

## **The Influence of Video Game Usage on Romantic Relationships Between Youths**

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### **ABSTRACT**

To answer a common question that arises within young relationships, "Which is more important: me or video games?" this study draws from a sample of 640 college students in order to explore the relationships between a number of factors: video game usage, video game importance, conflicts, and romantic relationship satisfaction. The results indicate that compared to women, men are more likely to exhibit three types of video game usage characteristics. The results also suggest that people's concentration on video games and the percentage of their leisure time dedicated to video games can effectively predict how important video games are to someone. On the other hand, social behavior was not found to predict the importance of video games. Compared to self-reports of usage in this study, partner usage of video games was found to be more related to conflicts. In addition, video game usage does not directly negatively affect relationship satisfaction, but does indirectly affect relationship satisfaction through the partner's perception of the importance players place on video games. The frequency with which partners play games together was found to have a positive effect on romantic relationship satisfaction. This study demonstrates that the importance people attribute to video games does cause problems for young people's romantic relationships and reveals the mechanism of influence of video games on couples' satisfaction with their romantic relationships.

**Keywords:** video games, romantic relationship, game usage, game importance.

### **INTRODUCTION**

In 2020, there were 2.69 billion video game players worldwide; the number of global players is expected to reach 3 billion in 2023, equivalent to 39% of humans on the planet [1]. In the past 10 years, the gaming space has developed into a multidimensional entertainment industry. Video games in society and human culture is becoming increasingly important. However, most existing research focuses on pathologies related to video games, such as violence and addiction. For the public, the pathological impact of video games is far inferior to their impact on daily life and culture. The influence of video games on players' romantic relationships is one example of the kind of impact they can have on people's daily lives. Despite the popularity of video games today, there are always voices expressing their negative impact on relationships. A question that often comes up for people in relationships is, "Which one is more important: one's partner or video games?" Building on this question, this paper explores the following question: What

level of video game usage makes people's partners feel that they are not as important as the games?

### **LITERATURE REVIEW**

A considerable part of existing research on the influence of video games on romantic relationships focuses on addiction. For example, overplaying video games is associated with increased physical aggression in romantic relationships [2]. Based on a review of 18 papers related to online games and interpersonal relationships, Hertlein and Hawkins have concluded that overplaying may have a negative impact on romantic relationships [3]. Lo et al. report that compared to relationships between mild and non-players, the quality of the relationships between heavy video game users is lower [4]. However, many studies have also found that the proportion of gamers who are truly addicted is actually quite low. For example, Ferguson et al. previously conducted a meta-analysis of 17 papers and found that the prevalence rate of addiction across all studies was 6%, while only about 3% of the actual sample of players were at risk of developing an addiction [5]. In 2017, Feng et al. conducted a systematic review of 27 papers on the prevalence of internet gaming disorder (IGD) published between 1998 and 2016 [6]. Their results found that the prevalence of IGD did not increase exponentially with the rate of computer penetration. Rather, it remained relatively stable at around 4.7%, and the lowest rate reached was only 0.7%. Przybylski et al. used the DSM-5 (The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders) standard to evaluate the prevalence of IGD among a total of 19,000 people from the United States, the United Kingdom, Canada, and Germany [7]. They found that across a number of studies, the highest proportion of online gamers who exhibited more than five IGD symptoms was only 1%, and the lowest was only 0.5%. Based on the data reviewed, they found that at least 90% of players have no addiction symptoms. All of these studies suggest that research on the influence of video games on romantic relationships from the perspective of game-addicted players is lacking.

Furthermore, most of the research that has been carried out has revolved around MMORPG (Multiplayer Online Role-Playing Game). This type of video games usually requires participants to spend a great deal of time online in the digital world and is therefore thought to be associated with addiction [8]. Multiple studies have found correlations between MMORPG and conflicts within married couples [9] [10] [11] [12]. However, one study found that only 20% of MMORPG players experienced a negative impact on their relationship with non-game players [13]. The report of Mob Research Institute (2018) demonstrates that MOBA (Multiplayer Online Battle Arena) games accounted for 35% of player demand, followed by shooting games, which accounted for 32%, and MMO games (Massive Multiplayer Online Game, including MMORPG), which accounted for only 5%. These findings suggest that research on the influence of video games on romantic relationships between contemporary youths is limited to studies on MMORPG.

The literature review demonstrates that no research has explored the importance people place on video games in comparison to their partners. Furthermore, no research has explored the reasons for which partners feel that the importance players associate with games threatens their position in the relationship. This study suggests that people perceive the importance their partners place on video games through the external performance of their partners' gaming behaviors. For example, if players are focused on a game to the extent that they fail to respond to their partners' needs in a timely manner, partners are likely to think that their partners do

not perceive them as important as the game. This study moves beyond research on specific types of games, drawing on the theory of uses and gratifications to explore the behavioral characteristics of game players that may cause relationship conflicts related to the importance of games. This study also examines the influence of people's perceptions of the importance of video games to their partners on the quality of their romantic relationships. The following research questions have been identified to guide this study:

- RQ1. How does a partner's perception of the importance of video games to a player affect the quality of their romantic relationship?
- RQ2. Which game usage makes a partner feel that a video game is important to a player?
- RQ2. What conflicts may be caused by the usage of video games?

### **Use and Gratifications Theory**

The core concept of uses and gratifications theory is that the audience is active, and their media use is purposeful. This theory examines media usage from the audience's perspective, acknowledging that the audience has control over their media usage decisions. Katz et al. have clarified the five basic assumptions of uses and gratification theory: (1) The audience is conceived of as active, and an important part of mass media use is assumed to be goal-directed; (2) In the process of mass communication, the audience aims to satisfy their needs. When linking with specific media, the audience have great initiative; (3) The media compete with other sources of need satisfaction; (4) The use of mass media can be understood according to the audience's own description because people have sufficient self-awareness to report their interests and motivations in certain circumstances; and (5) Value judgments with regard to media content should be led by the audience [14].

An important part of video game research aims to understand the reasons for which players play video games. Uses and gratifications theory suggests that people's behavior is always driven by needs. Researchers have tried to interpret players' driving factors from different perspectives. Ryan et al. previously applied self-determination theory to describe the basic psychological needs people seek to satisfy through video games, pointing out that players' behaviors are driven by three basic demands, similar to other behaviors: autonomy, competence, and relatedness [15]. Yee divided the motivations of players into three categories: achievement, social motivations, and immersion [16]. Lee et al. explored the motivations of social network gamers and divided them into six categories: social interaction, self-presentation; fantasy and role playing; passing time and escapism; entertainment; and challenge and competition [17].

In 2006, Sherry et al. drew on use and satisfaction theory to identify six main motivations driving people to play video games: arousal, challenge, competition, diversion, fantasy and social interaction. Arousal refers to a player's emotional stimulation, achieved through the fast-paced actions and high-quality graphics of video games. Challenge refers to people who play video games to improve their skills or reach personal achievements. Competition refers to those who play video games to prove to others that they have the best skills and can react or think the quickest. Diversion refers to players who avoid stress or responsibility by playing video games. Fantasy describes video games that allow players to do things that they would not normally be able to do. Social interaction is the main reason many players choose to play video games; many people interact with friends or get to know others through video games. This

study analyzes the usage characteristics of players based on the six types of motivations developed by Sherry et al. [18].

### **The Characteristics of Video Game Usage**

Although different players may have different game usages, these usages have some common characteristics. This section focuses on a deeper exploration into the behavioral characteristics that shape video game usage, and discuss three behavioral characteristics that may affect romantic relationship satisfaction: concentration, social interaction and proportion of leisure time.

#### **Concentration of Playing Video Games:**

The most fundamental purpose for which people play video games is to get a pleasant feeling. This is the main goal that drives video game players who are motivated by arousal, challenge, competition, and fantasy. Achieving a sense of arousal satisfies people's sensory experience. Challenges and competition satisfy people's sense of accomplishment. Finally, fantasy provides people with an experience that they cannot achieve in real life. Psychologist Csikszentmihalyi has proposed flow theory to explain the most pleasant psychological experience [19]. Flow refers to a special psychological condition produced by a person in a state of high concentration. It enables a person to achieve a special kind of satisfaction and pleasure. When people are in a state of concentration, their sense of time and emotional problems seem to disappear, and they are able to attain an exhilarating sense of transcendence [20]. When a video game player enters a state of flow, they experience a strong sense of immersion, which is manifested as increased attention to a game and inhibited attention to external stimuli [21]. In this state, when players play video games, they are likely to ignore their partners, which can trigger conflicts and create negative effects on their relationships.

#### **Social Interaction:**

Baumeister and Leary believe that people have the basic need to belong to a social group [22]. Many players are driven to play video games by the goal of satisfying personal social needs such as this one. Players also exhibit social behaviors when motivated by competition and social interaction. Video games provide players with an expansive virtual platform for interpersonal communication. One example of video game outlets for interpersonal communication are the guilds in MMORPG games [23]. Similar to real groups in society, social groups in online games have their own social regulations and systems. For example, players are punished if they fail to fulfill their duties, and compliance with systems in video games can yield high returns, such as extra incentives. However, these regulations and systems may also limit a player's flexibility with regard to other time commitments and strain their ability to perform real-world responsibilities. Hertlein and Hawkins have found that when non-players perceive their player partners as regarding online gaming partners as a priority, they are likely to have negative and jealous emotions about these online relationships [24]. In addition, players are not only able to develop online friendships through games, but can also engage in online romances through social interaction [25]. Compared with friendships, the development of online romances has a more detrimental impact on real-world romantic relationships.

#### **Proportion of Leisure Time:**

Players aiming to satisfy the six needs proposed by Sherry et al. may experience an increase in their playing time. This is because a positive game experience is likely to weaken a player's

sense of time [26]. The time displacement hypothesis suggests that when individuals invest a large amount of time in leisure activities, they are likely to invest less time in more common leisure activities with their partners, which can negatively impact relationships [27] [28]. A large number of studies have revealed the importance of leisure time for the maintenance and nurturing of romantic relationships between couples [29] [30]. High-frequency gaming activities may redirect couples' time away from common leisure activities and become a source of stress in a romantic relationship. Previous studies have also confirmed that there is a clear imbalance between the time players spend on games and the time they share with non-player partners [31]. A recent study also found that although the use of video games is not directly related to negative romantic relationship outcomes, the time spent on a relationship of both parties in a relationship is related to lower relationship quality, greater relationship aggression, and greater physical aggression [32]. In summary, the proportion of leisure time spent on gaming may have an impact on the quality of a video game player's romantic relationship, with greater time spent on gaming creating negative effects. On the other hand, playing together can actually promote the quality of a romantic relationship.

According to the above descriptions, this study puts forth the following hypotheses:

- H1. The concentration of playing video games, social interaction, and the proportion of leisure time spent on gaming can predict the importance players place on video games.
- H2a. The importance of video games to a player is negatively correlated with romantic relationship satisfaction
- H2b. The importance of video games to a partner is negatively correlated with romantic relationship satisfaction
- H3. The frequency with which couples play video games together is positively correlated with romantic relationship satisfaction.
- H4. The concentration of playing video games, social interaction and the proportion of leisure time dedicated to video gaming is positively correlated with the frequency of conflicts within a romantic relationship.
- H5. The concentration of playing video games, social interaction and the proportion of leisure time are negatively correlated with romantic relationship satisfaction.

## **METHOD**

This research consists of three studies. The purpose of Study 1 is to explore interpersonal conflicts of young couples caused by video games. The researcher searched for college students to interview through snowball sampling. To qualify for participation in this study, respondents needed to be in a romantic relationship or to have previously experienced a romantic relationship. At least one member of the couple needed to be a video game player. The researcher asked interviewees to consent to be interviewed individually and provided ¥ 50 as remuneration for their participation after the interviews were completed. As this stage of the study was exploratory, interviews were semi-structured. During the interviews, the research subjects were asked about their basic information, game usage, and conflicts caused by video games. Ultimately, interviews were conducted with 26 participants, 13 males and 13 females. Of the 26 research subjects, 12 are in couples with other research participants, 10 are in a relationship with individuals outside of the study, and 4 are single but have previously been in a relationship (Table 1). According to the interview results, seven interpersonal conflicts were identified. These conflicts were characterized by the following factors: neglect, interruption,

jealousy, time conflict, poor cooperation during gaming, large differences in game skill, and a strong desire to win. The purpose of Study 2 is to examine and test the results of Study 1 through factor analysis and obtain a simplified version of a romantic relationship quality scale. A questionnaire consisting of three parts was developed for this study. This survey asked participants about their basic information, interpersonal conflicts, and the quality of their romantic relationship. This study's measurement of romantic relationship satisfaction is built on a romantic relationship perception index for unmarried people developed in China by Sai Chen [33]. The index contains 28 items in total. An additional open-ended question was also included in the questionnaire: "In addition to the above conflicts, what other game-related conflicts have occurred?" In order to test whether the questionnaire settings have analyzable elements, a small sample test was conducted. A total of 238 valid questionnaires were collected. The questionnaire data indicates that six supplementary conflicts were identified through the open-ended questions, all of which can be classified into existing conflict categories. The results of the factor analysis are as follows: KMO=0.928, the index statistics are greater than 0.80, and the significance probability  $P=0.000<0.05$ . These results indicate that there are common factors among variables, which is suitable for factor analysis [34]. The results of the factor analysis of the romantic relationship perception scale demonstrate that of the four factors from the original scale—satisfaction, growth, conflict, and equivalence—satisfaction and growth are classified as one factor (a total of 19 items). Since this study mainly examines people's satisfaction with their romantic relationships, the items "conflict" and "equivalence" have been ignored, and the 10 items with the highest factor loading coefficients have been retained for the relationship satisfaction scale. Conflict is broken down into two factors (Table 2): out-of-game conflict (neglect, interruption, jealousy, time conflict) and in-game conflict (poor cooperation during gaming, large differences in game skill, a strong desire to win). The eigenvalues of the two factors are both greater than one, and the variance explanation rates after rotation are 38.824% and 33.905%, respectively. The cumulative variance explanation rate after rotation is 72.729%. The results of a confirmatory factor analysis of the adjusted questionnaire (Table 3) indicate that the absolute values of the standardized load factor are all greater than 0.6 and are significant, which means that the index used is an effective measurement of relationship. The average variance extracted (AVE) values corresponding to conflicts and romantic relationship satisfaction are all greater than 0.5, and the CR values are all greater than 0.7, which means that the data in this analysis has good convergence validity.

Study 3 focuses on video game usage (social degree, social behavior, and time search), two questions about game importance ("Video games are very important to me," and "Video games are very important to him/her"), and one question about the frequency with which couples play games together ("How often do you play together?"). Responses were given according to a five-level Likert scale, ranging from "completely disagree" to "strongly agree" or from "almost not" to "always." The formal questionnaire consists of 30 items. The final survey data was collected from three universities in midwestern, eastern, and southern China. A total of 640 valid responses were collected from participants who are in the romantic relationship, and each questionnaire provided ¥ 2 as remuneration. The average age of the participants is 20.36 (range = 17 to 25). Among the participants, 67.48% are women ( $n=440$ ), and 32.52% are men ( $n=212$ ). The respondents include freshmen (27.76%), sophomores (28.53%), juniors (20.4%), and seniors (23.31%). Cronbach's alpha was found to be equal to 0.803,  $>0.8$ , indicating the high level of reliability of the data. The KMO and Bartlett tests were used to verify the validity

of the data. The results of these tests,  $KMO=0.900$ ,  $>0.8$ ,  $P<0.01$ , indicate that the validity of the research data is very good.

## RESULTS

### Gender, Age, and Usage Differences

A test was performed on the results for the game usage of different genders (Table 4), and it was found that gender has a significant effect, 0.01, my concentration ( $t=3.453$ ,  $p=0.001$ ). The average value for males (3.65) is significantly higher than the value for females (3.35). My proportion of leisure time was found to have a level of significance of 0.01 ( $t=4.267$ ,  $p=0.000$ ); the average value for males (2.89) is significantly higher than the average value for females (2.47). Partner's concentration was found to have a level of significance of 0.01 ( $t=-6.745$ ,  $p=0.000$ ); the average value for males (2.90) is significantly lower than the value for females (3.58). Partner's social behavior was found to have a level of significance of 0.01 ( $t=-3.414$ ,  $p=0.001$ ); the average value for males (2.88) is significantly lower than the average value for females (3.22). Partner's proportion of leisure time presents a significant level of 0.01 ( $t=-7.399$ ,  $p=0.000$ ); the average value for males (2.32) is significantly lower than the average value for females (3.08). A significant difference was not identified for my social interaction ( $p>0.05$ ). In participants' self-reports of video game usage, the level of concentration and the proportion of leisure time was found to be higher for males than females. Women reported that their male partners' levels of concentration, social interaction, and proportion of leisure time reported was higher than those reported by males. This indicates that the levels of the three characteristics of game usage presented by males are generally higher than those presented by females.

A t test was performed on the results of the importance of video games to different genders (Table 4), and a significant difference was found between the different samples for my game importance ( $t=3.316$ ,  $p=0.001$ ); the average value for males (2.49) is significantly higher than the average value for females (2.16). Partner's game importance was found to have a significance level of 0.01 ( $t=-8.254$ ,  $p=0.000$ ); the average value for males (2.07) is significantly lower than the average value for females (2.89). These results suggest that video games are far more important to men than to women.

A variance test was performed on age, game usage, and game importance, and no significant difference was found between different ages ( $p>0.05$ ). This is likely because the research subjects are all undergraduates, and thus, the age difference is negligible.

### The Usage and Importance of Video Games

A correlation analysis between game usage and game importance (Table 5) found that my game usage is significantly positively correlated with my game importance ( $=0.647$ ,  $p<0.01$ ). A significant positive correlation was identified between partner's game usage and partner's game importance ( $=0.714$ ,  $p<0.01$ ). my game usage was found to significantly positively correlate with partner's game usage ( $=0.202$ ,  $p<0.01$ ), and my game importance was found to significantly positively correlate with partner's game importance ( $=0.204$ ,  $P<0.01$ ).

Considering my concentration, my social interaction, and my proportion of leisure time as independent variables and my game importance as the dependent variable, the linear

regression analysis (Table 6) found that  $R^2=0.554$ . This indicates that three independent variables can explain the 55.4% change in my game importance. The model passed the F test ( $F=263.560$ ,  $p=0.000<0.05$ ), which means that at least one of the three independent variables has an impact on my game importance. Considering partner's concentration, partner's social interaction, and partner's percentage of leisure time as independent variables and partner's game importance as the dependent variable, the linear regression analysis (Table 7) found that  $R^2=0.615$ . This indicates that the three independent variables can explain the 61.5% change in partner's game importance. The model passed the F test ( $F=338.500$ ,  $p=0.000<0.05$ ), which means that at least one of the three independent variables has an impact on partner's game importance. In addition, the multicollinearity test of the two models found that the VIF values are all less than 5, which means that there is no collinearity problem, and the DW value is approximately 2, indicating that the model does not produce autocorrelation. There is no correlation between the data, and the model is good. In the two models, both concentration and the proportion of leisure time were found to have a significant positive impact on game importance, while social interaction does not exhibit a significant impact on game importance. The regression results demonstrate that concentration and the proportion of leisure time can effectively predict game importance, while social interaction cannot predict game importance. The research results partially support H1.

The correlation coefficient between romantic relationship satisfaction and my game importance is  $-0.041$ , which is close to 0,  $p=0.303>0.05$ . This indicates that there is no correlation between romantic relationship satisfaction and my game importance. The correlation coefficient between romantic relationship satisfaction and partner's game importance is  $-0.183$ , indicating a significance level of 0.01, which means that there is a significant negative correlation between romantic relationship satisfaction and partner's game importance. The correlation coefficient between romantic relationship satisfaction and play together is  $0.120$ , indicating a significant level of 0.01, which means that there is a significant positive correlation between the two variables. The research results do not support H2a, but do support H2b and H3. Considering partner's game importance and play together as the independent variables and romantic relationship satisfaction as the dependent variable, a linear regression analysis found that  $R^2=0.057$ . This means that the two independent variables can explain the 5.7% change in romantic relationship satisfaction. The regression coefficient of the partner's game importance is  $-0.127$  ( $t=-5.329$ ,  $p=0.000<0.01$ ), which means that the partner's game importance has a significant negative impact on romantic relationship satisfaction. The regression coefficient value of play together is  $0.097$  ( $t=3.959$ ,  $p=0.000<0.01$ ), which means that play together has a significant positive impact on romantic relationship satisfaction. The results suggest that participants' perceptions of partner's game importance do affect their satisfaction with their romantic relationship, and playing together can increase their satisfaction with the romantic relationship to a certain extent.

### **Conflict**

The correlation analysis of conflict found that there is a significant positive correlation between conflict and my concentration ( $=0.116$ ,  $p<0.01$ ); a significant positive correlation between conflict and my social interaction ( $=0.131$ ,  $p<0.01$ ); a significant positive correlation between conflict and my proportion of leisure time ( $=0.226$ ,  $p<0.01$ ); a significant positive correlation between conflict and partner's concentration ( $=0.220$ ,  $p<0.01$ ); a significant positive correlation between conflict and partner's social interaction ( $=0.194$ ,  $p<0.01$ ); and a significant

positive correlation between conflict and partner's proportion of leisure time ( $=0.288, p<0.01$ ). In addition, a significant positive correlation was found to exist between out-of-game conflict and my concentration ( $=0.316, p<0.01$ ). The research results support H4; that is, video game usage practiced with a high degree of concentration and sociality, as well as game usage that takes up a great amount of leisure time, is related to conflict.

A regression analysis conducted for game usage and conflict found that my proportion of leisure time has a significant positive impact on conflict ( $B=0.120, t=4.138, p=0.000<0.01$ ); partner's social interaction has a significant impact on conflict ( $B=0.059, t=2.049, p=0.041<0.05$ ); and partner's proportion of leisure time has a significant positive influence on conflict ( $B=0.166, t=5.712, p=0.000<0.01$ ). The variables my concentration, my social interaction, and partner's concentration do not affect conflict. There is a significant negative correlation between in-game conflict and romantic relationship satisfaction ( $= -0.252, p<0.01$ ), and a significant negative correlation between out-of-game conflict and romantic relationship satisfaction ( $= -0.232, p<0.01$ ) (Table 4). There is a significant positive correlation between in-game conflict and my game importance ( $= 0.211, p<0.01$ ), and a significant positive correlation between out-of-game conflict and partner's game importance ( $= 0.234, p<0.01$ ) (Table 4).

### **Romantic Relationship Satisfaction**

A correlation analysis conducted for romantic relationship satisfaction and concentration, social interaction, and the proportion of leisure time found that there is a significant positive correlation between romantic relationship satisfaction and my social interaction ( $=0.097, p<0.05$ ); a significant negative correlation between partner's proportion of leisure time and romantic relationship satisfaction ( $= -0.138, p<0.01$ ); and no correlation between romantic relationship satisfaction and other types of usage. The research results partially support H5, indicating that when a player's game spends excessive amounts of their overall leisure time on video games, their partners become troubled, which ultimately affects the quality of the relationship. After integrating the three usages into my game usages and partner's game usages, the researcher carried out a correlation analysis with romantic relationship satisfaction. The results indicate that my game usage and partner's game usages are not related to romantic relationship satisfaction. The researchers also conducted a mediating effect model test (Table 8) in which my game importance and partner's game importance were considered as mediating variables, my game usage and partner's game usage as independent variables, and romantic relationship satisfaction as a dependent variable. The analysis found that partner's game importance completely mediates the influence of partner's game usages on romantic relationship satisfaction ( $a = 0.951, p<0.01, b = -0.098, p<0.01, a*b = -0.093, c' = 0.075, c = -0.075, p<0.05$ ). This result indicates that a player's game usage affects their satisfaction with a romantic relationship completely through the partner's perception of importance of video games to the player.

### **CONCLUSION AND DISCUSSION**

This research has drawn on uses and gratifications theory to explore game usage through the lens of motivation analysis. The research results demonstrate that compared with women, men's video game usage is more likely to be characterized by high levels of concentration and sociality, and men are more likely to dedicate a higher percentage of their overall leisure time to video games. Additionally, the importance men place on video games is generally much higher than the importance women place on video games. These results also indicate that

concentration and the proportion of leisure time can effectively predict people's perception of the importance of games, while social interaction cannot predict people's perception of the importance of games. This may be related to the complexity of social behaviors. In the future, researchers should further subdivide social behaviors to identify which specific types of behaviors affect people's perception of importance, such as playing video games with the opposite sex. The percentage of leisure time dedicated to video game usage and a partner's level of social interaction with regard to video game usage can trigger conflicts and affect romantic relationship satisfaction. Playing together has a positive effect on people's satisfaction with their romantic relationship. Compared with self-reports of game usage, partners' reported game usage was found to correlate more with conflicts. This suggests that one's perception of a partner's gaming usage is more likely to cause conflict and affect romantic relationship satisfaction than self-reports of game usage.

In addition, this study has found that game usage does not directly affect romantic relationship satisfaction, but rather affects a romantic relationship satisfaction through the partner's perception of the importance the player places on video games. Thus, when a player is overly focused on video games or spends a great deal of leisure time on video games, their partner is likely to feel that video games are more important in the player's mind. This may threaten the partner's status and affect their romantic relationship satisfaction. Overall, the results indicate that perceptions of the importance of video games do shape the quality of romantic relationships among youth.

This study has demonstrated that game usage can effectively predict the importance of games and has revealed the mechanism of influence of video games on players' satisfaction with their romantic relationships. Avoiding or reducing highly focused engagement with video games, reducing the proportion of leisure time spent on video games, and couples playing video games together moderately can improve the quality of romantic relationships. It is worth noting that this study has focused on college students as its research objects. The sample needs to be expanded in the future in order for researchers to test the mechanism of influence identified in this study. In the future, it would also be necessary to explore social behaviors, identify more comprehensive types of game usage, and improve the model of the influence of game importance on romantic relationship satisfaction.

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## Appendices

### Table 1: Basic Information of Interviewees

| Number  | Gender | Age | Relationship duration | Years of exposure to video games |
|---------|--------|-----|-----------------------|----------------------------------|
| M1-CP1  | male   | 21  | 19 months             | 15 years                         |
| F2-CP1  | female | 21  |                       | 0                                |
| M3-CP2  | male   | 23  | 7 years               | 17 years                         |
| F4-CP2  | female | 22  |                       | 3 years                          |
| M5-CP3  | male   | 25  | 1 year                | 18 years                         |
| F6-CP3  | female | 24  |                       | 1 years                          |
| M7-CP4  | male   | 22  | 2 years               | 11 years                         |
| F8-CP4  | female | 22  |                       | 0                                |
| M9-CP5  | male   | 23  | 6 months              | 10 years                         |
| F10-CP5 | female | 20  |                       | 9 years                          |
| M11-CP6 | male   | 22  | 2 years               | 15 years                         |
| F12-CP6 | female | 23  |                       | 2 years                          |
| M13     | male   | 20  | 1 year                | 3 years                          |
| M14     | male   | 22  | 1 month               | 13 years                         |
| F15     | female | 20  | 2 months              | 2 years                          |
| F16     | female | 22  | 1 year                | 0                                |
| F17     | female | 21  | 3 years               | 3 years                          |
| F18     | female | 21  | 5 months              | 4 years                          |
| F19     | female | 21  | 3 years               | 0                                |
| M20     | male   | 20  | 4 months              | 4 years                          |
| M21     | male   | 21  | 1 year                | 4 years                          |
| M22     | male   | 18  | 1 year                | 11 years                         |
| F23-S   | female | 19  | 6 months              | 7 years                          |
| F24-S   | female | 22  | 5 months              | 4 years                          |
| M25-S   | male   | 21  | 3 months              | 5 years                          |
| M26-S   | male   | 21  | 6 months              | 4 years                          |

*Note.* CP= Couple, M=Male, F=Female, S=Single.

### Table 2: Out-of-game Conflict and In-game Conflict

| Factor                      | Specific Conflicts | Example                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Out-of-game Conflict</b> | Neglect            | F12-CP6: "I went to the Internet cafe to find him, after I got there, he just turned around and said a few words to me, and then he continued to play again. Wow, I was so angry that time! "<br>F4-CP2 : "Sometimes she called me while I was playing games, if I was perfunctory, she will get angry. "                                                                                                                               |
|                             | Interruption       | M14: "When I play games, the phone rang suddenly. Then she started asking boring questions, which made me feel very annoying, and I would just hang up. We will quarrel. "<br>M11-CP6 : "When I was in a difficult game, she kept sending me messages. Then I lost, and I was a little upset. I just told her, can you stop sending so many messages when I play games. She mocked me, saying that the game was more important to me. " |

|                         |                               |                                                                                                                                                                                                                                                                                                                       |
|-------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         | Jealousy                      | F12-CP6: "Of course, you can't play games with the opposite sex. Unless I take my friend to play with him. "<br>F24-S: "Anyway, as long as there are boys playing with me, he will be very upset. He is especially jealous. "                                                                                         |
|                         | Time Conflict                 | F4-CP2: "She would say to me: 'Why are you playing games, don't you know that I will call you during this time? You still play games; do you look down on me? You don't take me seriously!'"<br>F2-CP1: "If he spends more time playing games, we really don't have other common activities except eating. "          |
| <b>In-game Conflict</b> | Poor Cooperation in Game      | M20: "When we played games together, she couldn't cooperate well with me. I will blame her in a hurry, then we will fight. "<br>F4-CP2 : "She doesn't listen to my command. Sometimes she deliberately wants to anger me, and I want her to retreat, but she just doesn't. Then she died, I said, 'look, you die. ' " |
|                         | Big Differences in Game Skill | M1-CP1: "You can play poorly, but you have to be on a qualified line. If you are too bad, sometimes I play games seriously, it will make me a little angry. "<br>F15: "He values the game so much. He cares your game skill. "                                                                                        |
|                         | Strong Desire to Win          | F18: "Sometimes you call him when he is about to lose the game, he will be very fierce. "<br>F10-CP5: "When he can't beat the opponent, he goes wild. He can't stand losing all the time. "                                                                                                                           |

**Table 3: The Results of a Confirmatory Factor Analysis of the Adjusted Questionnaire**

| Factor                             | Measurement Items | Coef. | Std. Error | p     | Std. Estimate |
|------------------------------------|-------------------|-------|------------|-------|---------------|
| Out-of-game Conflict               | D1                | 1.000 | -          | -     | 0.684         |
|                                    | D2                | 0.903 | 0.102      | 0.000 | 0.654         |
|                                    | D3                | 1.013 | 0.112      | 0.000 | 0.669         |
|                                    | D4                | 1.247 | 0.118      | 0.000 | 0.875         |
| In-game Conflict                   | D5                | 1.000 | -          | -     | 0.929         |
|                                    | D6                | 0.985 | 0.044      | 0.000 | 0.908         |
|                                    | D7                | 0.958 | 0.045      | 0.000 | 0.886         |
| Romantic Relationship Satisfaction | B21               | 1.000 | -          | -     | 0.852         |
|                                    | B6                | 1.059 | 0.070      | 0.000 | 0.793         |
|                                    | B11               | 1.058 | 0.074      | 0.000 | 0.767         |
|                                    | B13               | 1.011 | 0.076      | 0.000 | 0.731         |
|                                    | B2                | 1.157 | 0.084      | 0.000 | 0.750         |
|                                    | B5                | 1.134 | 0.072      | 0.000 | 0.815         |
|                                    | B7                | 0.998 | 0.074      | 0.000 | 0.739         |
|                                    | B15               | 1.119 | 0.071      | 0.000 | 0.815         |
|                                    | B24               | 0.954 | 0.071      | 0.000 | 0.734         |
|                                    | B22               | 1.016 | 0.065      | 0.000 | 0.812         |

**Table 4: Results of t Tests Analysis of Gender**

| Logistic parameter                   | Male (n=204) |      | Female (n=436) |      | t      | p       | Cohen's d |
|--------------------------------------|--------------|------|----------------|------|--------|---------|-----------|
|                                      | M            | SD   | M              | SD   |        |         |           |
| My Concentration                     | 3.65         | 1.00 | 3.35           | 1.03 | 3.453  | 0.001** | 0.293     |
| My Social Interaction                | 3.08         | 1.24 | 3.28           | 1.24 | -1.870 | 0.062   | 0.159     |
| My Proportion of Leisure Time        | 2.89         | 1.16 | 2.47           | 1.15 | 4.267  | 0.000** | 0.362     |
| Partner's Concentration              | 2.90         | 1.24 | 3.58           | 1.08 | -6.745 | 0.000** | 0.602     |
| Partner's Social Interaction         | 2.88         | 1.23 | 3.22           | 1.07 | -3.414 | 0.001** | 0.304     |
| Partner's Proportion of Leisure Time | 2.32         | 1.17 | 3.08           | 1.24 | -7.399 | 0.000** | 0.628     |
| My Game Importance                   | 2.49         | 1.17 | 2.16           | 1.14 | 3.316  | 0.001** | 0.281     |
| Partner's Game Importance            | 2.07         | 1.13 | 2.89           | 1.24 | -8.254 | 0.000** | 0.677     |
| Note. * $p < 0.05$ ** $p < 0.01$ .   |              |      |                |      |        |         |           |

**Table 5: Correlations for Study Variables**

|                                       | M     | SD    | 1        | 2       | 3       | 4       | 5       | 6       | 7 |
|---------------------------------------|-------|-------|----------|---------|---------|---------|---------|---------|---|
| 1. Romantic Relationship Satisfaction | 4.013 | 0.771 | 1        |         |         |         |         |         |   |
| 2. In-game Conflict                   | 2.077 | 0.791 | -0.252** | 1       |         |         |         |         |   |
| 3. Out-of-game Conflict               | 1.870 | 0.980 | -0.232** | 0.565** | 1       |         |         |         |   |
| 4. My Game Usage                      | 3.090 | 0.862 | 0.061    | 0.151** | 0.215** | 1       |         |         |   |
| 5. Partner's Game Usage               | 3.106 | 0.960 | -0.077   | 0.285** | 0.259** | 0.202** | 1       |         |   |
| 6. My Game Importance                 | 2.266 | 1.155 | -0.041   | 0.211** | 0.234** | 0.647** | 0.146** | 1       |   |
| 7. Partner's Game Importance          | 2.625 | 1.265 | -0.183** | 0.348** | 0.304** | 0.109** | 0.714** | 0.204** | 1 |
| Note. * $p < 0.05$ , ** $p < 0.01$ .  |       |       |          |         |         |         |         |         |   |

**Table 6: Results of Linear Regression Analysis 1 (n=640)**

|                                                                                                                 | <i>B</i> | <i>Std. Error</i> | <i>Beta</i> | <i>t</i> | <i>p</i> | VIF   | <i>R</i> <sup>2</sup> | Adjust <i>R</i> <sup>2</sup> | <i>F</i>                                   |
|-----------------------------------------------------------------------------------------------------------------|----------|-------------------|-------------|----------|----------|-------|-----------------------|------------------------------|--------------------------------------------|
| Constant                                                                                                        | -0.010   | 0.121             | -           | -0.081   | 0.935    | -     | 0.554                 | 0.552                        | <i>F</i> (3,636) =263.560, <i>p</i> =0.000 |
| My Concentration                                                                                                | 0.117    | 0.034             | 0.104       | 3.455    | 0.001**  | 1.295 |                       |                              |                                            |
| My Social Interaction                                                                                           | 0.043    | 0.026             | 0.046       | 1.637    | 0.102    | 1.139 |                       |                              |                                            |
| My Proportion of Leisure Time                                                                                   | 0.665    | 0.031             | 0.673       | 21.693   | 0.000**  | 1.372 |                       |                              |                                            |
| <i>Note.</i> Dependent variable = <i>My Game Importance</i> , D-W = 1.937, * <i>p</i> <0.05, ** <i>p</i> <0.01. |          |                   |             |          |          |       |                       |                              |                                            |

**Table 7: Results of Linear Regression Analysis 2 (n=640)**

|          | B     | Std. Error | Beta | t     | p     | VIF | R <sup>2</sup> | Adjust R <sup>2</sup> | F                  |
|----------|-------|------------|------|-------|-------|-----|----------------|-----------------------|--------------------|
| Constant | 0.022 | 0.108      | -    | 0.203 | 0.839 | -   | 0.615          | 0.613                 | F (3,636)=338.500, |

|                                                                                         |       |       |       |        |         |       |  |  |         |
|-----------------------------------------------------------------------------------------|-------|-------|-------|--------|---------|-------|--|--|---------|
| Partner's Concentration                                                                 | 0.211 | 0.035 | 0.197 | 6.070  | 0.000** | 1.731 |  |  | p=0.000 |
| Partner's Social Interaction                                                            | 0.026 | 0.031 | 0.023 | 0.847  | 0.398   | 1.258 |  |  |         |
| Partner's Proportion of Leisure Time                                                    | 0.638 | 0.031 | 0.639 | 20.473 | 0.000** | 1.610 |  |  |         |
| Note. Dependent variable = Partner's Game Importance, D-W = 1.955, * p<0.05, ** p<0.01. |       |       |       |        |         |       |  |  |         |

**Table 8: Summary of mediation test results**

| Independent Variable => Mediator => Dependent Variable                                  | c       | a       | b        | a*b    | a*b (95% BootCI) | c'      | Test Conclusion           |
|-----------------------------------------------------------------------------------------|---------|---------|----------|--------|------------------|---------|---------------------------|
| My Game Usage => My Game Importance => Romantic Relationship Satisfaction               | 0.072*  | 0.862** | -0.035   | -0.030 | -0.108 ~ 0.039   | 0.132** | Not Significant           |
| My Game Usage => My Game Importance => Romantic Relationship Satisfaction               | 0.072*  | -0.054  | -0.098** | 0.005  | -0.003 ~ 0.020   | 0.132** | Not Significant           |
| Partner's Game Usage => Partner's Game Importance => Romantic Relationship Satisfaction | -0.075* | 0.020   | -0.035   | -0.001 | -0.007 ~ 0.004   | 0.075   | Not Significant           |
| Partner's Game Usage => Partner's Game Importance => Romantic Relationship Satisfaction | -0.075* | 0.951** | -0.098** | -0.093 | -0.208 ~ -0.021  | 0.075   | Complete Mediation Effect |
| <i>Note.</i> * $p<0.05$ , ** $p<0.01$ .                                                 |         |         |          |        |                  |         |                           |

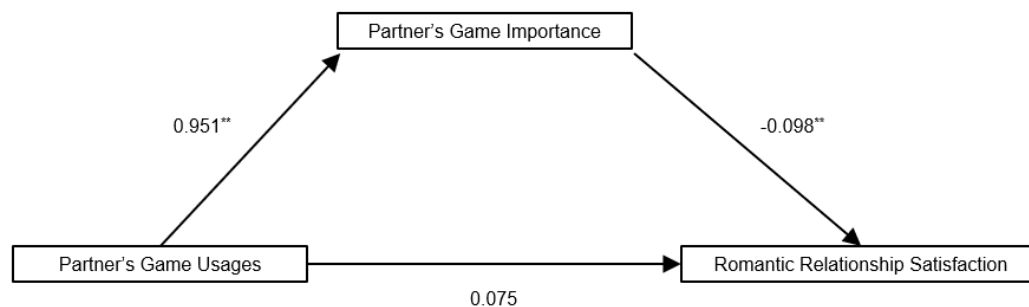


**Figure 1: Mediating Effect Model between Partner's Game Usages and Romantic Relationship Satisfaction**