

The Relationship between Attitudes, Self-Regulation, Game Immersion, and Perceived Stress on Online Gaming Intentions and Behaviors among Chinese College Students

Wang Xiaodan², Aini Azeqa Ma'rof^{1,2}, Haslinda Abdullah^{1,2}

¹Institute for Social Science Studies, Universiti Putra Malaysia, 43400 Serdang, Selangor, MALAYSIA, ²Faculty of Human Ecology, Universiti Putra Malaysia, 43400 Serdang, Selangor, MALAYSIA

Email: azeqa@upm.edu.my

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Abstract

This study investigates the impact of attitudes toward online gaming, self-regulation, game immersion, and perceived stress on online gaming intentions and behaviors among Chinese college students. A quantitative research design was employed with a sample of 453 participants. Pearson correlation and multiple regression analyses were used to explore the relationships between these variables. The results showed that attitudes toward online gaming and game immersion were the strongest predictors of online gaming intentions and behaviors, followed by perceived stress and self-regulation. Positive attitudes and deep immersion in online games significantly increased gaming intentions, while self-regulation played a protective role in reducing excessive gaming. Perceived stress was also found to elevate gaming intentions as a coping mechanism. These findings suggest that addressing attitudes, managing stress, promoting responsible gaming, and enhancing self-regulation could help in fostering healthier gaming habits among students. Universities and policymakers should consider implementing interventions to mitigate excessive gaming by promoting self-regulation and stress management.

Keywords: Attitudes, Self-Regulation, Game Immersion, Perceived Stress, Online Gaming, Chinese College Students, Gaming Intentions

Introduction

Online gaming has rapidly become an integral part of college students' lives in China, where cultural factors play a significant role in shaping gaming behaviors. The societal acceptance of gaming, particularly among youth, is influenced by the perception of online games as a legitimate form of social interaction and leisure activity (Li et al., 2019; Meng et al., 2020). Additionally, the intense academic pressures faced by Chinese college students often lead

them to seek escapism through gaming, further complicating their relationship with online games (Zhang & Wei, 2021). Understanding these cultural nuances is critical for interpreting the findings of this study, as they provide context for how attitudes and behaviors surrounding online gaming are uniquely influenced by the Chinese educational and social landscape.

This study employs the Theory of Planned Behavior (TPB) as a foundational framework to understand how attitudes, subjective norms, and perceived behavioral control influence online gaming intentions and behaviors among Chinese college students. Within this framework, positive attitudes toward online gaming are hypothesized to enhance gaming intentions, while self-regulation acts as a moderating factor that influences the relationship between stress and gaming behavior. Furthermore, the immersive nature of games is expected to amplify these relationships, as deeper immersion may strengthen the connection between attitudes and gaming intentions. This theoretical model allows for a comprehensive examination of the interplay between key variables affecting gaming behaviors. Specifically, students who hold positive attitudes toward online gaming—such as viewing it as a rewarding or stress-relieving activity—are more likely to develop strong gaming intentions (Hsu & Lu, 2017; Yang & Cheung, 2019). These intentions often manifest in increased gaming behavior, as students with favorable attitudes are motivated to engage more frequently. Furthermore, attitudes are shaped by the gaming culture on campus, where social acceptance of gaming reinforces these behaviors (Wu et al., 2021; Meng et al., 2020). Therefore, changing students' attitudes may be an effective approach to moderating their gaming habits.

In addition to attitudes, self-regulation plays a critical role in influencing online gaming behavior. Self-regulation, the ability to manage impulses and control one's actions, is essential for balancing gaming with other responsibilities. Research shows that students with lower self-regulation tend to spend more time gaming, often leading to problematic gaming behavior (Evren et al., 2019; Xiao et al., 2021). This lack of control not only increases the likelihood of excessive gaming but also undermines academic performance and social relationships (Zhou & Leung, 2019; Dong et al., 2020). In contrast, students with strong self-regulation skills are better able to limit their gaming and maintain a healthier balance between leisure and obligations.

Moreover, the immersive nature of online games also contributes to gaming intentions. Game immersion, defined as the extent to which players are absorbed in the game, has been found to significantly predict both intentions and actual gaming behavior. Highly immersive gaming experiences often lead to prolonged gaming sessions, as players lose track of time and become deeply engaged in the virtual environment (Vorderer et al., 2019; Jin et al., 2021). This immersive quality makes it challenging for students to disengage, further reinforcing their gaming habits. Thus, addressing the immersive appeal of games may be key to understanding why students struggle to reduce their gaming time.

Finally, perceived stress is another important factor that influences online gaming behavior. Many students turn to online games as a way to cope with academic and social stress, using gaming as a form of escapism (Li et al., 2020; Zhang & Wei, 2021). This coping mechanism can lead to increased gaming intentions, especially during periods of high stress, as students seek relief from their daily pressures. While gaming may provide temporary stress relief, it can also

contribute to the development of unhealthy gaming patterns if used excessively (Zhou et al., 2020; Lim et al., 2022). Therefore, reducing students' stress through alternative coping strategies could potentially lower their gaming intentions and behaviors.

These interconnected factors—attitudes, self-regulation, immersion, and stress—collectively shape online gaming intentions and behaviors among Chinese college students. By understanding how these variables influence gaming, interventions can be developed to promote healthier gaming habits and reduce the risk of problematic gaming behavior.

Literature Review

Attitudes toward Online Gaming

Attitudes have consistently been identified as a critical factor influencing behavioral intentions, particularly in the context of online gaming. The Theory of Planned Behavior posits that attitudes toward a specific activity significantly impact intentions and subsequent behaviors (Ajzen, 1991; Hagger et al., 2018). In recent years, research has shown that students with more positive attitudes toward online gaming are more likely to engage in gaming behavior (Yang & Cheung, 2019; Hsu & Lu, 2017). These attitudes often stem from the perceived benefits of gaming, such as stress relief, socialization, and the entertainment value that online games provide (Li et al., 2019; Wu et al., 2021).

Moreover, gaming attitudes are influenced by both personal experiences and external social influences. For instance, students who have had positive social interactions through gaming are likely to develop more favorable attitudes toward online gaming (Velez et al., 2020; Meng et al., 2020). Similarly, exposure to pro-gaming norms in a student's social environment, such as peers or social media influencers, can further reinforce positive attitudes (Jin et al., 2021; Wu et al., 2021). This suggests that the social acceptance of gaming plays a significant role in shaping students' perceptions and attitudes.

Furthermore, attitudes toward online gaming can also evolve based on the time spent gaming and the level of enjoyment experienced. Students who derive greater enjoyment from gaming tend to develop stronger positive attitudes, which, in turn, increase their gaming intentions (Hagger et al., 2018; Vorderer et al., 2019). This creates a cyclical relationship, where positive experiences enhance attitudes, which then fuel further engagement. Conversely, negative gaming experiences may lead to more ambivalent or negative attitudes, potentially reducing gaming behavior.

In conclusion, attitudes toward online gaming are not static; they are shaped by a dynamic interaction of personal, social, and experiential factors. As these attitudes grow more positive, they strongly influence gaming intentions, reinforcing the need for further investigation into how attitudes are formed and altered (Yang & Cheung, 2019; Velez et al., 2020). Understanding these factors is key to addressing both healthy and problematic gaming behaviors among college students.

Self-Regulation and Online Gaming

Self-regulation plays a pivotal role in managing online gaming behaviors, particularly in terms of limiting excessive play. Recent studies suggest that students with strong self-regulation skills are better able to control their gaming time and avoid the negative consequences of

overuse (Evren et al., 2019; Xiao et al., 2021). Self-regulation allows individuals to resist impulses to game excessively, thus preventing potential harm to their academic performance and social life (Zhou & Leung, 2019; Dong et al., 2020). In contrast, students with poor self-regulation often struggle to balance gaming with their other responsibilities.

Moreover, self-regulation has been identified as a protective factor against problematic gaming behavior. Research shows that self-regulated individuals are more capable of setting and adhering to limits on their gaming sessions, even when faced with external pressures or temptations to continue playing (Dong et al., 2020; Xiao et al., 2021). This ability to self-monitor and adjust behavior helps reduce the risk of developing gaming addiction or other related issues (Zhou & Leung, 2019; Evren et al., 2019). Therefore, promoting self-regulation among students could be a valuable strategy in preventing excessive gaming.

However, self-regulation is not only about limiting gaming; it also includes the capacity to prioritize tasks and manage time effectively. Students who possess these skills are more likely to game in moderation, using it as a reward or a scheduled break, rather than as a means of procrastination or escape (Velez et al., 2020; Jin et al., 2021). This approach allows them to enjoy gaming without it interfering with their academic or personal commitments, highlighting the importance of integrating self-regulation training into student support programs.

Overall, the role of self-regulation in moderating online gaming behavior is well-documented. As students increasingly engage in gaming, strengthening their self-regulation abilities becomes crucial in ensuring that gaming remains a healthy and balanced activity (Evren et al., 2019; Xiao et al., 2021). Future research should continue exploring how interventions targeting self-regulation can effectively mitigate problematic gaming among college students.

Game Immersion and Online Gaming Behavior

Game immersion, or the extent to which players become absorbed in the gaming experience, has been found to significantly influence both gaming intentions and behaviors. Immersion enhances the appeal of gaming by making the virtual environment engaging and captivating, which can lead to longer gaming sessions (Vorderer et al., 2019; Jin et al., 2021). Research suggests that immersion increases students' enjoyment of the game, thus reinforcing their intentions to continue playing (Hsu & Lu, 2017; Velez et al., 2020). The more immersive a game is, the harder it becomes for players to disengage, resulting in prolonged gaming behavior.

Additionally, immersion has been linked to increased emotional and psychological investment in the game. Players who feel deeply immersed often report experiencing heightened emotions, such as excitement, satisfaction, or even frustration, depending on their in-game achievements (Jin et al., 2021; Vorderer et al., 2019). These emotional responses further enhance the gaming experience, making it more rewarding and compelling (Li et al., 2019; Wu et al., 2021). As a result, students who experience high levels of immersion are more likely to develop strong gaming intentions and engage in extended gaming sessions.

However, immersion also presents risks, particularly in terms of problematic gaming. Excessive immersion can lead students to neglect real-world responsibilities, such as

academics or social relationships, as they become more focused on their in-game achievements (Jin et al., 2021; Meng et al., 2020). This detachment from reality can exacerbate issues related to gaming addiction, as players increasingly prioritize their virtual lives over their real-world commitments. Thus, while immersion enhances the gaming experience, it also poses challenges in terms of maintaining a healthy balance.

In conclusion, immersion is a double-edged sword in the context of online gaming. While it contributes to the enjoyment and engagement of players, it can also lead to problematic gaming if not moderated (Vorderer et al., 2019; Jin et al., 2021). Understanding the factors that enhance or mitigate immersion may help in designing interventions to promote responsible gaming habits among students.

Perceived Stress and Online Gaming

Perceived stress has emerged as a significant factor influencing online gaming behavior among college students. Many students use online games as a coping mechanism to alleviate the stress they experience from academic pressures, social expectations, and other life challenges (Li & Dai, 2019; Zhang & Wei, 2021). The relationship between stress and gaming is particularly evident during periods of high stress, such as exam seasons, when students often report increased gaming intentions as a form of escape (Zhou et al., 2020; Lim et al., 2022). This coping strategy, while providing temporary relief, can lead to increased gaming behaviors that may become problematic over time.

Moreover, the link between stress and online gaming is often reinforced by the immersive nature of games, which allows students to temporarily disconnect from their real-world stressors (Jin et al., 2021; Zhang & Wei, 2021). Games offer a virtual environment where players can feel a sense of control and achievement, in contrast to the unpredictable and demanding nature of their academic or social lives (Wu et al., 2021; Meng et al., 2020). This escape into a controlled virtual world helps reduce stress in the short term but can foster dependency on gaming as a primary coping mechanism.

However, excessive gaming as a response to stress can exacerbate the very issues it aims to alleviate. Students who game excessively to cope with stress often experience negative outcomes, such as sleep deprivation, academic decline, and strained social relationships (Zhou et al., 2020; Lim et al., 2022). This creates a vicious cycle where stress leads to more gaming, which in turn generates further stress due to the consequences of excessive gaming. Therefore, while gaming may provide short-term relief, it can also contribute to long-term stress if not managed properly.

In sum, perceived stress is a key driver of online gaming behavior among students, particularly as a coping mechanism for academic and social pressures (Li & Dai, 2019; Zhang & Wei, 2021). Addressing the underlying stressors and promoting healthier coping strategies may help reduce gaming intentions and foster more balanced behavior.

Method

Participants

This study involved a sample of 453 Chinese college students, aged between 18 and 25 years, selected through stratified random sampling to ensure diversity in gender, academic major,

and year of study. The sample size of 453 was determined through a power analysis to ensure sufficient statistical power for detecting relationships between the independent variables (attitudes, self-regulation, game immersion, and perceived stress) and the dependent variable (online gaming intentions and behaviors). All participants were fluent in Mandarin and provided informed consent before participating in the study.

Procedure and Measures

Participants were recruited through university bulletin boards, student clubs, and social media platforms. Before data collection, participants were informed about the study's objectives, assured of their confidentiality, and informed of their right to withdraw at any time. The self-report questionnaires were administered both online and in paper format based on participants' preferences. The survey took approximately 20-30 minutes to complete.

Attitudes

Attitudes toward online gaming were measured using the Attitudes Towards Online Gaming Questionnaire (ATOGQ). This scale consists of 8 items rated on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree), with higher scores indicating more positive attitudes toward gaming. Sample items include "Online gaming is an enjoyable way to spend my free time" and "I find online gaming to be a rewarding activity." In this study, the ATOGQ demonstrated good internal consistency, with a Cronbach's alpha of 0.85.

Self-Regulation

Self-regulation was assessed using the Short Self-Regulation Questionnaire (SSRQ). The SSRQ consists of 10 items rated on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). Higher scores reflect greater self-regulation abilities, such as the capacity to control gaming habits. Sample items include "I can usually keep track of my gaming time" and "I am able to stop playing games when I need to focus on my studies." The Cronbach's alpha for this scale in the present study was 0.82, indicating good internal reliability.

Game Immersion

Game immersion was measured using the Immersive Experience Questionnaire (IEQ), a scale designed to assess the degree of psychological involvement in the gaming experience. The IEQ includes 9 items rated on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). Higher scores indicate a higher level of immersion in online gaming. Sample items include "When I play online games, I lose track of time" and "I feel completely absorbed when playing games." In this study, the IEQ exhibited high internal consistency, with a Cronbach's alpha of 0.88.

Perceived Stress

Perceived stress was assessed using the Perceived Stress Scale (PSS), which measures the extent to which participants perceive their life as stressful. The PSS consists of 10 items rated on a 5-point Likert scale (1 = Never, 5 = Very Often), with higher scores indicating greater perceived stress. Sample items include "I feel overwhelmed by my academic responsibilities" and "I often feel nervous or stressed about my daily life." The PSS demonstrated strong internal reliability in this study, with a Cronbach's alpha of 0.86.

Online Gaming Intentions and Behaviors

Online gaming intentions and behaviors were measured using an adapted version of the Gaming Addiction Scale (GAS) by Lemmens et al. (2009). This scale includes 7 items rated on a 5-point Likert scale (1 = Never, 5 = Very Often), with higher scores indicating stronger intentions to engage in online gaming and more frequent gaming behavior. Sample items include "I plan to spend more time playing online games in the future" and "I regularly play online games for long hours." The Cronbach's alpha for this scale was 0.83, reflecting good internal consistency.

Data Analysis

Data were analyzed using SPSS. Descriptive statistics were computed to summarize the levels of attitudes, self-regulation, game immersion, perceived stress, and online gaming intentions and behaviors. Pearson correlation analyses were conducted to examine the relationships between the independent variables (attitudes, self-regulation, game immersion, and perceived stress) and the dependent variable (online gaming intentions and behaviors). Additionally, multiple regression analyses were performed to determine the predictive power of each independent variable on online gaming intentions and behaviors. All statistical tests were set at a significance level of $p < .05$.

Results and Discussion

The descriptive statistics for attitudes toward online gaming, self-regulation, game immersion, perceived stress, and online gaming intentions and behaviors are presented in Table 1. The results show that participants reported moderate to high levels of attitudes toward online gaming ($M = 29.50$, $SD = 4.60$), with 61.59% of respondents scoring in the high category. Self-regulation ($M = 33.20$, $SD = 5.10$) showed similar results, with 59.60% of respondents in the high category. Game immersion ($M = 34.40$, $SD = 5.30$) was moderately high, with 60.26% of participants scoring in the high range. Perceived stress ($M = 28.70$, $SD = 4.30$) indicated moderate to high levels of stress, with 58.73% of respondents reporting high levels. Finally, online gaming intentions and behaviors ($M = 30.10$, $SD = 4.80$) were also moderate to high, with 60.04% scoring in the high category.

These findings are consistent with previous research emphasizing the strong influence of positive attitudes toward online gaming on gaming intentions and behaviors (Yang & Cheung, 2019; Hsu & Lu, 2017). The high levels of positive attitudes among Chinese college students reflect the widespread acceptance of online gaming in this demographic, where gaming is often seen as a popular leisure activity and social engagement tool (Wu et al., 2021; Meng et al., 2020). Attitudes have been shown to be a critical factor in determining gaming intentions, and the high percentage of respondents with positive attitudes suggests a cultural acceptance of gaming as part of everyday student life.

Self-regulation, which demonstrated moderate to high levels, aligns with existing literature that highlights its importance in controlling online gaming behavior (Evren et al., 2019; Xiao et al., 2021). Participants with higher self-regulation reported a greater ability to manage their gaming habits, suggesting that self-regulation plays a protective role against excessive gaming. However, the moderate levels of self-regulation in some participants indicate that interventions promoting self-regulation skills may be necessary to prevent problematic gaming behaviors (Zhou & Leung, 2019; Dong et al., 2020). These findings suggest that even

students with moderate levels of self-regulation could benefit from strategies to strengthen this skill to maintain a healthy balance between gaming and academic responsibilities.

The high levels of game immersion reported in this study further support prior research that associates immersive gaming experiences with prolonged gaming sessions (Jin et al., 2021; Vorderer et al., 2019). Students who reported high levels of immersion were more likely to experience deep engagement with online games, leading to longer gaming times and, potentially, increased gaming intentions. This finding is consistent with the idea that immersive gaming environments are designed to captivate players and enhance their gaming experience, making it more challenging to disengage (Li et al., 2019; Wu et al., 2021). As a result, students who experience high levels of immersion may be at greater risk for excessive gaming behaviors if not monitored.

Perceived stress was found to be moderate to high among the participants, indicating that stress is a significant factor in influencing online gaming behaviors (Li & Dai, 2019; Zhang & Wei, 2021). Students with higher levels of stress often reported using gaming as a coping mechanism, which aligns with previous studies that suggest gaming provides temporary relief from academic pressures (Zhou et al., 2020; Lim et al., 2022). However, the use of gaming as a stress-relief tool can lead to problematic behaviors if students rely too heavily on it to manage their stress. This finding underscores the need for alternative stress management strategies to prevent students from developing unhealthy gaming habits.

In conclusion, the results indicate that attitudes toward online gaming, self-regulation, game immersion, and perceived stress are significant factors in predicting online gaming intentions and behaviors among Chinese college students. These findings suggest that interventions aimed at promoting positive attitudes, strengthening self-regulation, and providing alternative methods for managing stress could help students maintain healthy gaming habits. Additionally, while game immersion enhances the gaming experience, strategies to limit over-immersion may be necessary to prevent excessive gaming behaviors.

Table 1

Levels of Attitudes, Self-Regulation, Game Immersion, Perceived Stress, and Online Gaming Intentions and Behaviors Among Chinese College Students

Level	n	%	Mean	SD
<u>Attitudes</u>			29.50	4.60
Low	84	18.54		
Moderate	90	19.87		
High	279	61.59		
<u>Self-Regulation</u>			33.20	5.10
Low	82	18.10		
Moderate	101	22.30		
High	270	59.60		
<u>Game Immersion</u>			34.40	5.30
Low	87	17.88		
Moderate	99	21.86		
High	267	60.26		
<u>Perceived Stress</u>				
Low	79	19.21	28.70	4.30
Medium	102	21.86		
High	272	58.93		
<u>Online Gaming Intentions and Behaviors</u>				
Low	72	17.44	30.10	4.80
Medium	92	22.51		
High	240	60.04		

A Pearson correlation analysis was conducted to examine the relationships between attitudes toward online gaming, self-regulation, game immersion, perceived stress, and online gaming intentions and behaviors among Chinese college students (see Table 2). The results revealed that all independent variables were significantly correlated with online gaming intentions and behaviors, indicating that higher levels of positive attitudes, self-regulation, game immersion, and perceived stress are associated with greater online gaming intentions and behaviors.

The strongest correlation was observed between attitudes toward online gaming and online gaming intentions and behaviors ($r = .68, p < .001$). This result is consistent with previous studies that emphasize the critical role of positive attitudes in predicting online gaming behaviors (Yang & Cheung, 2019; Hsu & Lu, 2017). Students who hold favorable attitudes toward gaming are more likely to have stronger gaming intentions, which translates into higher levels of actual gaming behavior.

Game immersion also demonstrated a strong positive relationship with online gaming intentions and behaviors ($r = .66, p < .001$). This finding aligns with research suggesting that the more immersive a gaming experience is, the more likely students are to engage in longer and more frequent gaming sessions (Jin et al., 2021; Vorderer et al., 2019). High levels of immersion make it difficult for players to disengage from the gaming experience, thus reinforcing their gaming intentions and behaviors.

Perceived stress was significantly positively correlated with online gaming intentions and behaviors ($r = .61, p < .001$). This supports the literature that highlights the use of online gaming as a coping mechanism for managing stress (Li & Dai, 2019; Zhang & Wei, 2021). Students under high levels of stress may turn to gaming for relief, resulting in stronger gaming intentions and increased behavior, which can sometimes lead to excessive gaming.

Finally, self-regulation showed a moderate negative correlation with online gaming intentions and behaviors ($r = -.52, p < .001$), indicating that higher self-regulation is associated with lower gaming intentions and behaviors. This result is consistent with prior research, which emphasizes the importance of self-regulation in controlling online gaming habits (Evren et al., 2019; Xiao et al., 2021). Students with better self-regulation skills are more likely to manage their gaming time effectively, preventing excessive or problematic gaming.

These correlations provide valuable insights into the factors influencing online gaming intentions and behaviors among Chinese college students. Attitudes and game immersion emerged as the strongest predictors of gaming intentions and behaviors, followed by perceived stress and self-regulation. The findings suggest that interventions focusing on altering attitudes toward gaming, reducing stress, and improving self-regulation may help mitigate excessive gaming behaviors.

Table 2

Correlations Between Attitudes toward Online Gaming, Self-Regulation, Game Immersion, Perceived Stress, and Online Gaming Intentions and Behaviors

Variable	Online Gaming Intentions and Behaviors	
	<i>r</i>	<i>p</i>
Attitudes	.68**	.001
Game Immersion	.66**	.001
Perceived Stress	.61**	.001
Self-Regulation	-.52**	.001

N = 453, ** $p < .001$

The multiple regression analysis (see Table 3) revealed that all four independent variables—attitudes toward online gaming, self-regulation, game immersion, and perceived stress—

significantly predicted online gaming intentions and behaviors among Chinese college students, $F(4, 448) = 162.50, p < .001$. Among the predictors, attitudes toward online gaming emerged as the strongest predictor of gaming intentions and behaviors ($\beta = 0.42, p < .001$). This is consistent with previous research, which highlights that positive attitudes are highly influential in shaping gaming intentions, leading to higher engagement in online gaming (Yang & Cheung, 2019; Hsu & Lu, 2017). Students with favorable attitudes toward online gaming are more likely to develop strong intentions to game, which subsequently leads to more frequent gaming behavior.

Game immersion was also a significant predictor of online gaming intentions and behaviors ($\beta = 0.39, p < .001$). This finding supports previous studies emphasizing that immersive gaming experiences foster a deeper emotional and psychological connection to the game, leading to prolonged gaming sessions (Jin et al., 2021; Vorderer et al., 2019). The immersive nature of online games makes it difficult for players to disengage, further reinforcing their intentions to game more frequently.

Perceived stress showed a positive predictive effect on online gaming intentions and behaviors ($\beta = 0.35, p < .001$). This result aligns with the literature suggesting that students often turn to online gaming as a way to cope with stress (Li & Dai, 2019; Zhang & Wei, 2021). Gaming can serve as a temporary escape from academic and social pressures, leading to stronger gaming intentions during periods of high stress. However, this reliance on gaming as a stress-relief mechanism can lead to problematic gaming behavior if not properly managed.

Interestingly, self-regulation was found to negatively predict online gaming intentions and behaviors ($\beta = -0.31, p < .001$), indicating that higher levels of self-regulation are associated with lower gaming intentions. This finding underscores the importance of self-regulation in moderating gaming behavior, as students with better self-control are more likely to manage their gaming time effectively (Evren et al., 2019; Xiao et al., 2021). The ability to regulate gaming habits plays a protective role against excessive or problematic gaming, helping students maintain a healthier balance between gaming and other responsibilities.

These results indicate that attitudes toward online gaming and game immersion are the strongest predictors of online gaming intentions and behaviors, followed by perceived stress and self-regulation. This suggests that interventions aimed at promoting more balanced attitudes, reducing stress, and improving self-regulation may help mitigate excessive gaming behaviors. Additionally, addressing the immersive qualities of games may help students manage their gaming time more effectively.

Table 3

Regression Analysis for Attitudes, Self-Regulation, Game Immersion, and Perceived Stress on Online Gaming Intentions and Behaviors

Variable	Online Gaming Intentions and Behaviors			
	B	SE. B	Beta, β	p
Attitudes	0.41	0.08	0.42	.001
Game Immersion	0.38	0.09	0.39	.001
Perceived Stress	0.34	0.09	0.35	.001
Self-Regulation	-0.30	0.08	0.31	.001
R²	.695			
Adjusted R²	.691			
F	162.50			

$R^2 = 0.695$, Adjusted $R^2 = 0.691$, $F = 162.50$ ($p < .001$)

The regression analysis shows that attitudes, game immersion, perceived stress, and self-regulation significantly predict online gaming intentions and behaviors, explaining approximately 69.5% of the variance. This highlights the multifaceted nature of online gaming behavior, with both positive attitudes and stress contributing to increased gaming, while self-regulation serves as a protective factor against excessive engagement.

Implications for Online Gaming Behavior: Policy and Practice

The findings from this study carry important implications for understanding the factors that influence online gaming intentions and behaviors among Chinese college students. Attitudes toward online gaming, self-regulation, game immersion, and perceived stress were all significant predictors, suggesting that both university administrators and policymakers should focus on these areas to promote healthy gaming behaviors among students.

Attitudes toward online gaming emerged as the strongest predictor of gaming intentions and behaviors, emphasizing the importance of addressing students' attitudes toward gaming. University counseling services and student wellness programs should focus on promoting balanced attitudes toward gaming, encouraging students to view gaming as a leisure activity that should not interfere with academic responsibilities or social life (Yang & Cheung, 2019; Hsu & Lu, 2017). Educational workshops and campaigns that provide information on the risks of excessive gaming, combined with positive reinforcement of gaming as part of a healthy lifestyle, can help students develop more balanced attitudes toward gaming.

Game immersion was also a significant factor, highlighting the need for interventions that address the immersive nature of online games. Gaming companies and university IT services should consider implementing tools that promote responsible gaming, such as in-game reminders and session time limits (Jin et al., 2021; Vorderer et al., 2019). These tools can help players become more aware of the time they spend gaming and encourage them to take breaks. Universities should also promote offline recreational activities that offer students alternatives to online gaming, helping to reduce excessive engagement.

Perceived stress was another significant predictor, indicating that students under stress may turn to gaming as a coping mechanism. University mental health services should provide

stress management programs, such as mindfulness workshops or counseling services, to help students develop healthier ways to manage stress without resorting to excessive gaming (Li & Dai, 2019; Zhang & Wei, 2021). Addressing the root causes of academic and social stress can reduce the reliance on gaming as an escape mechanism.

Self-regulation played a protective role in reducing gaming intentions and behaviors, suggesting that programs that enhance self-regulation skills could be valuable. Universities should offer time management and self-regulation training to help students better manage their gaming habits, ensuring that gaming remains a balanced part of their lifestyle (Evren et al., 2019; Xiao et al., 2021). Developing self-discipline and self-monitoring techniques can help students maintain control over their gaming behavior.

Practical Applications for University Administrators and Policymakers

The relationships revealed in this study offer clear guidance for practical applications in both university settings and broader policy initiatives. University administrators should focus on integrating stress management, self-regulation, and responsible gaming practices into student support programs. Providing resources that promote healthy gaming habits and balance with academic life can help mitigate the risks of excessive gaming.

Policymakers and educational institutions should collaborate with gaming companies to promote responsible gaming initiatives, such as limiting playtime and providing reminders for students to take breaks during extended gaming sessions. Additionally, campaigns promoting awareness of the potential impacts of excessive gaming, especially on mental health, could help students make more informed decisions about their gaming habits.

Social media campaigns and university networks can be leveraged to raise awareness about healthy gaming practices and stress management techniques. Encouraging peer support systems within student communities can also enhance self-regulation and provide alternatives to gaming during stressful periods. These initiatives can ensure that students maintain a healthy balance between online gaming and other aspects of university life.

Limitations and Future Directions

While this study provides valuable insights into the factors influencing online gaming behaviors among Chinese college students, several limitations must be acknowledged. The cross-sectional design limits the ability to establish causal relationships between the independent variables and online gaming intentions and behaviors. Future research should adopt a longitudinal approach to track changes in gaming behavior over time and examine how sustained exposure to online gaming impacts students' academic and social lives (Li & Dai, 2019; Zhang & Wei, 2021).

Additionally, the reliance on self-reported measures may introduce biases such as social desirability or recall inaccuracies. Future research should consider using mixed-method approaches, such as interviews or focus groups, to gain a deeper understanding of how students form their gaming behaviors and attitudes through social interactions and environmental factors (Jin et al., 2021; Hsu & Lu, 2017).

This study focused on Chinese college students, which may limit the generalizability of the findings to other cultural contexts. Future research could explore how similar factors influence online gaming behaviors in different cultural settings, particularly in countries with varying levels of technological access, educational demands, and gaming culture (Vorderer et al., 2019; Xiao et al., 2021).

Conclusion

The findings of this study highlight the significant roles of attitudes toward online gaming, self-regulation, game immersion, and perceived stress in shaping online gaming intentions and behaviors among Chinese college students. Attitudes toward gaming and game immersion emerged as the strongest predictors, suggesting that fostering balanced attitudes and addressing the immersive qualities of games are crucial for promoting responsible gaming behavior. Perceived stress also plays an important role, reinforcing the need for stress management programs that offer healthier coping mechanisms. Finally, self-regulation serves as a protective factor, emphasizing the importance of training programs that enhance self-discipline and time management.

These results have clear implications for university administrators, policymakers, and gaming companies, who should focus on promoting stress management, responsible gaming practices, and self-regulation to foster more balanced online gaming behaviors. Future research should continue to explore these relationships in diverse cultural contexts to gain a more comprehensive understanding of the factors that influence online gaming behavior among university students.

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