This drive has the potential to trigger impulsive behaviors, including the purchase of in-game items to restore or enhance status in the eyes of other players.

With regard to *the need for popularity* variable, the findings reveal that *Last War: Survival* players' desire to be well known is represented by the deliberate regulation of social interactions, including ignoring certain players, in order to appear more popular. Other representations, such as the tendency to reduce interactions due to concerns about being perceived as less popular and the importance of being viewed as popular by other players, emphasize that popularity functions as a significant form of social capital. This drive leads players to adjust their behavior, join influential groups, and follow in-game trends to maintain their status. Some player actions are also performative in nature, undertaken solely to preserve social image. In the context of consumption, the need for popularity is shown to encourage impulsive purchases of items with symbolic value, such as skins or exclusive accessories, which enhance social status and visibility. Thus, impulsive purchasing behavior is driven not only by functional needs but also by social pressure and the desire to maintain self-image within a competitive gaming ecosystem.

For the *social competence* variable, the findings show that the social competence of *Last War: Survival* players is represented by the ability to socialize with various types of players, indicating players' adaptive capacity in building interpersonal relationships within the game. This finding is reinforced by other representations that demonstrate a tendency to offer assistance

and to enjoy helping fellow players, both in individual missions and in team-based collaboration. This suggests that social competence in the game is understood as active behavior that contributes to community dynamics, rather than merely the ability to interact or share information. Although social competence does not directly trigger impulsive purchasing, high levels of social engagement expose players more frequently to group norms, trends in purchasing exclusive items, and paid activities that are popular among peers. This exposure may encourage the emergence of consumption behavior based on social conformity, particularly when players seek to maintain relationships, demonstrate solidarity, or align themselves with group standards.

Meanwhile, the *in-game impulse purchase* behavior of *Last War: Survival* players is represented by feelings of FOMO (*Fear of Missing Out*) when purchasing popular items solely because many other players own them, indicating the strong influence of social conformity and the need to maintain status. In addition to social factors, cognitive and situational aspects also play an important role. Product information presented in an appealing manner, visual promotions such as pop-ups, discounts, and limited-time offers are proven to trigger spontaneous purchasing decisions. Emotional conditions during gameplay, for instance when experiencing defeat or a shortage of resources, also increase the urge to make purchases as a form of compensation. These findings indicate that impulsive purchases do not merely arise from spontaneous decisions, but rather result from the interaction between social pressure, momentary emotions, and marketing strategies that exploit players' vulnerable moments.

**Table 6.** Hypothesis Testing

| Hypothesis | Path | Coefficient | T-value | P value | α | Result | Decision |
|---|---|---|---|---|---|---|---|
| H1 | CA -> IP | 0,176 | 2,832 | 0,005 | 0,05 | Significant | Hypothesis accepted |
| H2 | CA -> NFP | 0,656 | 15,791 | 0,000 | 0,05 | Significant | Hypothesis accepted |
| H3 | NFP -> IP | 0,269 | 2,879 | 0,004 | 0,05 | Significant | Hypothesis accepted |
| H4 | CA -> NFP -> IP | 0,177 | 2,832 | 0,005 | 0,05 | Significant | Hypothesis accepted |
| H5 | SC x NFP -> IP | 0,027 | 0,361 | 0,718 | 0,05 | Not significant | Hypothesis rejected |

Based on the bootstrapping results of the PLS-SEM structural model presented in Table 4.5, all hypotheses were tested by comparing the p-values with the significance level of α = 0.05. For H1 (CA → IP), the coefficient value of 0.176 with a t-value of 2.832 and a p-value of 0.005 (< 0.05) indicates that *competitive attitude* has a positive and significant effect on *in-game impulse purchase*; therefore, H1 is accepted. For H2 (CA → NFP), the path shows the largest coefficient

value of 0.656 with a t-value of 15.791 and a p-value of 0.000 (< 0.05), indicating a highly significant relationship, and thus the hypothesis is accepted. Furthermore, H3 (NFP → IP) is also significant, with a coefficient of 0.269, a t-value of 2.879, and a p-value of 0.004 (< 0.05), meaning that *the need for popularity* has a positive effect on *in-game impulse purchase*. For H4 (CA → NFP → IP), the mediating effect yields a coefficient of 0.177 with a t-value of 2.832 and a p-value of 0.005 (< 0.05), indicating that the mediation effect of *the need for popularity* is significant and the hypothesis is accepted. Meanwhile, H5 (SC × NFP → IP) shows a low coefficient value (0.027) with a t-value of 0.361 and a p-value of 0.718 (> 0.05), indicating that there is no moderating effect of *social competence* on the relationship between *the need for popularity* and *in-game impulse purchase*. Therefore, H5 is rejected. Overall, four hypotheses (H1–H4) are supported as significant because their p-values are below α, whereas one hypothesis (H5) is not supported due to its p-value being far above α.

**DISCUSSION**

Competitive attitude has a positive and significant effect on in-game impulse purchase among Last War: Survival players. The higher a player's level of competitive attitude, the greater their tendency to engage in spontaneous purchases within the game. Players with a strong competitive orientation tend to be driven to make sudden purchases in order to enhance their in-game performance and maintain a superior status among other players. This behavior emerges from the urge to preserve a dominant position as well as to obtain emotional satisfaction from achievements that can be quickly attained through the purchase of premium items. These findings are consistent with the study conducted by Cengiz et al. (2025), which found that competitive attitude has a direct relationship with impulsive purchasing behavior in games. The drive to compete creates a sense of urgency and a strong desire to immediately gain competitive advantages, making players more prone to making unplanned purchasing decisions. The results of Mahendra et al. (2025) also show that the higher an individual's competitive orientation, the greater their tendency to engage in impulsive purchases. This is due to increased emotional arousal and the urge to demonstrate dominance over other players within the gaming environment (Mahendra et al., 2025). Furthermore, Hamari (2015) explains that the purchase of virtual goods is not only driven by functional needs but also by emotional and social factors. In the context of competitive games, purchasing items often serves as a means of displaying players' status and capabilities in front of the gaming community.

*Competitive attitude* also has a positive and significant effect on *the need for popularity* among *Last War: Survival* players. The higher the level of a player's competitive attitude, the stronger their drive to be known, valued, and recognized by other players within the online gaming environment. Players with a strong competitive orientation do not focus solely on achieving victories, but also on constructing a social image that reflects their success and superiority in the eyes of the gaming community. Thus, competition in this context does not merely function as a means of demonstrating skill, but also serves as a mechanism for gaining social recognition and enhancing status within the game ecosystem.

These findings can be explained through *Social Comparison Theory* proposed by Festinger (1954), which posits that individuals have an inherent tendency to evaluate themselves by comparing their performance and standing with others. In the context of online gaming, this process of social comparison fosters the emergence of a need for popularity and recognition. Highly competitive players tend to strive to stand out within the gaming community by displaying achievements, rankings, and ownership of exclusive items that function as symbols of social status and prestige.

This finding is consistent with the study by Bakhsayesh et al. (2025) published in the *New Marketing Research Journal*, which found that competitive environments within gamified systems stimulate an increased need for social status and recognition. In this context, social interactions occurring within competitive systems in *Last War: Survival* play a critical role in shaping individuals' motivation to appear popular and to obtain social validation (Bakhsayesh et al., 2025). In other words, competition not only enhances performance motivation but also reinforces the need for self-presentation and recognition within the digital social environment.

The results of this study are also consistent with the findings of Ahn et al. (2020), who emphasized that social motivations—particularly the need for status and recognition—are key drivers of behavior among competitive players. Players with high levels of competitiveness tend to be more oriented toward how they are perceived by the community, leading to a stronger drive to build a positive reputation and social image within the game (Ahn et al., 2020). These results indicate that competition is not merely interpreted as an effort to achieve strategic victories, but also as a means of gaining social legitimacy among other players. Success in the game becomes a symbol of prestige that reinforces perceptions of popularity and social status within the digital environment.

*The need for popularity* also has a positive and significant effect on *in-game impulse purchase*. The stronger an individual's desire to be recognized and perceived as popular within the online gaming environment, the greater their tendency to engage in impulsive purchases of in-game items. This finding reinforces the view that in-game purchases are not driven solely by utilitarian functions, but also by social motivations related to gaining status and recognition.

This result can be explained through *Social Identity Theory* and *Self-Presentation Theory*, which suggest that individuals seek to present a desired self-image through social symbols (Goffman, 1959). In online games, these symbols are manifested in the form of exclusive skins, unique avatars, or rare items that signal players' social prestige. Accordingly, players with a high level of *need for popularity* are more likely to make impulsive purchases in order to strengthen their social identity within the gaming community.

Research by Cengiz et al. (2025) published in *Computers in Human Behavior* found that *the need for popularity* is a key predictor of impulsive purchasing behavior among competitive gamers. Players with strong social motivations exhibit a greater tendency to purchase virtual items to attract attention and gain recognition from fellow players. This finding is further supported by Hamari (2015), who explained that social motivations such as status, prestige, and popularity are primary drivers of virtual goods purchases, often surpassing the motivation for gameplay enjoyment itself.

Moreover, social needs and popularity play an important role in impulsive purchasing because social validation processes within gaming communities occur rapidly (Cai et al., 2022). When players observe friends or opponents possessing exclusive items, a spontaneous urge to purchase emerges as a means of maintaining comparable social standing. Wohn (2014) also observed that players often spend money impulsively when social interactions within games provide opportunities to reinforce their self-image. These findings confirm that, in the context of *Last War: Survival*, impulsive purchasing behavior cannot be separated from social factors. Players who seek to be recognized, admired, or perceived as high-achieving are more inclined to make spontaneous purchases to display visual and symbolic superiority within the game.

*The need for popularity* was also found to mediate the relationship between *competitive attitude* and *in-game impulse purchase*. This indicates that the influence of competitive attitude on impulsive purchasing behavior in games is channeled through social motivation, particularly through individuals' need to obtain recognition and popularity within the online gaming environment. In other words, players' desire to excel is not only expressed through gameplay

performance, but also through social symbols in the form of ownership of exclusive items that enhance status in the eyes of other players.

This finding aligns with the study conducted by Cengiz et al. (2025), which stated that *the need for popularity* fully mediates the relationship between competitive attitude and impulsive purchasing in games. The study explained that players with high competitive motivation tend to express their achievements not only through victories, but also through forms of social recognition within the gaming community. The purchase of virtual items serves as a status symbol that displays their superiority and prestige to other players.

These results are also consistent with the research of Hussain et al. (2025) in the *International Journal of Human–Computer Interaction*, which demonstrated that emotional and social experiences during gameplay strengthen the relationship between competitive motivation and impulsive purchasing behavior. In this context, *the need for popularity* functions as an affective pathway that bridges competitive drives and spontaneous purchasing decisions. Players who seek recognition or appreciation from the community are more easily driven to make unplanned purchases as a form of self-actualization (Hussain et al., 2025).

Furthermore, a study by Lu et al. (2025) published in *Current Psychology* found that social comparison arising from competitive interactions in games increases players' desire to maintain a popular image within online environments. This situation encourages individuals to engage in impulsive purchases as a way to preserve their social position or to match the achievements of other players (Lu et al., 2025). This finding is consistent with the results of An et al. (2024) in *Behavioral Sciences*, which emphasized that players often make spontaneous purchases due to the urge to reinforce loyalty, status, and social image within gaming communities.

Overall, these findings extend the understanding of the *Stimulus–Organism–Response (SOR)* model, in which *competitive attitude* (stimulus) generates a psychological response in the form of a social need to be recognized and valued (*organism*), which subsequently triggers impulsive purchasing behavior (*response*) (An et al., 2024). Thus, *the need for popularity* acts as a key psychological mechanism that transforms competitive motivation into consumptive behavior within digital environments.

*Social competence* was found to have no significant effect in moderating the relationship between *the need for popularity* and *in-game impulse purchase*. Social competence neither strengthens nor weakens the relationship between the need to be popular and impulsive purchasing behavior among *Last War: Survival* players. In other words, players with both high and

low levels of social competence exhibit relatively similar tendencies to engage in impulsive purchases driven by the need for popularity.

Theoretically, the expected direction of this relationship is negative, meaning that the higher a player's social competence, the weaker the influence of *the need for popularity* on impulsive purchasing behavior. This assumption is based on stronger self-regulation abilities, stable social acceptance in the real world, and reduced dependence on symbolic recognition in virtual environments. However, the findings of this study indicate that within the context of *Last War: Survival*, the motivation to stand out in online communities, display achievements, and reinforce social status through the ownership of exclusive items applies to all players regardless of their level of social competence. Thus, *the need for popularity* functions as an independent and primary driver of impulsive purchasing behavior, while *social competence* does not significantly moderate this relationship.

This result is consistent with the findings of Shen (2025), which demonstrate that in online gaming environments, social factors such as a sense of belonging, group pressure, and the desire to maintain social standing exert a stronger influence on impulsive purchasing behavior than players' actual social abilities. Ranking systems, direct interaction features, and competitive mechanisms within games encourage consumptive behavior without significant moderation from other psychological variables (Shen, 2025).

On the other hand, this finding differs from the study by Cengiz et al. (2025), which identified a significant negative moderating effect of social competence. In their study, players with high social competence tended to have less need for social validation from virtual environments, thereby weakening the effect of *the need for popularity* on *in-game impulse purchase*. They emphasized that deficits in social competence increase reliance on the gaming world to obtain social recognition, which ultimately intensifies impulsive purchasing behavior (Cengiz et al., 2025).

Huang and Mohamad (2025) also found that social interaction and social presence in the context of live-streaming commerce can trigger impulsive purchases; however, this effect weakens among individuals with high social competence. This suggests that individuals who feel socially accepted in real-world contexts are less likely to seek social compensation through digital consumption (Huang & Mohamad, 2025). This argument is further reinforced by the study of Artadita and Firmialy (2024), which found that self-control and social capacity are associated with the ability to restrain impulsive urges in online games. This concept aligns with the role of social

competence in regulating consumptive impulses arising from social pressure and the desire to be popular (Artadita & Firmialy, 2024).

Furthermore, Kaur and Sharma (2024) emphasized that social competence and *the need for popularity* are two psychosocial factors that frequently interact in shaping digital impulsive purchasing behavior. They noted that individuals with high social competence tend to be more aware of the social motives underlying online consumption and are therefore better able to control their impulsive urges (Kaur & Sharma, 2024). Nevertheless, in the present study, contextual factors specific to *Last War: Survival* appear to be more dominant. This game exhibits strong competitive social dynamics through features such as leaderboards, guilds, and real-time alliance battles, which inherently foster competitive social behavior even among individuals with high social competence.

## 5. CONCLUSION

This study examined the psychological and social mechanisms underlying in-game impulse purchasing among Last War: Survival players. The findings demonstrate that impulsive purchasing behavior in this hyper-competitive game environment is predominantly driven by psychosocial motivations, particularly competitive attitude and the need for popularity. Competitive attitude significantly increases players' need for popularity, which in turn strongly stimulates impulsive purchasing behavior, confirming the mediating role of popularity in the competition–purchase relationship. In addition, competitive attitude was found to exert a direct and significant effect on impulse purchasing, indicating that competition operates both directly and indirectly in shaping consumption behavior.

A key theoretical contribution of this study lies in the rejection of the moderating role of social competence. Contrary to prior assumptions that social competence may buffer individuals from status-driven consumption, the findings suggest that in hyper-competitive virtual environments, social pressure toward status-based consumption operates in an "egalitarian" manner. Such pressure appears sufficiently strong to override individual differences in real-world social skills, affecting players with both high and low levels of social competence. This result extends the literature on digital consumer behavior by providing empirical support for Social Comparison Theory and Symbolic Consumption Theory within the context of an aggressive freemium monetization model.

From a managerial perspective, the findings offer important implications for game developers. Rather than relying primarily on price-based promotions, monetization strategies should emphasize social–psychological mechanisms. Developers are encouraged to design and market virtual items with strong symbolic and status value, such as exclusive avatar frames, alliance emblems, or prestige-themed decorations, to satisfy players' need for popularity. Furthermore, the optimization of healthy competitive systems, including seasonal leaderboards and inter-alliance tournaments, can serve as effective triggers for emotion-based and status-driven purchasing behavior.

## LIMITATION

This study has several limitations. First, the cross-sectional research design captures player behavior at a single point in time and does not allow for the examination of long-term causal dynamics. Second, the focus on a single game title, Last War: Survival, limits the generalizability of the findings to other game genres that may exhibit different social and competitive structures. Third, the use of self-reported survey data may be subject to perceptual and social desirability biases.

Future research is therefore encouraged to replicate the proposed model across different game genres, such as MOBA or casual games, to assess the contextual robustness of the findings, particularly the rejection of the moderating effect of social competence. Longitudinal research designs are also recommended to capture how the relationships among competition, popularity, and purchasing behavior evolve over time. Additionally, mixed-method approaches incorporating qualitative interviews could provide deeper insights into emotional and symbolic motivations that may not be fully captured through quantitative methods.

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