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Factors Affecting Engagement and Purchase Intention among Chinese Gamers: A Case Study of Leading Massively Multiplayer Online Role-Playing Games

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Abstract

Purpose: This study investigates the key factors influencing user engagement and purchase intention among Chinese players of the top five MMORPGs. The conceptual framework examines the relationships among Social Ties (ST), Social Identity (SI), User Engagement (UE), Enjoyment Value (EV), Dedication (DED), Vigor (VIG), and Purchase Intention (PI). **Research design, data and methodology:** A quantitative design was used, featuring a structured questionnaire administered to 500 active MMORPG players in mainland China in 2023. Non-probability sampling methods included judgmental sampling to select the games, proportional quota sampling for respondents, and convenience sampling through the online platform. Structural equation modeling (SEM) and confirmatory factor analysis (CFA) in AMOS assessed model fit, reliability, and construct validity. **Results:** Social ties and social identity positively affected user engagement, which in turn strongly predicted purchase intention. Enjoyment value, dedication, and vigor also significantly influenced purchase intention. Dedication emerged as the strongest predictor, followed by vigor and enjoyment value. **Conclusions:** All six research hypotheses were supported, confirming the model's validity in explaining spending behavior among Chinese MMORPG players. The study recommends that developers strengthen community features, design engaging content to enhance dedication and vigor, and implement value-driven microtransactions to foster engagement, thereby promoting sustainable revenue and long-term player satisfaction.

Keywords: User Engagement, Purchase Intention, Chinese Gamers, MMORPG

JEL Classification Code: L82, M30, O14, O30

1. Introduction

In recent years, the gaming industry has experienced unprecedented global growth, positioning itself as a major pillar within the digital entertainment sector. Among various gaming genres, Massively Multiplayer Online Role-Playing Games (MMORPGs) have become particularly prominent due to their highly interactive nature, engaging gameplay, and complex social ecosystems. Notably, China has rapidly ascended as one of the largest and most influential gaming markets worldwide, underscored by impressive financial performance and a massive user base. MMORPGs, known for their deep narrative structures, sophisticated mechanics, and interactive community-building capabilities, have

attracted millions of players in China, profoundly shaping their gaming habits and consumption behaviors (Game Publishing Committee, 2024; Niko Partners, 2023).

A key driver of player engagement in MMORPGs is the development and maintenance of social relationships within the game world. These relationships foster a sense of community and belonging, contributing to player retention, active participation, and financial investment in the game ecosystem (Hermawan et al., 2023). Similarly, group membership and identity within virtual communities influence players' attitudes and behaviors, strengthening their commitment to gameplay and encouraging ongoing participation (Hollebeek et al., 2014; Tajfel & Turner, 1979).

Beyond social factors, emotional and psychological

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experiences also play a crucial role in shaping player behaviors and monetization outcomes. Enjoyment, commitment, and energy invested by players can significantly influence their spending habits, as players often seek to extend or enrich their gaming experiences through in-game purchases (Brodie et al., 2013; Csikszentmihalyi, 1990; Nguyen et al., 2025).

Despite considerable exploration of these factors in Western gaming contexts, a notable research gap persists regarding their applicability within the Chinese gaming market, which is marked by unique cultural attributes and consumer behaviors. Given China's collectivist culture and the rapidly evolving dynamics of its gaming industry, localized research is critically needed to understand the specific user behaviors and motivations of Chinese players. Previous studies have largely overlooked the nuanced interplay of cultural, social, and economic factors unique to China, limiting the transferability of insights from Western contexts to Chinese players. Addressing this gap requires empirical investigation specifically tailored to the Chinese MMORPG community, thereby enhancing both theoretical understanding and practical implications within this distinct environment (Nguyen et al., 2025; Van Doorn et al., 2010).

Consequently, this research aims to bridge the existing academic gap by comprehensively examining how social ties, social identity, user engagement, enjoyment value, dedication, and vigor collectively influence purchase intentions among players of China's top five MMORPGs. Through rigorous empirical analysis, the study seeks to delineate clear linkages between these critical constructs, providing valuable insights to both scholars and industry professionals. Ultimately, this research endeavors to contribute to a deeper understanding of MMORPG player behaviors and motivations in China, offering strategic guidance for game developers, marketers, and policymakers seeking to optimize player engagement and monetization strategies within this dynamic and culturally unique gaming landscape.

2. Literature Review

2.1 Factors Affecting User Engagement and Purchase Intention

Hollebeek et al. (2014) define user engagement as a multidimensional construct encompassing cognitive, emotional, and behavioral investments, highlighting its significance in shaping consumer attitudes and behaviors in digital environments. They argue that heightened engagement positively impacts retention and commercial success by influencing users' continued participation and financial investment in online gaming. Hermawan et al.

(2023) similarly emphasize engagement's role in sustaining player interest, fostering immersive experiences, and enhancing monetization potential. Brodie et al. (2013) also underscore user engagement's importance, particularly its emotional and psychological dimensions, in driving players' purchase intentions.

Kim et al. (2025) define social ties as interpersonal relationships and collaborative interactions that emerge within online gaming communities. They contend that these connections enhance engagement by providing social support and fostering loyalty. Hollebeek et al. (2014) support this view, noting that strong social networks reinforce player retention and spending by deepening social bonds. Tajfel and Turner (1979) further highlight that social ties promote group cohesion, strengthen emotional connections, and amplify commitment to shared gaming experiences, all of which boost engagement.

Tajfel and Turner (1979) define social identity as an individual's self-concept based on perceived membership within a group, significantly shaping attitudes and behaviors. They argue that strong social identity enhances group cohesion and intensifies engagement in online communities. Hollebeek et al. (2014) confirm that heightened social identity fosters deeper engagement, strengthening user retention and monetization. Hermawan et al. (2023) also observe that players who strongly identify with their virtual communities show greater emotional investment, increasing their engagement and spending.

Csikszentmihalyi (1990) defines enjoyment value as the intrinsic pleasure and satisfaction derived from active participation in activities, emphasizing its role in sustaining engagement. Nguyen et al. (2025) highlight enjoyment's influence on purchase intentions, showing that satisfying gaming experiences encourage players to invest financially. Brodie et al. (2013) similarly note that enjoyment boosts emotional investment and, in turn, spending behaviors. Van Doorn et al. (2010) assert that enjoyment is crucial for maintaining engagement and promoting long-term retention.

García-Ruiz and Llorens-Molina (2022) describe dedication as the psychological and emotional commitment players exhibit toward gaming activities, driving sustained gameplay and purchase intentions. They argue that highly dedicated players spend more time and resources in games. Hollebeek et al. (2014) support this view, emphasizing dedication's critical role in player retention and financial investment. Van Doorn et al. (2010) also find dedication closely tied to prolonged engagement and increased spending.

Schaufeli et al. (2002) define vigor as the energy and enthusiasm players bring to gaming activities, sustaining active participation. They argue that vigor enhances engagement by maintaining high levels of enthusiasm. García-Ruiz and Llorens-Molina (2022) find that players

with high vigor levels are more likely to make financial investments due to their active involvement. Brodie et al. (2013) reinforce this perspective, linking vigor to continuous engagement and spending. Hermawan et al. (2023) also assert that energetic involvement significantly enhances engagement and monetization

Purchase intention refers to a player's willingness to buy in-game items, premium features, or other paid content within the gaming platform. It captures the likelihood that a player will spend money to enhance their gaming experience, driven by factors such as engagement, enjoyment, dedication, and vigor (Hamari et al., 2017).

By synthesizing insights on social ties, social identity, enjoyment value, dedication, and vigor, this research systematically investigates the factors influencing user engagement and purchase intention among MMORPG players in China, clarifying their interconnected roles in shaping player behaviors and monetization outcomes.

2.2 Research Hypothesis and Relationship between Variables

2.2.1 Relationship between Social Ties and User Engagement

Social-Exchange Theory suggests that online gaming relationships persist when perceived benefits exceed costs, creating a cycle of mutually rewarding interactions that sustain player participation (Huang et al., 2017). Empirical evidence consistently shows that strong social ties within MMORPGs enhance player engagement by fostering support networks, collaborative gameplay, and a sense of belonging. For instance, Shao et al. (2022) found that players with extensive bonding and bridging ties reported longer weekly play hours and greater participation in cooperative quests. Kim et al. (2025) similarly revealed that expanded gaming-related friendships reinforce sustained engagement by providing emotional and instrumental support.

Longitudinal studies deepen this understanding. Zhong and Xu (2018) demonstrated that dependable guild support not only enhances affective experiences but also drives continued commitment, while Wang and Zhang (2018) highlighted the role of reciprocity in fostering sustained co-creation activities within gaming communities. Collectively, these studies underscore that social ties are a powerful predictor of user engagement, energizing, focusing, and sustaining participation across cognitive, emotional, and behavioral dimensions:

H1: Social ties significantly affect user engagement.

2.2.2 Relationship between Social Identity and User Engagement

Social Identity Theory emphasizes that identification with valued groups shapes individual behaviors, attitudes, and affective states (Tajfel & Turner, 1979). Within MMORPGs, players' identification with guilds, factions, or communities fosters cooperative behavior and enhances game commitment. For example, Kim et al. (2025) observed that avatar-based identity correlates with increased cooperative questing and extended weekly sessions. Treppe and Reinecke (2011) demonstrated that stronger avatar-self overlap boosts enjoyment and intention to continue playing, reinforcing the significance of identity for sustained engagement.

Further studies emphasize that identity strengthens the social presence and motivation that sustain dedication. Fu and Lu (2021) reported that alignment with guild objectives leads to higher voice-chat participation and longer nightly sessions, while Hussein and Hassan (2017) found that identity-driven flow mediates the path to micro-transactions and prolonged play. In Chinese MMORPG communities, group pride and social identity were shown to positively correlate with longer session times and richer in-game communication (Huang et al., 2017; Liu & Huang, 2017). Together, these findings highlight that social identity fosters cognitive, emotional, and behavioral engagement, making it a key driver of sustained participation:

H2: Social identity significantly affects user engagement.

2.2.3 Relationship between User Engagement and Purchase Intention

User engagement serves as a critical link between immersive gameplay and purchasing behavior. Cheung et al. (2015) found that engaged players exhibit a stronger willingness to invest in virtual items and upgrades that enhance the gaming experience. Hamari et al. (2014) similarly noted that highly engaged players develop psychological attachments that translate into economic action. Flow Theory further explains that a balanced challenge-skill ratio triggers a state of flow that enhances trust in the game economy, thereby boosting purchase intention (Csikszentmihalyi, 1975; Hsiao & Chen, 2016).

Multiple studies consistently demonstrate that higher engagement levels predict more frequent and larger spending than lower engagement levels (Huang & Chang, 2019). Cognitive and emotional dimensions of engagement jointly explain substantial variance in purchase intention, as shown in studies by Li et al. (2016) and Jiang and Yao (2018). Cultural factors in China's collectivist gaming environment also play a role, with engaged players purchasing cosmetic items or power-ups to maintain group status and support guild progress (Huang et al., 2017). These findings underscore that user engagement is a reliable

predictor of spending behavior:

H3: User engagement significantly affects purchase intention.

2.2.4 Relationship between Enjoyment Value and Purchase Intention

The pleasure and satisfaction derived from gaming are key motivators for spending. Survey studies among Chinese gamers reveal that perceived enjoyment strongly predicts willingness to buy virtual items and premium content (Jiang & Liang, 2018; Lee et al., 2017). Experimental research confirms that higher enjoyment levels increase intentions to purchase in-game currency and cosmetics (Li & Chen, 2019; Wu & Fang, 2017). Longitudinal studies show that players with higher enjoyment value build larger virtual-goods baskets and higher spending per session (Zhang & Wang, 2020).

Uses-and-Gratifications Theory frames enjoyment as a stimulus that fulfills entertainment needs and drives purchasing via positive affect (Katz et al., 1974; Wang & Chen, 2020). Flow Theory adds that immersive gameplay enhances arousal and motivates purchases to sustain that experience (Csikszentmihalyi, 1990; Hussein & Hassan, 2017). Meta-analyses by Hamari et al. (2017) confirm that enjoyment-driven engagement mediates the path to purchases across digital contexts. Additional research highlights that customizable avatars, cooperative quests, and social interaction enhance enjoyment, encouraging players to invest in features that enrich their experiences (Okazaki & Yagüe, 2012; Rintala & Suhonen, 2019). Building on these insights, the present study proposes the following hypothesis:

H4: Enjoyment value significantly affects purchase intention.

2.2.5 Relationship between Dedication and Purchase Intention

Dedication, or the psychological commitment players exhibit toward gaming, strongly predicts purchase behaviors. Cheung et al. (2015) found that dedication drives sustained engagement and in-game spending. Survey studies reveal that dedication surpasses enjoyment and social influence in explaining cosmetic item purchases (Huang et al., 2017). In brand-community settings, dedication emerges as a key factor influencing both direct and mediated purchase intention (Chung & Koo, 2022; Zhang & Kaufman, 2019).

Longitudinal gameplay research shows that time and effort invested in character advancement correlate with higher micro-transaction frequencies (Hilvert-Bruce et al., 2018). Game design elements such as social reinforcement, achievement recognition, and fair monetization schemes further strengthen dedication and its link to purchases (Kim & Ahn, 2021; Park et al., 2019). Collectively, these findings

highlight dedication as a key driver of economic action in gaming contexts:

H5: Dedication significantly affects purchase intention.

2.2.6 Relationship between Vigor and Purchase Intention

Vigor, or players' energetic enthusiasm during gameplay, also drives spending behavior. Flow Theory proposes that high-energy states intensify intrinsic rewards and motivate purchases to prolong that state (Csikszentmihalyi, 1990; Hamari et al., 2017). Hussein and Hassan (2017) identified flow-driven vigor as the strongest predictor of in-app purchase intention, surpassing even social and hedonic gratifications.

Empirical studies show that high-vigor players seek upgrades that maintain momentum and enhance challenges, leading to increased spending on cosmetic items, power-ups, and experience boosters (Huang & Chang, 2019; Sun et al., 2018). Research in VR and e-retail contexts finds similar vigor-purchase links, underscoring the generalizability of this relationship (Liao et al., 2019; Rahman et al., 2021). Game features like real-time feedback, leaderboard recognition, and cooperative challenges amplify vigor, creating a high-vitality-high-reward loop that fuels spending (Del Libano et al., 2012). Building on this evidence, the present study proposes the following hypothesis:

H6: Vigor significantly affects purchase intention.

3. Research Methods and Materials

3.1 Research Framework

The foundational theories referenced in this study include Flow Theory proposed by Csikszentmihalyi (1975), the Technology Acceptance Model (TAM) developed by Davis (1989), Social Exchange Theory (SET) articulated by Homans (1958) and refined by Coyle-Shapiro and Diehl (2018) and Uses and Gratifications (U&G) Theory formulated by Katz et al. (1974). Building on these interconnected perspectives, the researcher devised the conceptual framework depicted in Figure 1 to explain the engagement-purchase pathways among Chinese MMORPG players in contemporary digital contexts.

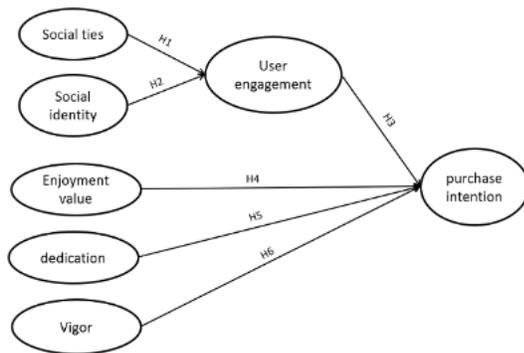


Figure 1: Conceptual Framework

Figure 1 presents the conceptual framework, which investigates how Social Ties (ST), Social Identity (SI), Enjoyment Value (EV), Dedication (DED), Vigor (VIG), and User Engagement (UE) collectively shape Purchase Intention (PI) in the five leading Chinese MMORPGs. These variables are linked through causal paths grounded in the theories, allowing the model to trace how relational and hedonic drivers (Van Doorn et al., 2010) stimulate energy, commitment, and immersion, ultimately converting into transactional behavior. Examining these constructs helps clarify the mechanisms through which Chinese MMORPG ecosystems generate revenue.

3.2 Research Methodology

This study adopts a quantitative, cross-sectional design to examine the proposed framework among active Chinese MMORPG players. A convenience-based, proportionally stratified sampling method will be used to recruit approximately 500 respondents through Wenjuanxing. This platform is well-suited for large-scale online surveys (Evans & Mathur, 2005). Screening questions will ensure participants have played their primary game continuously for at least six months. Demographic items will capture gender, age, and the primary MMORPG played.

The self-administered questionnaire comprises three sections. Section I contains screening questions to verify eligibility. Section II includes 21 Likert-scale items (ranging from 1 = strongly disagree to 5 = strongly agree) to measure all study constructs. These items are adapted from established gaming scales and back-translated for linguistic accuracy (Brislin, 1986). Section III collects demographic information. A pilot test with 30 respondents will assess item clarity, and expert Item-Objective Congruence (IOC) checks will be conducted following Turner and Carlson’s (2003) procedure. The IOC values for all items exceeded the recommended threshold of 0.67, indicating satisfactory content validity.

The sample size aligns with Westland’s (2010) recommendation of at least ten observations per estimated parameter. Internal consistency will be assessed using Cronbach’s alpha, with values of $\alpha \geq .70$ considered acceptable (Raykov, 1997). Convergent and discriminant validity will be evaluated through confirmatory factor analysis in AMOS, following Anderson and Gerbing’s (1988) two-step approach. Model fit will be assessed using CFI, TLI, and RMSEA thresholds (Bentler, 1990). Structural equation modeling will be employed to examine both direct and mediated pathways. Bias-corrected bootstrap tests will be used to assess indirect effects.

Ethical approval is sought from the university’s review board. All participants have provided informed consent before completing the questionnaire.

3.3 Population and Sample Size

Using a multi-stage sampling scheme that combined purposive, stratified-random, and convenience sampling, the researchers recruited active players of China’s five leading MMORPGs through the Wenjuanxing platform. Questionnaires were distributed proportionally to each title’s 2023 Daily Active User (DAU) share, following Cochran’s allocation principle.

Table 1: Sample Units and Sample Size

MMORPG title	Latest DAU (millions)	Proportional Sample Size
Fantasy Westward Journey	3.5	75
Moonlight Blade	4.8	103
Jian Wang 3	2.9	62
Justice Online	6.7	144
World of Warcraft (CN)	5.4	116
Total	23.3	500

Source: Gamma Data (2024); Niko Partners (2023).

Between January and December 2023, 500 qualified questionnaires were collected following automated IP verification and inclusion checks. Criteria required participants to have at least three hours of weekly play, active guild involvement, a history of micro-transactions, and a minimum six-month tenure with the game.

The final sample included adult Chinese players from Fantasy Westward Journey, Moonlight Blade, Jian Wang 3, Justice Online, and World of Warcraft. These respondents represent approximately 23.3 million DAU across diverse provincial gaming hubs. Community moderators and influencer guild leaders (Gill et al., 2010) helped promote the anonymous Wenjuanxing survey, encouraging players to participate fully and honestly.

4. Results and Discussion

4.1 Demographic Information

Demographic data were collected on respondents' gender, age, weekly MMORPG playtime, guild participation, and recent purchase behavior, variables frequently highlighted as relevant in online gaming engagement research (Cheung et al., 2015; Yee, 2006;). A total of 500 valid questionnaires were analyzed.

As shown in Table 2, males accounted for 82.6% of the sample, consistent with the gender skew often reported in Chinese MMORPG populations (Wu & Chen, 2022). Most players (73.4%) were between 18 and 44 years old, an age group recognized for the highest levels of digital consumption in China's gaming market (Game Publishing Committee, 2024). More than two-thirds of participants (69.0%) had made at least one in-game purchase in the preceding six months. Additionally, 70.2% reported active guild membership, indicating robust social networks that can foster sustained engagement and spending (Yee, 2006).

Weekly playtime was substantial: 67.8% of respondents reported playing at least three hours per week, with nearly one-third (32.2%) exceeding eight hours weekly. These figures confirm that the study effectively captured a cohort of highly involved MMORPG players whose behavioral profiles align well with the study's focus on engagement and purchase intention relationships.

Table 2: Demographic Profile of Respondents (N = 500)

Demographic and General Data (N=500)		Frequency	Percentage
Gender	Male	413	82.6
	Female	87	17.4
Age	18-24 years old	131	26.2

Demographic and General Data (N=500)		Frequency	Percentage
	25-34 years old	123	24.6
	35-44 years old	113	22.6
	45-54 years old	77	15.4
	55-64 years old	45	9.0
	≥ 65 years old	11	2.2
Weekly Playtime	≤ 3 hours	155	31.0
	3-7 hours	184	36.8
	≥ 8 hours	161	32.2
Guild Membership	Yes	351	70.2
	No	149	29.8
Paid Content in the Last 6 Months	Yes	345	69.0
	No	155	31.0

Note: Constructed by the Author

4.2 Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) was conducted using AMOS to evaluate the adequacy of the seven-factor measurement model comprising social ties (ST), social identity (SI), enjoyment value (EV), dedication (DED), vigor (VIG), user engagement (UE), and purchase intention (PI). All 21 items loaded significantly onto their respective latent constructs ($p < .001$), with standardized loadings ranging from 0.698 to 0.804, well above the recommended benchmark of 0.50 (Hair et al., 2010).

Composite reliability (CR) values (.796-.835) and average variance extracted (AVE) values (.565-.628) for each construct exceeded the recommended thresholds of 0.70 and 0.50, respectively (Fornell & Larcker, 1981). Cronbach's alpha coefficients (.794-.835) further confirmed acceptable internal consistency across all scales. These results demonstrate that the measurement model achieved satisfactory convergent validity.

Table 3: Confirmatory Factor Analysis (CFA), Composite Reliability (CR), and Average Variance Extracted (AVE) Results

Variable	Source of Questionnaire (Measurement Indicator)	No. of Item	Cronbach's Alpha	Factor Loading	CR	AVE
Social Ties (ST)	Wei and Lu (2014)	3	0.835	0.779-0.804	0.835	0.628
Social Identity (SI)	Wei and Lu (2014)	3	0.794	0.698-0.779	0.796	0.565
Enjoyment Value (EV)	Le and Vo (2020)	3	0.822	0.774-0.785	0.822	0.606
Dedication (DED)	Tao et al. (2017)	3	0.812	0.764-0.776	0.812	0.591
Vigor (VIG)	Tao et al. (2017)	3	0.830	0.778-0.795	0.830	0.620
User Engagement (UE)	Wei and Lu (2014)	3	0.812	0.749-0.793	0.813	0.591
Purchase Intention (PI)	Sun et al. (2018)	3	0.823	0.776-0.782	0.823	0.608

Note: CR = Composite Reliability, AVE = Average Variance Extracted

Discriminant validity was verified by comparing the square root of each construct's AVE with its inter-construct correlations.

As shown in Table 4, each diagonal element is larger than its corresponding off-diagonal correlations, fulfilling the Fornell-Larcker criterion.

Table 4: Discriminant Validity

Variable	Factor Correlations						
	ST	SI	EV	DED	VIG	UE	PI
ST	0.792						
SI	0.407	0.752					
EV	0.451	0.379	0.778				
DED	0.453	0.458	0.387	0.769			
VIG	0.475	0.438	0.467	0.442	0.787		
UE	0.526	0.393	0.375	0.491	0.480	0.769	
PI	0.512	0.484	0.443	0.546	0.474	0.492	0.779

Note: The diagonally listed value is the AVE square roots of the variables

Model-fit diagnostics indicated that the measurement model demonstrated acceptable fit: CMIN/df = 1.271, GFI = .958, AGFI = .943, NFI = .955, CFI = .990, TLI = .987, and RMSEA = .023. These values met or exceeded recommended thresholds. Collectively, these results confirm that the CFA model possesses robust reliability, convergent validity, discriminant validity, and overall goodness of fit.

Table 5: Goodness of Fit for Confirmatory Factor Analysis

Index	Criterion	Statistical Value
CMIN/DF	< 5 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	1.271
GFI	≥ 0.80 (Baumgartner & Homburg, 1996)	0.958
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.943
NFI	≥ 0.80 (Wu & Wang, 2006)	0.955
CFI	≥ 0.80 (Wu & Wang, 2006)	0.990
TLI	≥ 0.80 (Wu & Wang, 2006)	0.987
RMSEA	< 0.08 (Hu & Bentler, 1999)	0.023

Note: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI = normalized fit index, CFI = comparative fit index, TLI = Tucker Lewis index and RMSEA = root mean square error of approximation

4.3 Structural Equation Model (SEM)

After confirming the measurement model through CFA, Structural Equation Modeling (SEM) was conducted to test the hypothesized relationships among variables. SEM enabled the simultaneous estimation of both direct and indirect effects between constructs, providing a comprehensive evaluation of the structural model in a single analysis.

The structural model was estimated in AMOS 26, using established thresholds to assess model adequacy. The estimated model met these thresholds overall, with values of CMIN/df = 4.002, GFI = 0.849, AGFI = 0.809, NFI = 0.845, CFI = 0.878, TLI = 0.860, and RMSEA = 0.078. Given these results, the model was considered acceptable. Guided by Byrne (2016) and Kline (2015), no re-specification was necessary, as all retained paths were both theoretically justified and statistically significant.

Table 6: Goodness of Fit for Structural Equation Modeling

Index	Criterion	Statistical Value
CMIN/DF	< 5 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	4.002
GFI	≥ 0.80 (Baumgartner & Homburg, 1996)	0.849
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.809
NFI	≥ 0.80 (Wu & Wang, 2006)	0.845
CFI	≥ 0.80 (Wu & Wang, 2006)	0.878
TLI	≥ 0.80 (Wu & Wang, 2006)	0.860
RMSEA	< 0.08 (Hu & Bentler, 1999)	0.078

Note: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI = normalized fit index, CFI = comparative fit index, TLI = Tucker Lewis index and RMSEA = root mean square error of approximation

4.4 Research Hypothesis Testing Result

Based on the standardized regression weights derived from the structural equation model (SEM) and the corresponding coefficients of determination (R²) for each endogenous construct, the hypothesized model demonstrates an adequate overall fit. Path-specific statistics and hypothesis decisions are summarized in Table 7.

Hypothesis testing supported all proposed relationships. Social Ties ($\beta = 0.470, t = 8.168^{***}$) and Social Identity ($\beta = 0.259, t = 4.635^{***}$) positively influence User Engagement. User Engagement ($\beta = 0.291^{***}$), Enjoyment Value ($\beta = 0.208^{***}$), Dedication ($\beta = 0.342^{***}$), and Vigor ($\beta = 0.202^{***}$) all significantly impact Purchase Intention. These paths collectively confirm the model's explanatory power, explaining 28.8% of the variance in User Engagement and 43.4% in Purchase Intention.

Table 7: Hypothesis Testing Result

Hypothesis	Standardized path coefficients (β)	t-value	Test Result
H1: ST → UE	0.470	8.168***	Supported
H2: SI → UE	0.259	4.635***	Supported
H3: UE → PI	0.291	4.836***	Supported
H4: EV → PI	0.208	3.588***	Supported
H5: DED → PI	0.342	5.557***	Supported
H6: VIG → PI	0.202	3.364***	Supported

Note: ***=p-value<0.001

The results in Table 7 confirm that every hypothesized linkage is positive and statistically significant at the 0.001 level. Specifically, H1 shows that social connections within MMORPG guilds and parties strongly drive User Engagement ($\beta = 0.470$), highlighting the importance of guanxi (personal networks) in Chinese online communities. Similarly, H2 demonstrates that a player's social identity, reflected in allegiance to guilds, factions, or avatars, enhances engagement ($\beta = 0.259$).

Turning to purchase behavior, H3 shows that higher engagement translates directly into stronger Purchase Intention ($\beta = 0.291$), underscoring engagement's mediating role between social experiences and monetization. Among experiential predictors, Enjoyment Value (H4, $\beta = 0.208$) significantly influences Purchase Intention, consistent with hedonic consumption theory. Dedication (H5, $\beta = 0.342$) emerges as the strongest predictor of purchase, while Vigor (H6, $\beta = 0.202$) also exerts a significant positive effect.

5. Conclusions and Recommendation

5.1 Conclusions

The present study set out to clarify how social ties, social identity, enjoyment value, dedication, and vigor shape user engagement and, ultimately, purchase intention among Chinese players of the five most popular Massively Multiplayer Online Role-Playing Games (MMORPGs). Grounded in Flow Theory, the Technology Acceptance Model, and Social Exchange Theory, six hypotheses were formulated. Using survey data from 500 qualified MMORPG players, rigorous reliability, validity, and structural equation analyses confirmed the soundness of the measurement model and the conceptual framework (Awang, 2012; Dikko, 2016; Steigenberger, 2015).

H1 and H2: The results confirm that both social ties ($\beta = 0.470$, $p < .001$) and social identity ($\beta = 0.259$, $p < .001$) have direct, positive, and substantial effects on user engagement. This finding supports earlier research that highlights the motivational power of in-game relationships and group identification in virtual environments (Hermawan et al., 2023; Hollebeek et al., 2014; Tajfel & Turner, 1979). Within the Chinese context, where collectivist values and guild participation are particularly salient, strong relational bonds and a shared group ethos appear essential for fostering deep cognitive and emotional investment in gameplay.

H3: User engagement in turn emerged as a robust predictor of purchase intention ($\beta = 0.291$, $p < .001$), confirming the engagement-behavior chain reported in prior digital-consumption research (Brodie et al., 2013; Hollebeek et al., 2014). Players who invest greater attention, energy, and emotion in gameplay exhibit a higher willingness to spend on cosmetic upgrades, season passes, and other microtransactional content, behaviors that are now central to free-to-play monetization models in China's games market, which is valued at over ¥300 billion (Game Publishing Committee, 2024).

H4-H6: Enjoyment value ($\beta = 0.208$, $p < .001$), dedication ($\beta = 0.342$, $p < .001$), and vigor ($\beta = 0.202$, $p < .001$) each exert significant direct impacts on purchase intention. Enjoyment underscores the hedonic payoff

sustaining repeated play and spending (Hamari et al., 2017). Dedication and vigor capture the depth and energetic quality of player commitment; their influence reflects self-determination theory's emphasis on sustained effort and enthusiasm as precursors to value creation and economic exchange (Ryan et al., 2006). Notably, dedication showed the strongest path coefficient, indicating that persistent attachment is the most powerful driver of spending among Chinese MMORPG players.

Theoretically, this study extends existing engagement frameworks by empirically integrating vigor and dedication, two under-examined facets of engagement, into a single structural model. It also tests Western-derived theories in an Eastern, high-context market, offering evidence that collectivist social dynamics enhance the influence of relational factors on engagement and spending.

From a practical perspective, the findings provide valuable guidance for game developers. Priorities should include reinforcing guild infrastructures and cooperative events to foster dense social networks, designing narrative and aesthetic content that maximizes hedonic enjoyment, and staging competitive, skill-progression activities that nurture sustained dedication and vigor. These initiatives can deepen player engagement and, consequently, monetization without resorting to overly aggressive paywalls, which have been frequently cited by churned Chinese players.

Finally, the study's methodological rigor, combining expert-validated scales, a substantial multi-game sample, and confirmatory factor modeling, supports the generalizability of its conclusions within China's MMORPG segment. Future research should adopt longitudinal or behavioral-log designs to capture causal dynamics and explore emerging technologies such as AI-driven personalization and cross-platform integration. In summary, by confirming all six hypotheses, this investigation enriches scholarly understanding of engagement-driven purchase behavior and offers actionable insights for sustaining growth in the world's largest online gaming market.

5.2 Recommendations

Drawing on the empirical support for all six hypotheses, three strategic priorities are recommended for the primary stakeholders in China's MMORPG ecosystem: developers, publishers, and regulators. These recommendations also reflect actionable implications for the MMORPG players themselves, who were the focus of this study.

First, for developers, it is essential to reinforce the social infrastructure that supports guilds, teams, and cross-server events. Social ties and social identity demonstrated the largest total effects on user engagement, highlighting the importance of making it easy for players to form, manage, and celebrate communities. Features such as persistent voice

channels, mentorship badges, and server-wide festivals should be prioritized as core product components rather than optional add-ons. Prior research shows that dense relationship networks not only deepen affective engagement but also extend customer lifetimes (Cheung et al., 2015; Van Doorn et al., 2010). For MMORPG players, such enhancements will facilitate stronger social bonds and more meaningful in-game relationships, thereby increasing their enjoyment and motivation to remain engaged.

Second, for game publishers, maximizing enjoyment value, dedication, and vigor through cyclical content and fair monetization practices is crucial. Limited-time narrative arcs, rotating challenge modes, and cosmetic reward loops create bursts of autonomy, competence, and relatedness that sustain psychological flow and motivate players to spend voluntarily (Hamari et al., 2017; Wang et al., 2021). Microtransactions should focus primarily on cosmetic or convenience-related items to avoid perceptions of “pay-to-win,” which research indicates can undermine long-term player commitment and spending propensity. For MMORPG players, this ensures that their financial investment is aligned with personal enjoyment and game satisfaction, not competitive pressure.

Third, for regulators and platform operators, it is recommended to establish a data-driven feedback mechanism that allocates development resources across social, hedonic, and mastery pathways in proportion to their measured return on engagement (ROE). AI-driven analytics can segment players based on social centrality, spending elasticity, and vigor levels, then provide real-time dashboards to guide iterative adjustments to events, economy balance, and community governance (Liu & Zhou, 2016). This approach allows regulators to monitor engagement fairness and player wellbeing, while also empowering developers to tailor content in a way that sustains responsible monetization. MMORPG players, in turn, benefit from a continuously refined gaming environment that adapts to their preferences without compromising ethical standards.

By tailoring strategies to the roles and concerns of developers, publishers, regulators, and the player community, these recommendations ensure that the study’s findings translate into tangible improvements across China’s MMORPG sector.

5.3 Limitation and Further Study

This investigation is constrained in four principal ways. First, its scope is limited to the top five Chinese MMORPGs; as a result, the findings may not extend to other gaming genres or international markets. Future research should consider cross-genre and cross-market replications to test the

model’s generalizability (Bessière et al., 2007).

Second, the design relies on cross-sectional self-report data, restricting causal inference and introducing potential common-method bias. Researchers should incorporate longitudinal log-level analytics or experimental interventions to establish causality and mitigate bias (Hair et al., 2022; Podsakoff et al., 2003). Longitudinal behavioral-log designs would also permit investigation of how engagement variables evolve over time and how emerging technologies such as AI-driven personalization and cross-platform integration influence those dynamics.

Third, the measurement framework focuses primarily on psychological constructs. Integrating physiological or affective-computing indicators could provide a more comprehensive understanding of engagement processes. This addition would enrich the engagement model by capturing real-time emotional and physical responses during gameplay.

Finally, regulatory dynamics in China remain fluid, and new policies such as age verification and play-time caps could interact with social and hedonic drivers of spending. Future research should examine how these evolving regulatory measures influence player engagement and purchase behaviors in online gaming contexts.

Addressing these limitations will strengthen the external validity of the findings and offer deeper insights into the longitudinal processes through which social, emotional, and energetic factors co-evolve with purchase behavior in virtual worlds.

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