



## The effect of short game videos on consumers' willingness to purchase virtual items in games: A moderating effect based on game experience



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### ABSTRACT

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With the popularity and development of new media, the short video industry has deeply influenced people's daily shopping behavior and entertainment activities. Similarly, with the development of Internet technology, the game industry is attracting more and more attention from game players and consumers. This study explores the impact of short game videos on gamers' willingness to purchase in-game virtual goods according to the SOR theoretical model and the moderating effect of external stimuli such as consumers' differences in game experience and perceived value on their willingness to buy game virtual products. Through a series of literature research and relevant data analysis and processing, this study confirms that some features of short game videos will not have a significant impact on consumers' purchase behavior, but most features will lead consumers to consume games. Features such as Validity and Serviceability, Interactivity, and Sociability are positively correlated with consumers' willingness on consumption, but Influenceability is not significantly correlated with consumers' willingness to buy. In addition, the game experience of consumers has a significant moderating effect, and the perceived value difference also has an important impact on their purchase behavior. The findings from this study can help the new media industry and the gaming industry to grasp the needs of young consumers, represented by university students, and to adjust their marketing strategies more effectively.

**Contribution/ Originality:** This research studies the moderating effect of the gaming experience on consumers' purchase of virtual gaming products, fostering the development of the new media industry and the gaming industry.

## 1. INTRODUCTION

### 1.1. Research Background

It is stated by a science and education organization called Statista that in 2021, there will be approximately 35 million students enrolled in undergraduate degree program at public universities in China. 19.1 million of these students have a bachelor's degree and the remaining 15.1 million have a specialist and other qualifications (Textor, 2022). The university population, which accounts for 9% of the total consumer population, is contributing to the country's economic development and is also playing an important role as a guide in the future. Overall, the consumption level of university students is characterized by obvious differentiation and strong personalization. At the same time, with the development of new media technology and the rise of the gaming industry, more and more university students are using it as their main leisure time entertainment and devoting part of their daily life to it, mainly by buying virtual props for the games. This paper focuses on the effect of short game videos on the purchase

of game props by game consumers. The development of the Chinese short video industry began in 2011. Since the birth of the 4G network, it has produced platforms with hundreds of millions of users, such as Tik Tok and AAuto quicker, which have established a strong influence in the Internet era. At present, the development of China's short video industry has entered a stable period, with the platforms leading the development having significant scale advantages and the industry competition pattern gradually becoming clear (CNNIC, 2022). According to the latest statistical report on the development of China's Internet network, the scale of Chinese short video users is growing significantly and the market is still set to develop further. As of December 2020, the size of China's Internet short video users reached 722 million people, and the size of short video users is expected to reach 809 million in 2021, which will continue to be on the rise in the future (see Figure 1).

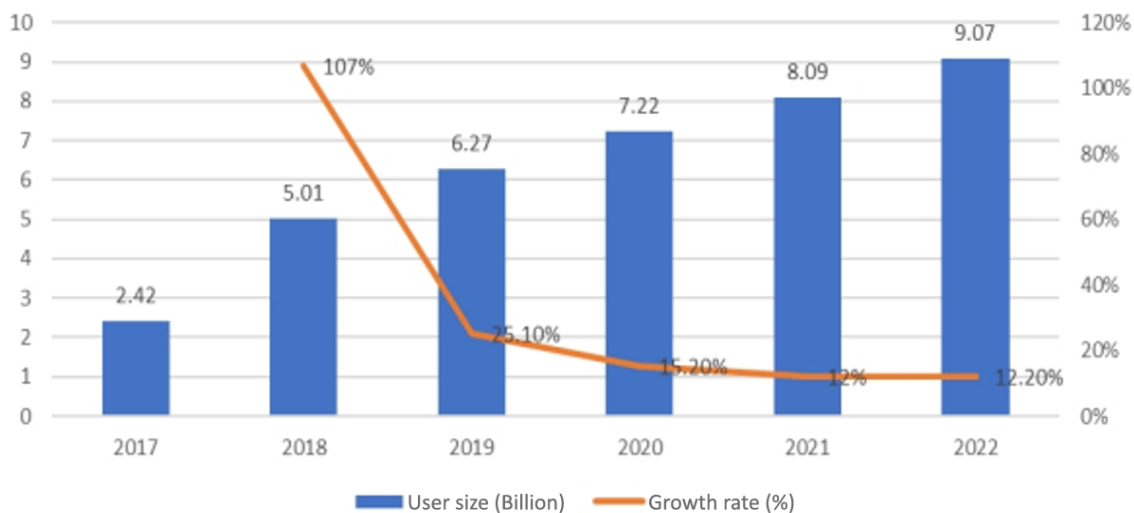


Figure 1. 2017-2022 China short video user size and forecast.

Source: China internet network information center.

As can be seen from the chart, the development of China's short-form video industry has continued to gain momentum, and although the growth rate has shown a downward trend in recent years due to a combination of factors, it is also showing signs of rebound in 2022. With the decline in mobile traffic prices in the 4G era, the further spread of 5G communications, the development of artificial intelligence and big data technologies will provide new support for short-form video platforms, coupled with the strengthening of state regulation of the industry and the increased scrutiny of short-form video posting content by platforms. During the sedimentation period of the development of the short video industry, its quality and content will become more standardized while showing diversification and high-quality development. In addition, the short-form video industry continues to grow in terms of the number of users while its industry revenue continues to grow as well. According to reports, in 2019 China's short video market size reached 82.82 billion yuan, a year-on-year growth of 608.5%, in 2020 the short video market size of 140.83-billion-yuan, year-on-year growth rate still remains at 70%, in 2020-2022 short video market size is still growing at a faster rate, forecast 2025 China's short video industry market size is expected to approach 600 billion yuan (See Figure 2). Short video market will guide the direction of the development of new media market (Tencent News, 2017).

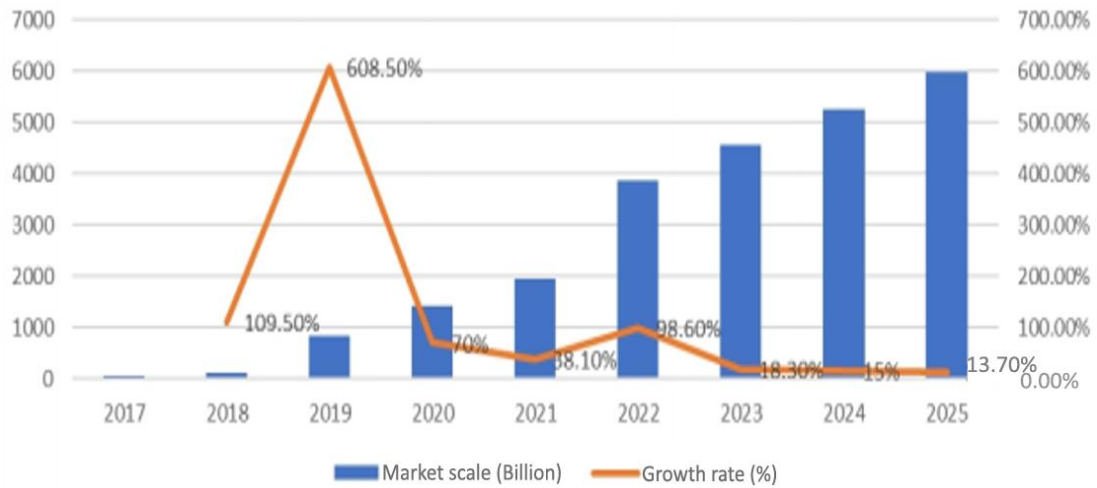


Figure 2. 2017-2025 China short video market scale and forecast.

Source: Tencent News. Com

In addition, the development of the gaming industry cannot be separated from the influence and support of the short video industry, which provides a wider publicity role for the content and virtual props sold by various gaming companies, enabling more players and consumers to have a faster and more complete understanding of the relevant virtual prop products. Compared to pure game players and non-game players, game consumers who like to pay attention to short game videos will spend more on buying virtual in-game props. Influenced by some famous game hosts and professional players who live or make short videos, they tend to have a stronger interest in games. In order to get a better gaming experience, spending on in-game virtual items is driven by increased self-identity, increased self-efficacy, increased social connections. The market situation of the game industry in recent years is generally positively correlated with the development of the short video industry (see Figure 3). A set of dimensions can be identified in the literature, which can be used to characterize and differentiate the various perspectives on consumer research.

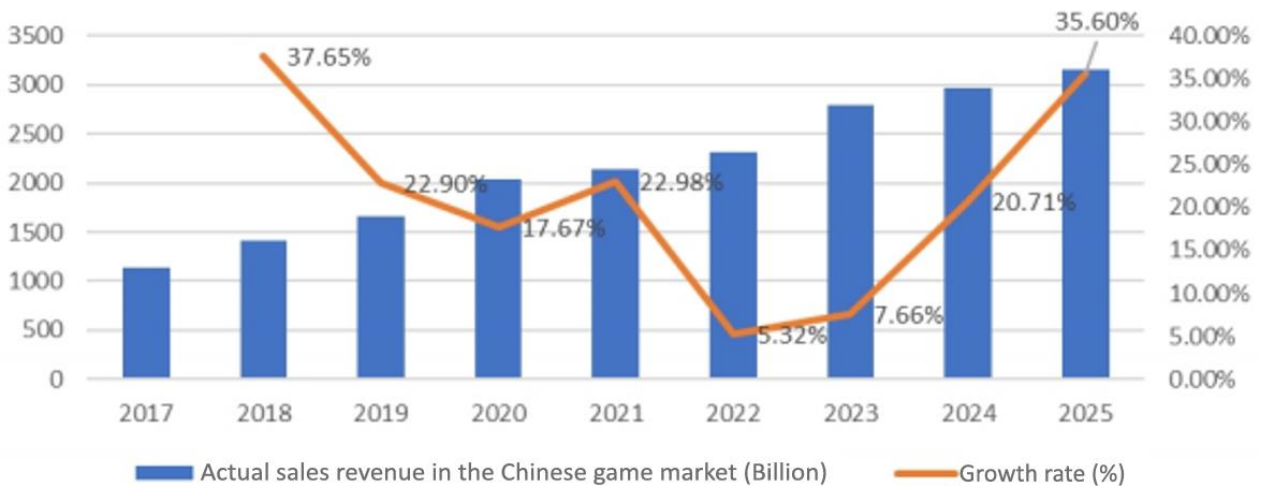


Figure 3. 2017-2025 actual sales revenue and forecast of Chinese game market.

Source: China industry information network.

### 1.2. Research Purpose

The purposes of this research are that: a) Exploring the impact of short game videos on gamers' willingness to purchase in-game virtual goods. b) To study the effect of players' self-efficacy and sense of self-identity, social and teamwork awareness on the purchase of virtual goods in the game. c) Investigating the moderating effect of players' gaming experience on the influence of short gaming videos on players' behavior in purchasing virtual products for

games. d) Examines and compares the role of short game videos in promoting games and the role of player-consumer gaming experiences in influencing university students as a consumer group.

### *1.3. Significance of Research*

The new media short video industry today is growing rapidly, and the gaming industry as the main entertainment industry during the epidemic is developing at a higher level than other industries. While investigations on short-form video and gaming software, as applied to industry development, have tended to be well developed, further research investigations are needed for quantitative academic analysis on the relationship between the two and the associated moderating effects. This study focuses on the influence of the promotional effect of short game videos on the purchase of virtual props by university players, and supplements this with a study of the influence and moderating effect of players' gaming experience on university students' gaming consumption. At the same time, the research results can show the current promotion effect of the short video industry on the development of the game industry and make consumers more aware of their understanding of the consumption behavior of game virtual products, better adjust their own behavior and establish more reasonable consumption concepts and consumption structures. In addition, from the research perspective, game companies and game designers in the game industry can also adjust the functions of in-game virtual products based on user feedback, design game skin images that better meet the needs of the market and consumers, etc. The short video industry can also further develop business strategies to suit market needs by establishing partnerships with game companies.

### *1.4. Conceptual Framework*

This research is divided into six main parts. The first part outlines the industry background of the study, describes the topic to be studied, the purpose of the study and its necessity and importance. The second part focuses on sorting out the literature studies on short game videos, self-identification of game users' gaming experience and purchase intention, describing the definitions and concepts of different variables. The third part explains the research methodology, pointing out the tools used for correlation and regression analysis. The fourth and fifth section applies the specific data analysis methods and models described above to analyze the data collected through the questionnaire and draws several important findings. The final section summarizes the findings and implications of the overall study, suggests ways in which the relevant issues can be further addressed and developed in light of the research process, and raises some limitations.

### *1.5. Innovation Points*

Previous academic studies have focused on the positive and negative effects of the short-form video industry on the gaming industry, and several scholars have elaborated on the idea that consumer behavior has been influenced by the development of the gaming industry and the short-form video industry. However, no scholar has yet specifically studied the moderating effect of gaming experience on consumers' purchase of virtual gaming products. This study explores the extent to which university students' purchases of related virtual products are influenced by the gaming experience from the perspective of major short-form video platform software and various mobile gaming software. It remedies the shortcomings of previous studies. In addition, the findings from this study can help the new media industry and the gaming industry to grasp the needs of young consumers, represented by university students, and to adjust their marketing strategies more effectively.

## 2. LITERATURE REVIEW AND HYPOTHESIS

### 2.1. S-O-R Model

#### 2.1.1. S-O-R Model Characteristic

Stimulus-Organism-Response (SOR) Model as an extension of Pavlov (2010) classic stimulus-response model theory. The stimulus-response model is the first step in understanding consumer buying behavior. According to this model, individual behavior is influenced by external stimulus, and will make internal emotional response according to external stimulus, which will be transformed into human behavior. Individual's own emotional perception plays an intermediary role in the process of stimulus to response (Woodworth, 1929). In the model, S refers to the influence of external stimuli on the body; O refers to the internal psychological state of the stimulated body, namely individual emotional perception; R refers to the external behavior of an individual based on external stimuli and internal psychology (Harappa, 2020). Researchers have widely adopted and used the stimulus-biology-response model (S-O-R) to analyze social media engagement, mobile auctions healthcare online hotel booking behavior (Emir et al., 2016). The S-O-R model reflects the relationship between environmental stimuli, a person's emotional state and the approach or avoidance behavior resulting from the combination of stimuli and emotions. In addition, the model has been found to be suitable for analyzing and understanding whether consumers acknowledge and adopt response decisions because it creates a cognitive assessment of the external environment as a stimulus to people. In contrast, other models such as Unified Theory of Technology Acceptance and Use are limited in their ability to articulate how stimuli initiate consumers' attitudes and intentions (Dzandu, Pathak, & Gulliver, 2020). Thus, the breadth and applicability of the SOR approach facilitates researchers to incorporate complex aspects such as cognitive and affective components into their own research settings, broadening the inquiry into the factors that influence external stimuli on consumer purchase behavior in business (Kim, Lee, & Jung, 2020).

### 2.2. Application Characteristics of Short Videos

The length of a short video is usually measured in seconds. It refers to a new short video that is played on the network platform for people to watch, browse and share at any time, from seconds to 5 minutes. It spreads to the audience through mobile internet technology, with entertainment, science, singing, and fashion as the main content, so as to gain the attention of the audience (Xue & Xv, 2016). Here the content will be introduced using the Jitterbug short video software. Firstly, Jitterbug Short Video is a platform that provides social information to consumers. It relies on mass communication theory for its development. In the process of using it, the user technology collects and forwards the content of interest or favorite compilations to the WeChat circle of friends and other social media, which further expands the audience and allows for real-time interaction and comments, which adds a social attribute to short videos. In addition, the development of short video industry can also drive the development of related industries. Since the development of short video industry and game industry is well integrated, this study will focus on the effect of short game video on game user experience. In addition, the development of short video industry can also drive the development of related industries. Therefore, this study will focus on the impact of short video games on game user experience.

#### 2.2.1. The Impact of Short Game Videos on Consumer Gaming Experience

As mentioned above, short video games can have an impact on the game industry, as well as on the gaming experience of gamers. Specific influences can be divided into the usefulness, usability, sociability, interactivity of short videos and the influence of opinion leaders on game experience. Usefulness refers to the features of a product that can meet user needs or help users solve certain problems. Such as books, short video useful performance enough through the sense of compatibility and emotional evoke a positive impact on the book purchase intention, can directly affect the user book purchase intention (Kui, Wang, & Liu, 2020). Compared with the introduction of in-game virtual props in books and texts, short videos provide more vivid information of valuable game props for

players and users, allowing consumers to experience game-related products from a more immersive perspective, thus generating good game experience and perceived value difference. Customer value, also known as customer perceived value, refers to the difference between customers' perceived evaluation of product benefits and product costs. The cognition of the consumer determines whether he feels the sufficient value provided by the product or service when he pays a certain price. If the customer doesn't think he's paying enough to match the effect of the product he's getting, he'll regret the purchase (GeekTonight, 2022). According to the above literature, the following hypotheses can be established in this study:

*H.a. The serviceability of short video features positively affects consumers' sense of pleasure on game experience.*

*H.b. The serviceability of short video features positively affects consumers' emotional value difference.*

Validity refers to the feature that a product can help users solve certain problems quickly and conveniently. Chu found that usability of short videos positively affects the use of game items and consumers' purchase intention (Chu, Liu, Li, & Lei, 2021). When players find the elements of the video presentation easy to understand and the short video software easy to use, they are more likely to purchase virtual items in the relevant game. Validity is a core concept of usability. It includes all the user experience (UX) elements that relate to how easy it is for users to learn, discover content, and do more with the design of product. In UX design, usability is the minimum requirement for any successful product, but good usability alone does not guarantee market success. However, if a business creates an interface that is easy to use, emotional design can be used to some extent to help users understand the product better, and thus create a desire to buy (International Design Foundation, 2021). As customers prefer websites which are easier to use, website usability is a quality factor and at the same time an important antecedent of customer satisfaction during and after use. Website usability remains an important concept or research and design, so far as websites are the most popular access point used by consumers to access e-services (Dabrowski, 2014). Typical findings of relevant studies show that consumers' belief in perceived risk, perceived usefulness, ease of use and trust in related network technologies affect online purchase intention. The research above focuses on the factors that influence consumers' decision to adopt online shopping, either in combination with or as an alternative to traditional retail shopping. What is missing from this series of studies is the phenomenon of interest in how the content of beliefs relates to human behavior (e.g., online shopping), rather than the belief in the technology itself (e.g., perceived usefulness, ease of use) that influences intent and behavior (Girish, 2011). Since short video is a new media information dissemination method with ease of use, the following assumptions can be made in this study:

*H.a. Validity has a positive effect on consumers' sense of pleasure on game experience.*

*H.b. Validity has a positive effect on consumers' emotional value difference.*

Online gamers can form meaningful relationships with other gamers and change these relationships. Digital games can create a social environment where people can make meaningful connections and form different relationships, with male gamers tending to make friends in a gaming environment. Female gamers were more likely to form relationships in realistic settings in realistic settings. On the other hand, according to a qualitative study, gamers were found to prefer to play in isolation for a few hours, putting their social relationships aside and playing in isolation for a few hours, but they put their social relationships with friends and family aside in the gaming environment (Jansz & Martens, 2005). They also reported that 80% of the 912 gamers preferred to play with their friends. This proves that gamers prefer to play games with their friends and family, yet research in the same study showed that only a quarter (26.3%) of the 912 gamers played online games with their family and real-life friends. Family members and real-life friends play online games together. Playing games with family members may lead to more cooperation and relatedness. On the other hand, in Peters and Malesky Jr (2008) study, it was found that there were many gamers who looked for social relationships in the gaming environment. Gamers who seek out social relationships in a gaming environment may have problems forming social relationships in real-life settings. As a result, they may avoid face-to-face contact. In their research in their study of World of Warcraft gamers found

that some gamers may have problems with rejection in the real world. rejection and as a result they tend to seek social contact in a safer environment (Peters & Malesky Jr, 2008). Some researchers claim that personal traits play an important role in gaming preferences and social interactions (Park, Song, & Teng, 2011; Sheeks & Birchmeier, 2007). Sheeks and Birchmeier (2007) support the idea that individuals who exhibit higher levels of shyness may show "better friendship quality" with online friends. On the other hand, according to Park, 'agreeableness' and 'extraversion' are considered to be 'strong motivational predictors' of playing online games playing online games. Extraversion is one of five core traits characterized by 'sociability', and 'talkativeness' (Jeng & Teng, 2008). Fang and Zhu also support the idea that digital gamers with high extraversion scores will enjoy playing games that require a lot of social interaction. If people support that the games, they play offer opportunities for social interaction. If people support that the games they play offer opportunities for social interaction, and if they value these opportunities highly, then they will be motivated to play this type of game. Based on the above literature survey, the following assumptions can be assumed:

*H<sub>3a</sub>. Interactivity has a positive effect on consumers game experience.*

*H<sub>3b</sub>. Interactivity has a positive effect on consumers' emotional difference.*

*H<sub>4a</sub>. Sociability has a positive effect on consumers game experience.*

*H<sub>4b</sub>. Sociability has a positive effect on consumers' emotional difference.*

Influence ability also called Opinion leadership is the ability of a person to informally shape the attitudes, opinions, and public behavior of others. An opinion leader is a person who is able to change the attitudes, opinions or behavior of his or her followers because of his or her ability (knowledge), personal traits or expertise. In the business world, opinion leaders, also called opinion leaders, can attract consumers to a good by marketing and presenting that good, but also electronic virtual products, such as virtual props for games (Katz, 1957). However, Gnamb and Batinic (2013) demonstrate that for an opinion leadership to have a real impact on his/her followers, it is not enough to have competence or knowledge, they also show that the opinion leadership must also have specific competencies and independent dominant personality traits such as an influencer (Gnamb & Batinic, 2013). For today's society, people are becoming more and more knowledgeable and knowledge and competencies are becoming less and less influential for today's consumers who want to promote their products through opinion leaders, the way in which the promotion is done and the message is expressed is becoming more and more important, for example, when a brand wants to promote its own products, the number of followers or likes determines the influence, images, comments or opinions one receives, anyone can With the freedom to post their opinions through different types of word of mouth, such as reviews, recommendations and likes, anyone can become an opinion leader, even in cases where they are not an expert (Turcotte, York, Irving, Scholl, & Pingree, 2015). Although this strategy has been successful in terms of communication when launching new products, this does not mean that actual sales revenue is secured (Lin, Bruning, & Swarna, 2018). For the short video industry, the social aspect in video applications is the perceived value of the benefits gained from communication between users through effective communication, such as gaining recognition from others (Zhang, Lu, & Xiang, 2017). In addition, Zhang, Tang, and Wang (2015) found that the social attributes of short videos allow professional organizations to have a personified image and be able to express anthropomorphic messages, thus removing the psychological distance between the user and the medium or organization (Zhang et al., 2015).

Based on the above research survey literature, the following hypotheses can be assumed:

*H<sub>5a</sub>. Influenceability has a positive effect on consumers game experience.*

*H<sub>5b</sub>. Influenceability has a positive effect on consumers' emotional difference.*

### **2.2.2. The Moderating Effect of Gaming Experience on University Students' Purchase of Virtual Gaming Products**

The concept of the game experience encompasses not only the gameplay, but also the game itself and its influences. It is the game itself, the way it is presented, its style, the interactions within the community, the nature

of the community itself, and the way the game influences the player's understanding of other games, other media and the rest of the world (Lynn, 2012). The game experience can be divided into two parts: user pleasure and user perceived value difference. User pleasure is mainly summarized as the positive physiological and psychological response of the user during the experience of the game, which has a positive effect on the organism and reacts to the object itself. By contrast, object emotional differences describe the effect that differences in brain structure or factors such as culture, upbringing and environment have on the perception of humans. Interindividual variability is usually regarded as a source of noise for research. However, in recent years, it has become an interesting source to study sensory mechanisms and understand human behavior (Abramson, Seligman, & Teasdale, 1978). In addition, studies have shown that pleasure emphasizes the experience of emotional arousal when players or ordinary users watch short videos, specifically in the form of novel content, interesting presentation, and plot, etc., which makes users have a good immersion experience. Lavie argues that good aesthetic design is more likely to be liked by users in an e-tailing environment and to enhance their emotional engagement (Lavie & Tractinsky, 2004). As opposed to virtual products, positive emotions are directly proportional to the willingness to buy, which can be understood in the field of short videos as the higher the player's pleasure after watching a video, the more likely he is to buy the relevant game product (Hassanein & Head, 2007). Based on the above literature research, the hypothesis can be assumed:

*H<sub>6</sub>: Game experience has a positive moderating effect on the external stimulus promoting consumers to buy game virtual products.*

*H<sub>7</sub>: Consumer emotional value difference has a positive moderating effect on the external stimulus promoting consumers to buy game virtual products* Research model

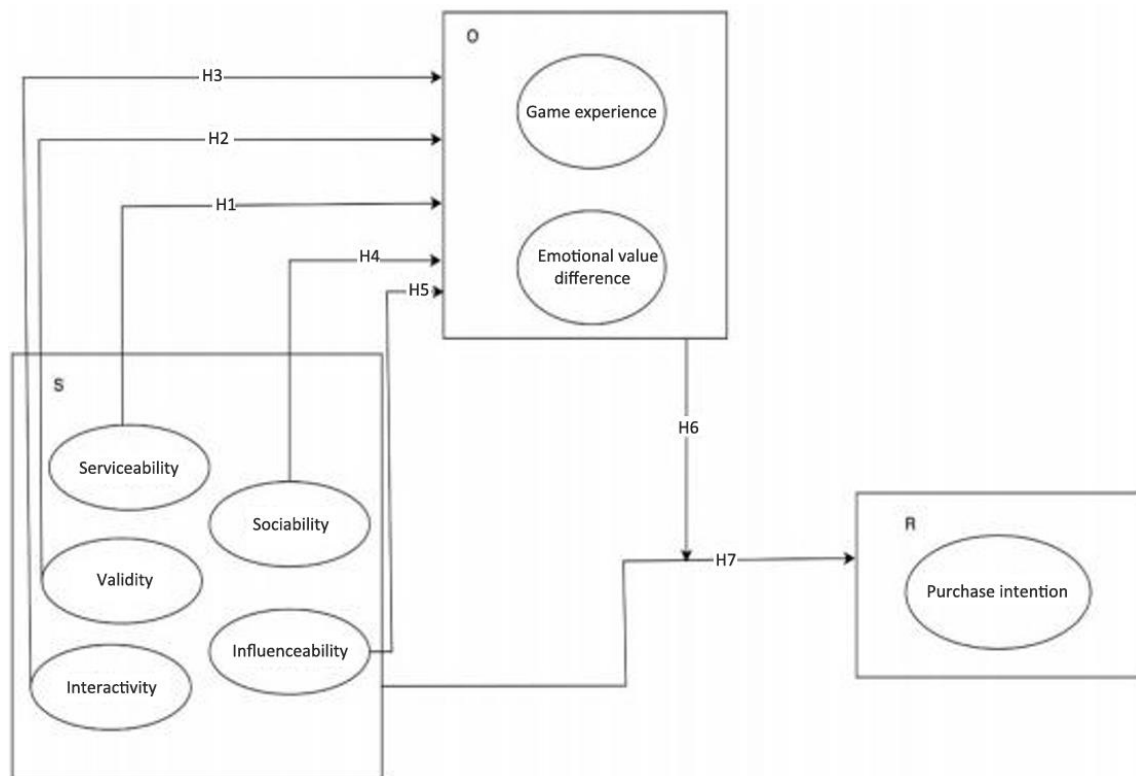


Figure 4. S-O-R research model.

Figure 4 illustrates the relationship between the effects of the elements using the S-O-R research model.



### 3. METHODOLOGY

#### 3.1. Research Methods

This thesis was conducted using a documentary research method, descriptive and interpretive research methods. In addition, data needed for academic research was collected through data collection methods and the design of a self-administered questionnaire. Regarding this range of research methods, the documentary research and descriptive methods were able to describe the development of the short video industry in general and the context of the research study. The collection of relevant data from the questionnaire was used to test the validity of a series of hypotheses made by reliability tests. A self-administered questionnaire was designed to collect the opinions of people from all walks of life on the research and to understand the impact of short game videos on users' willingness to purchase virtual products.

Through the analysis of the causal relationship between variables, the moderating effect of gaming experience on the relationship between the independent and dependent variables is introduced. After clarifying what the variables consist of, the paper then uses the SOR model to illustrate the influence of the independent variable, i.e. the six external stimuli brought by the short game videos to consumers, on the dependent variable, i.e. consumers' willingness to purchase virtual products. Finally, by using data analysis software such as SPSS and Excel, the paper draws conclusions and draws relevant insights and suggestions for the development of the industry through the analysis of data such as plausibility analysis, regression analysis, calculation of mean and variance respectively.

#### 3.2. Research Design

##### 3.2.1. Research Question

The purpose of this study is to examine the impact of external stimuli from short game videos on consumers' purchase of virtual products in games, and to explore the moderating effect of a factor such as the game experience on consumers' purchase intentions. By classifying consumers by gender, age, education and occupation, the study examines the response of different groups to this moderating effect.

##### 3.2.2. Questionnaire Design

This questionnaire was designed in Chinese as the study population is Chinese consumers. This questionnaire consists of three parts. The first part includes basic information about the respondent such as gender, age, education and work to ensure a broad survey. The second part looks at consumers' investment in game top-ups to understand consumers' preferences for game genres and their spending power on game products. The third section introduces external factors of short game videos to examine the impact of short game videos on consumers' game top-ups and uses a Likert scale to measure the intensity of consumers' willingness to top-up games for different reasons. The external factors can be divided into five aspects: serviceability, sociability, validity, influence ability and interactivity. Each aspect consisted of two to three questions, each represented on a Likert scale of 1 to 5. 1 represented complete disagreement with the topic, 2 represented slight disagreement with the topic, 3 represented a tendency to agree with the topic, 4 represented a tendency to agree with the topic, and 5 represented complete agreement with the topic. A Likert scale is a rating scale used to measure opinions, attitudes or behavior. It consists of a statement, or a question followed by a number from 1–5 representing the scale. Respondents select the option that best matches how they feel about the statement or question. As respondents are given a range of possible answers, the Likert scale is well suited to capturing in a more subtle way the extent to which they agree with or feel about the topic. However, Likert scales tend towards response bias, using different scales both to explore respondents' attitudes and to exclude the influence of extreme opinions. Its common in survey research, as well as in marketing, psychology or other social science fields (Bhandari, 2023).

### *3.3. Measurement of Variables*

#### *3.3.1. Control Variables*

The control variables were gender, education, age, and the amount of money spent on games per month. These variables are other variables affecting consumers' purchase intention except short video external stimulus and game experience. By listing the above variables of consumers separately, this study separates the relationship between them, and the three variables studied in this subject, so as to reflect the relationship among the three more accurately.

#### *3.3.2. Independent and Moderating Variable*

As independent variables, this study classifies the impact of short game videos on users into five areas: usefulness, ease of use, sociality, interactivity, and opinion leader influence. The specifics of these include whether the content of the short video play provides players with useful information about the game and whether the short video is promoted in a simple and clear manner. The stimulus of short game video can guarantee the users understanding of game application. According to the relevant media investigator (Yi, 2021) there are two main types of short game videos, one is the short video with editing and background music, without the assistance of tournament commentary, this kind of short video is mainly for the group of gamers who have certain gaming experience and can understand the background of the game, they can understand the content of the short video through simple picture display. The other type of short video is one that directly captures clips from the game, adds titles and keywords and then publishes them directly on the short video platform. This type of short video of tournament highlights is mainly aimed at game enthusiasts and light gamers, who understand the content of the short video through the game commentary and the title of the short video. It is characterized by its direct content, strong distribution and updates that are constantly updated as the tournament progresses (Yi, 2021).

#### *3.3.3. Dependent Variables*

For the dependent variable, this study takes on the size of the consumer's willingness to top up the game. To facilitate the respondents' understanding of the variables, the dependent variable is divided into the gamers' liking for short game videos and their willingness to purchase in-game virtual products including game coins and game skins.

### *3.4. Data Collection and Analysis Methods*

The population surveyed is divided into specialist, undergraduate, master and doctoral students according to their education level. Respondents were classified according to their job nature and included respondents from the management industry, chemical industry, electronic technology industry and other industries. The questionnaire can be filled out online in real time, and the survey is extensive and convenient. However, some invalid data is generated in the process of data collection, which can be filtered out by the spss20.0 data processor. The data analyzer was also used to conduct reliability tests, factor analysis, correlation analysis and regression analysis for this study to test and compare the data, which helped to draw conclusions and analyze the findings. A total of 226 questionnaires were returned, of which 20 were invalid, including respondents who did not fill out the questionnaire well, respondents who filled out the information too similarly, and respondents who may not have understood the meaning of the relevant questions and options well. The validity of the questionnaire is 91.1%.

## **4. FINDINGS**

### *4.1. Descriptive Statistics*

In the sample, there are 226 questionnaires collected from game consumers. However, 20 questionnaires are invalid, there are 206 questionnaires can reflect the condition of game consumers' attitude of game short video and

game consumption. Among them, Male accounts for 44.2% while Female accounts for 55.8%. The number of male consumers is 91 and the number of female consumers is 115. From the statistics collected from different area in China, it can reflect that Female consumers are a little more than the Male consumers, most of them are over 30 years old while some of them are between 20-24 years old, ranking as the second largest groups among these consumers. As for the academic education level, the undergraduate accounts for 57.3% with the number of 118, the junior college accounts for 30.6% with the number of 63, this number is 20% lower than the undergraduate consumers. Among those respondents, 65 people were in the business and management or statistics sector, accounting for 31.6% of the total, while 17 people were in the electronic technology sector and 10 were in the chemical industry. There were also 114 people in other professions, accounting for the largest proportion of the total, at 55.3%. When it comes to respondents' opinions on game consumption and on short game videos, the situation has little to do with respondents' education and job occupation. According to the survey, although most of the respondents have more than four years of gaming experience, accounting for 45.1% of the total number of respondents, this group still has a conservative concept of game top-ups, with 63.6% of respondents whose average monthly top-ups do not exceed 100 Yuan, higher than those who spend more than 100 Yuan per month by about 27%. Besides, the weekly gaming time of those surveyed was mainly concentrated in less than one hour, followed mostly by those who had more than five hours of gaming experience per week. In addition, 47.1% of the respondents liked design and cultivation games and 21.8% liked MOBA games, ranking in the top two of all games, in addition to racing games and shooting games. To understand and study the impact of short game videos on gaming consumer behavior it is necessary to identify consumers' motivations for spending money on games and consumers' perceptions of whether short game videos promote gamers to spend more money on games. According to the survey results, about 52.4% of the 108 consumers spend money on games just for relaxation and pleasure. The reason for 74 consumers to spend money on games is to enhance their strength in the game and to have a better gaming experience, which is about 35.9%.

Table 1 presents the descriptive statistics analysis results.

Table 1. Descriptive statistics analysis results.

Valid	Gender	Frequency	Percent	Valid percent	Cumulative percent
	Male	91	44.2	44.2	44.2
	Female	115	55.8	55.8	100
	Total	206	100	100	
Valid	Age				
	Within 20 years old	20	9.7	9.7	9.7
	20-24 years old	77	37.4	37.4	47.1
	25-30 years old	24	11.7	11.7	58.7
	over 30 years old	85	41.3	41.3	100
	Total	206	100	100	
Valid	Education level				
	Junior college	63	30.6	30.6	30.6
	Undergraduate	118	57.3	57.3	87.9
	Postgraduate	21	10.2	10.2	98.1
	Doctorate	4	1.9	1.9	100
	Total	206	100	100	
Valid	Monthly/Quarterly spending within handheld/Endgame				
	50-100 Yuan	131	63.6	63.6	63.6
	100-300 Yuan	36	17.5	17.5	81.1
	300-500 Yuan	13	6.3	6.3	87.4
	over 500 Yuan	26	12.6	12.6	100
	Total	206	100	100	
Valid	Career				
	Management or	65	31.6	31.6	31.6

Valid	Gender	Frequency	Percent	Valid percent	Cumulative percent
	Male	91	44.2	44.2	44.2
	Female	115	55.8	55.8	100
	Total	206	100	100	
	statistics				
	Electronic technology industry	17	8.3	8.3	39.8
	Major in chemistry or physics	10	4.9	4.9	44.7
	Others	114	55.3	55.3	100
	Total	206	100	100	
Valid	Game experience time length				
	Within 1 years	55	26.7	26.7	26.7
	Within 2 years	30	14.6	14.6	41.3
	3-4 years	28	13.6	13.6	54.9
	Over 4 years	93	45.1	45.1	100
	Total	206	100	100	
Valid	Game experience time per week				
	Within 1 hour	72	35	35	35
	1-3 hours	43	20.9	20.9	55.8
	3-5 hours	25	12.1	12.1	68
	Over 5 hours	66	32	32	100
	Total	206	100	100	
Valid	Consumers game preference				
	Design formative games	97	47.1	47.1	47.1
	Shooting games	40	19.4	19.4	66.5
	MOBA games	45	21.8	21.8	88.3
	Speeding games	24	11.7	11.7	100
	Total	206	100	100	
Valid	The reason of game consumption				
	Enhance personal strength in the game, get better game experience	74	35.9	35.9	35.9
	Show their financial resources to attract more game friends	11	5.3	5.3	41.3
	Gain a sense of identity in the virtual game world	13	6.3	6.3	47.6
	Other reasons may be just to relax	108	52.4	52.4	100
	Total	206	100	100	
Valid	The influence of short game video games on consumers purchase intention of game virtual products				
	Very small	79	38.3	38.3	38.3
	Small	33	16	16	54.4
	Normal	67	32.5	32.5	86.9
	Great	27	13.1	13.1	100
	Total	206	100	100	

Through the analysis of mean data, it can be seen that there are more women surveyed, and most of the respondents are between 25 and 30 years old, and their education level is mainly concentrated in the undergraduate stage. The mean data of the above three items are 1.56, 2.84 and 1.83 respectively. On average, respondents spent about 100-150 yuan per month on games, but those who spent less than 50 yuan spent the most. Among them, there is a large base of people with 3-4 years of gaming experience. This group of people has about 2 hours of gaming time per week on average, so they can be identified as preliminary game enthusiasts. Over the past few

years, gaming has grown to become one of the largest entertainment media in the world, surpassing books and music, and it is expected to continue to grow in the coming years (Penn, 2021). The mean values of the above two items are 2.77 and 2.41, respectively. Last but not least, consumers are influenced by short video of games to recharge their accounts. Firstly, among 226 respondents, the most popular type of game is game of design and development, and consumers buy virtual products of games for the purpose of relaxation and better game experience. The number of respondents who think that new media such as short game videos have an influence on the purchase of game virtual products is the largest, but not large. However, due to the deviation degree of the answers to the above three questions, it can be believed that consumers of different groups have different views on the influence of new media industry on the development of game virtual products.

Table 2 presents the descriptive and eigenvalue result analysis.

Table 2. Descriptive and eigenvalue result analysis.

Variables	N statistic	Minimum statistic	Maximum statistic	Mean statistic	Std. error	Std. deviation
						Statistic
Gender	206	1	2	1.56	0.035	0.498
Age	206	1	4	2.84	0.075	1.075
Education level	206	1	4	1.83	0.047	0.679
Monthly consumption in game app	206	1	4	1.68	0.073	1.052
Careers	206	1	4	2.84	0.096	1.372
Game experience length	206	1	4	2.77	0.089	1.273
Game playing time per week	206	1	4	2.41	0.088	1.261
Game consumption categories preference	206	1	4	1.98	0.075	1.077
Game consumption reason	206	1	4	2.75	0.098	1.401
The influence of short game video on game consumption	206	1	4	2.2	0.076	1.094

#### 4.2. Reliability and Validity Test

The same SPSS version 20 software was used to process the data for the reliability and validity analysis of this study. The Cronbach's alpha coefficient for the entire survey is 0.958, as can be seen in Table 4-3, which explores the impact of short game videos on game top-ups, and thus on consumer purchases of game products, in five dimensions. According to the analysis of the relevant de novo study, after the questionnaire data has been processed by the data model, a Cronbach alpha coefficient higher than 0.7 is more appropriate, and if higher than 0.8 the data processing effect is superior (Collins, 2007). Therefore, as the overall Cronbach's alpha for this questionnaire is 0.958, this questionnaire is true and valid. Regarding the validity analysis, because of the extensive literature corroboration conducted in the conduct of this study, which has been analyzed by sufficient experts and scholars on the feasibility of this study, the research study on the effect of short game videos on consumers' purchase of virtual products of games is reliable and valid. According to relevant studies, the variance for a data set is denoted by the symbol  $\sigma^2$ . For population data, its formula is equal to the sum of squared differences of data entries from the mean divided by the number of entries. While for sample data, it should divide the numerator value by the difference between the number of entries and unity (Jatinxcx, 2022). The smaller the variance of a set of data, the less discrete they are. Within the same set of questions in a questionnaire, the lower the variance of the Cronbach alphas, the less divergent the respondents' opinions on the set of questions and the more scientific and generalizable the conclusions drawn. Conversely, a larger variance in a set of data indicates a higher degree of dispersion and a greater number of respondents with different views on an issue. The process of research on related topics requires further study and research. Furthermore, according to the credibility analysis of the study, the degree of credibility can be measured

based on the magnitude of the sig value. At a 95% confidence level, the sig result obtained for each age group of consumers is 0.0001, which is less than the typical value of 0.05 for an implausible interval (Carmona, 2009). Therefore, this research study is valid.

Table 3. The validity test and analysis of the research.

Factor	Item	Cronbach's $\alpha$	Total Cronbach's $\alpha$
Validity	V1	0.851	0.886
	V2	0.863	
	V3	0.602	
	V4	0.884	
Serviceability	S1	0.772	0.866
	S2	0.882	
	S3	0.554	
	S4	0.836	
Sociability	S1'	0.532	0.876
	S2'	0.771	
	S3'	0.874	
	S4'	0.884	
	S5'	0.779	
Interactivity	I1	0.651	0.843
	I2	0.742	
	I3	0.883	
	I4	0.746	
Influenceability	I1'	0.884	0.837
	I2'	0.863	
	I3'	0.598	
	I4'	0.675	

Table 4. ANOVA test and analysis of the research

ANOVA with Tukey's test for non additivity.						
Variables	Sum of squares	df	Mean square	F	Sig.	
Between people	4296.875	205	20.96			
Within people	Between items	715.749	19	37.671	42.688	0.000
	Residual   No additivity	311.460a	1	311.46	388.006	0.000
Balance	3125.791	3894	0.803			
Total	3437.251	3895	0.882			
Total	4153	3914	1.061			
Total	8449.875	4119	2.051			

#### 4.3. Correlation Analysis

The correlation coefficient Pearson correlation coefficient was used in this study to analyze the correlation between the variables. In Tables 4-5 the correlation coefficients focusing on the impact of different characteristics of short videos on consumers' willingness to purchase virtual products for games are shown for the whole sample. From the table, it can be concluded that the Pearson correlation coefficient has a small percentage of coefficients above 0.5 and some coefficients above 0.5. This proves that the correlation between the variables validity and serviceability is not high. In contrast, the correlation coefficients for influenceability and interactivity are higher than the previous two, demonstrating that the characteristics of opinion leadership and interactivity have a greater impact on consumers' willingness to purchase virtual products. Their correlation coefficients are 0.742 and 0.703 respectively, which are strongly correlated. In addition, as each variable is correlated with the research topic, further regression analysis can be conducted.

Table 5. The correlation coefficient analysis of the research correlations analysis.

Variable	G	A	EL	MC	C	GEL	GCP	NMI	V
G	1 206								
A	0.044 0.263	1							
EL	-0.101 0.074	-0.343**	1						
MC	-0.281** 0	-0.044 0.264	0.274** 0	1					
C	-0.033 0.32	0.383** 0	-0.207** 0.001	0.001 0.492	1				
GEL	-0.198** 0.002	-0.279** 0	0.408** 0	0.284** 0	-0.113 0.053	1			
GCP	-0.243** 0	-0.007 0.461	0.169** 0.008	0.188** 0.003	0.018 0.4	0.1 0.077	1		
NMI	-0.129* 0.032	-0.093 0.091	0.321** 0	0.328** 0	-0.131* 0.03	0.244** 0	0.248** 0	1	
V	0.058 0.203	-0.155* 0.013	0.294** 0	0.202** 0.002	-0.06 0.197	0.337** 0	0.066 0.173	0.502** 0	1

Note: G gender, MC monthly consumption, EL educational level, C careers I1 in teractivity, V validity, GEL game experience length, GCP game categories preference, NMI new media influence.  
\* and \*\* and indicate that the regression coefficients are significant at confidence levels of 1%, and 5% respectively.

Table 5. Continue....

Variable	S1	V x S1	S2	I1	I1 x S1	I2	I2 x S2
S1	1						
V x S1	0.710** 0	1					
S2	0.619** 0	0.641** 0	1				
I1	0.608** 0	0.657** 0	0.697** 0	1			
I1 x S1	0.652** 0	0.742** 0	0.682** 0	0.742** 0	1		
I2	0.564** 0	0.591** 0	0.507** 0	0.564** 0	0.473** 0	1	

Note: I1 interactivity, S1 serviceability, S2 sociability, V validity, I2 influenceability.  
\*\* indicate that the regression coefficients are significant at confidence levels of 5% respectively.

#### 4.4. Regression Analysis

The regression analysis of the differences in the gaming experience and perceived value of the virtual product consumers who are influenced by the short gaming videos and hence the different gaming experience is shown in Table 4-6. From the results of the study, all of its confidence level sig values are around 0.0001, which is much smaller than the confidence period of 0.05, so this regression analysis is valid. In addition, all the Durbin-Watson values are between 2 and 4, then it proves that there is a positive relationship between the two variables (Zach, 2021). Again, since all the Durbin-Watson values are less than 1, it shows that the model construction is reasonable. From the linear regression analysis, the beta values for Validity and serviceability were 0.04, 0.101, 0.135, and 0.032 for gender, education level, occupation, and average monthly gaming commitment respectively, all showing weak positive correlations. A weak inverse correlation was found with the age of the respondent. ( $\beta = -0.101 < 0$ ,  $p = 0.313 > 0.05$ ) Therefore, the one factor of monthly consumption cannot be validated, the remaining factors of H1a, H1b, H2a, and H2b cannot be validated, proving that the effectiveness and ease of use of short game videos can positively influence the purchase intention of game consumers. In contrast, the  $\beta$  coefficients between Sociability and interactivity and gender, education level, average monthly game consumption and occupation are all positive, while only age has a  $\beta = -0.228$ , indicating that the older the respondent is, the less significant the social interaction experience with short game videos is. Also, since  $p = 0.000 < 0.001$  for the whole group, it is possible to obtain that the four hypotheses of H3a, H3b, H4a, and H4b are valid, but the positive correlation between the characteristics of

sociality and interactivity and the variables of gender, education level, and occupation of the respondents is weak. Finally, regarding the influence of opinion leaders on consumers' purchase of virtual gaming products. Beta values of this item show that the coefficients of education level and average monthly gaming investment level are positive at  $\beta=0.173$  and  $\beta=0.112$  respectively, proving that people with higher education level and higher average monthly income recognize the role of opinion leaders in the field of short video, and these two factors are positively correlated. In addition, the older the respondents are, the less likely they tend to recognize the meaning of the term opinion leader or to agree that opinion leaders had a positive effect on their willingness to game consumption. Likewise, the moderating effect of external agents is equally important, with differences in consumers' gaming experiences and perceived value having an impact on their willingness to consume games. According to the analysis, consumers' age  $\beta = -0.146$ , indicating that this item is negatively related to consumers' willingness to top up their game. It is alleged by the surveys that players' willingness to buy virtual products for games is influenced by factors such as age (Girish, 2013). Teenagers, being more sensitive to external stimuli, are prone to the problem of large differences in perceived value and will be more likely to be willing to purchase in pursuit of a gaming experience. Conversely, as they grow older, mature adult consumers will weigh more factors, thus reducing the impact of perceived value differences on their emotions and purchasing virtual gaming products more rationally to gain a better gaming experience. Thus, the Durbin-Watson figure of this group is 2.019 and 1.980. The sig number  $p=0.12>0.05$ ,  $p=0.000<0.01$ . From the result, it can be concluded that this part of Regression Analysis is valid and the organism factor moderating effect do have an influence on the consumers' game purchase intention. H5a, H5b are not supported while H6 H7 are supported.

Table 6. Regression analysis and hypothesis test of the research.

Analyse	$\beta$	t	p	VIF	R2	F	DW
Control variables							
MC	0.135	1.811	<0.001	1.375	0.049	2.049	2.154
Gender	0.04	0.053	<0.001	1.375			
H1& H2							
Gender	0.112	0.553	0.581	1.431	0.025	6.347	2.051
S & V	0.032	0.473	0.313	1.321			
MC	0.18	1.811	0.072	1.561			
EI	0.208	1.311	0.191	1.342			
C	0.032	0.42	0.675	1.247			
H3 & H4							
Gender	0.181	0.925	0.003	2.423	0.137	7.674	2.02
S & I	0.232	-0.3059	0.001*	1.375			
MC	0.159	1.666	0.047	1.456			
EI	0.398	2.609	0.005	3.159			
C	0.026	0.356	0.001*	1.414			
H5							
Gender	-0.07	-0.352	0.725	1.413	0.116	5.259	2.019
I & PI	0.154	0.328	0.12	1.472			
MC	0.152	1.56	0.763	1.523			
EI	0.364	2.336	0.543	1.423			
C	-0.413	-0.302	0.6	1.321			
H6 & H7							
Gender	0.078	0.201	0.000	1.432	0.451	14.062***	1.980
MC	0.289	0.157	0.001	1.234			
EI	0.266	0.232	0.000	1.527			
C	0.032	0.132	0.013	1.423			
SV x SI	-0.254	0.432	0.543	1.432			
SV x PI	0.054	1.324	-0.542	1.405			
SI x PI	0.642	2.102	0.642	1.832			
Supported				H3a H3b H4a H4b H6 H7			
Not supported				H1a H1B H2a H2b H5a H5b			

Note: G Gender, M Male, F Female, MC Monthly consumption, EI Educational level, C Careers, I Interactivity, S1 Serviceability, S2 Sociability, V Validity, I2 Influenceability, PI Purchase intension, GEL Game experience length, GCP Game categories preference, NMI New media influence  
 \*\*\* indicate that the regression coefficients are significant at confidence levels of 10%, respectively.



## 5. DISCUSSION, IMPLICATIONS AND CONCLUSION

### 5.1. Discussion of Findings

This study examines both theoretically and empirically the impact of short gaming videos on mass consumers' willingness to purchase virtual props for games, and investigates the moderating effect based on the gaming experience. The impact of short game videos can be summarized into five main characteristics, they are Validity, Serviceability, Interactivity, Sociability and Influenceability. Firstly, for both Validity and Serviceability, both in terms of age, gender and education level, it can be concluded that the richer the content of the video game and the easier the software client is to use, the more it will attract users' attention to the game and thus increase their top-ups. For example, while playing a game, players will also pay attention to the content of short videos related to that game. Players tend to choose short video platforms that have detailed game content to use (Phan, Keebler, & Chaparro, 2016). If the short video platform can simplify the access to information for players and give the short video software a more simplified operation, then it will better attract users to use short video to attach the relevant game information. The above study is consistent with the previous hypothesis that the two characteristics of short game videos, Validity and Serviceability, can facilitate consumers' purchase of virtual products of games.

Secondly, for the two aspects of Interactivity and Sociability, respondents under the age of 30 focused more on short game videos and the opportunity to build social relationships within the game, while respondents over the age of 30 did not tend to be influenced by sociality and interactivity to purchase game virtual products. This shows that the influence of sociality and interactivity on consumers is diminishing with age. In contrast, as the level of education of the respondents continues to increase, their demand for social and interactive features of games increases. According to the survey that the higher educational level they have, the less they are negatively affected by gaming and the more opportunities it gives them to make friends, and the more educated people focus on the social aspect of new media and the gaming industry (Weber, Katharina, Jacob, Chelsea, & Christian, 2020). The more educated respondents generally have more capital at their disposal, and among them are the gaming enthusiasts who make more purchases of virtual gaming products. However, unlike other consumers, this group has different motivations for purchasing, not only to get a better gaming experience, but also to use new media platforms such as gaming to build a broader social network for themselves.

Thirdly, regarding the aspect of opinion leaders, based on previous research, users over 30 have developed a more comprehensive social experience and have developed a more rational consumer mindset. Therefore, they do not pay much attention to the opinions of short video producers such as game anchors when it comes to the purchase of virtual products. However, workers in the management industry and highly educated workers do pay attention to the opinions of authoritative game video makers before purchasing the virtual products they want. In addition, the mediating moderating effect of game consumers' game experience and individual perception differences is more significant. This study found that 35.9% of respondents enhanced their position within the virtual game in order to have a better gaming experience, and 52.9% relaxed because of a good gaming experience. According to some studies, perceived value differences exist in individuals' perceptions of the objects, as evidenced by changes in their emotions before and after their experience of the same object (Cui, Li, & Zhang, 2022). This difference is also evident in the behavior of consumers towards topping up their games, with 51.6% of respondents to the study indicating that they would be willing to top up their games after having had a good experience. The difference in perceived value between a good experience and a good game experience is a factor that will encourage them to continue to purchase virtual products in the future, and this will provide a basis for an increased willingness to recharge.

### 5.2. Theory Implications

Explored from a theoretical perspective, this study has four main insights:

(1) This study demonstrates that there is a positive or negative relationship between the five characteristics of short game videos and consumers' willingness to purchase virtual products in games. Two of the characteristics, usability and availability, are positively correlated with the willingness to purchase, regardless of the age and education level of the consumers. Sociality, interactivity and opinion leadership are not significantly correlated with purchase intentions, but still have an impact on the purchase intentions of younger consumers under the age of 30.

(2) In this study, the effects of short video games were segmented into five major features, namely Validity, Serviceability, Interactivity, Sociability and Influenceability. Compared with previous studies on short video industry, the paper describes its influence on the game industry in more detail, and explores its influence on consumers' willingness to buy game virtual products. It innovatively constructs relevant theoretical models and draws relatively scientific conclusions with the help of data processing software.

(3) The results of this study show that the influence of short game videos has a relative influence on consumers' purchase of virtual items in games. However, the research results also prove that the influence of short video on game influenceability is not significant on consumers' willingness to purchase virtual items in games, and even has a negative correlation with the increasing age of respondents. However, from the perspective of education level, opinions expressed by opinion leaders in short videos have a positive correlation with consumers' purchase of game virtual products.

(4) According to the results of this study, consumers' game experience and individual perception differences have a moderating effect on consumers' willingness to buy game virtual products.

This finding can also be supported by some previous research. It is alleged by relevant psychologists that a sense of achievement is an important factor that can satisfy their competence needs. A sense of achievement is a strong positive feeling that can be obtained during the playing of a video game, and when users experience a sense of self-efficacy, their needs can be satisfied and the desire to consume can be created (Skhirtladze, Van Petegem, Javakhishvili, Schwartz, & Luyckx, 2019). The survey also points out that the perceived difference in value that can create a psychological gap in playing video games can lead to a desire to challenge oneself, and that players are more likely to increase their spending on games in order to improve their strength in the game. However, this type of consumption is more likely to be seen in teenagers, with adult consumers being more rational and restrained (Ratan & Sah, 2015). This study concludes that teenage consumers are more likely to purchase virtual products based on the moderating effect of game experience and perceived value differences.

### 5.3. Practical Implications

In addition to the four theoretical implications mentioned above, this study also has very important practical implications. Firstly, the rapid development of technology in today's society has led to a change in the way people work and play in their daily lives from previous eras. The new media that has developed in the Internet era is an industry worth studying. The amount of money spent on it by consumers is countable, and young consumers in particular are very willing to buy it. Secondly, by studying consumers' gaming experience, that is, the experience of using virtual products, and individual perception differences which is a kind of consumer psychology, this study can provide new development ideas for the new media industry and the gaming industry, help and promote their innovation, enhance their research and development capabilities, and promote industrial transformation to better meet the market demand. Furthermore, this study, through the study of the short video industry as an example, divide its characteristics into five major aspects, which can provide consumers with a new understanding of the nature of the short video industry, as well as adding their own judgement to the opinions expressed by the relevant anchors, thus forming a more rational concept of consumption. It can also provide suggestions for the relevant regulatory authorities to manage online platforms, remove unnecessary and redundant content, clean up cyberspace and raise the moral standards of society. Based on a series of literature studies, the data analysis results of this study can suggest three effective suggestions for the new media industry, game industry and game consumers. First, for

the short video industry, the novelty and comprehensiveness of the content is important to promote its development. In order to occupy more market share, the content of game segment videos should meet the needs of consumers and cover a wide enough area to attract more viewers, given the rapid development of the Internet in modern society and the variety of online games. In addition, short video software developers can classify different games according to their genres to facilitate consumers to find their favorite content and reduce the tedious search process for a better using experience.

For the game industry, game developers should focus on developing team-based game models. It has been proved that playing in a team can stimulate players' sense of teamwork and responsibility. When comparing with single-player games, it can be found that these players pay more attention to improving their own strengths in the game, and they will be more willing to buy virtual products in the game. Similarly, the development of game industry should also pay attention to the importance of communication, which should not be limited to the communication between players within the game. This kind of communication should not only be limited to the communication between players within the game, but also the exchange of experience between various games, so that they can learn from each other the strengths of different kinds of games and turn them into their own use. This kind of communication should be based on the premise of not hurting the interests of each game company, which will not only bring different experiences to game players, but also promote the prosperous development of this industry.

Finally, for game consumers, game players should consume game virtual products rationally and should not produce addiction psychology. Game virtual products have the same properties as other commodities, but they are not necessities of life, so they should buy game virtual products within the condition of their own economic strength. In addition, consumers should have the ability to rationally analyze the works of various game bloggers and short video makers, and make purchase decisions after fully referring to the opinions of opinion leaders in the industry.

## 6. CONCLUSION

### 6.1. Conclusions

The purpose of this study is to study the influence of short video features on consumers' willingness to buy game virtual products, and the moderating effect of external stimuli such as consumers' differences in game experience and perceived value on their willingness to buy game virtual products. Through a series of literature research and relevant data analysis and processing, this study confirms that some features of short game videos will not have a significant impact on consumers' purchase behavior, but most features will lead consumers to consume games. Features such as Validity and Serviceability, Interactivity, and Sociability are positively correlated with consumers' willingness on consumption, but Influenceability is not significantly correlated with consumers' willingness to buy. In addition, the game experience of consumers has a significant moderating effect, and the perceived value difference also has an important impact on their purchase behavior. When consumers' perceived value difference is positive, consumers' game experience can promote their purchase of game virtual products. When the perceived value difference is negative, it will reduce the willingness of consumers to purchase game virtual products.

### 6.2. Limitations and Suggestions

This research also has some limitations that may mislead the findings. Firstly, this study adopts online data collection method, and respondents may be limited by their own knowledge level and cognitive ability to understand the options of certain questions in the questionnaire, thus causing the survey results to receive the influence of personal subjective cognitive errors. Secondly, this study only applies to the influence of the new media industry of game short video industry and game industry on consumers' willingness to purchase, and only studies

consumers' personal willingness to purchase virtual products of games and does not involve the study of willingness to purchase other products. The findings of this study do not necessarily apply to commodities such as daily necessities, electronic products, clothing, and apparel.

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**Transparency:** The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

**Competing Interests:** The authors declare that they have no competing interests.

**Authors' Contributions:** All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

## REFERENCES

- Abramson, L. Y., Seligman, M. E., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology*, 87(1), 49–74.
- Bhandari, P. (2023). *What is a likert scale? | guide & examples*. Retrieved from <https://www.scribbr.com/methodology/likert-scale/>
- Carmona, L. (2009). The validation of a questionnaire. *Rheumatol Clinical*, 5(4), 171–177.
- Chu, X., Liu, K., Li, Y., & Lei, L. (2021). Does perceived ease of use affect intention to use of virtual goods in online games? The role of perceived usefulness and neuroticism of player. *Journal of Psychological Science*, 44(1), 134–140.
- CNNIC. (2022). *Number of undergraduate students enrolled at public colleges and universities in China from 2011 to 2021*. Retrieved from <https://www.statista.com/statistics/927028/number-of-students-at-universities-in-china/#:~:text=Published%20by%20C.%20Textor%2C%20Dec%207%2C%202022%20In,enrolled%20in%20more%20practically%20oriented%20short-cycle%20degree%20programs>
- Collins, L. (2007). *Cronbach alpha coefficient*. Retrieved from <https://www.sciencedirect.com/topics/nursing-and-health-professions/cronbach-alpha-coefficient#:~:text=Cronbach%20Alpha%20Coefficient%20The%20formula%20for%20Cronbach%27s%20alpha,From%3A%20International%20Encyclopedia%20of%20Education%20%28Third%20Edition%29%2C%202010>
- Cui, Y., Li, J., & Zhang, Y. (2022). *The impacts of game experience and funwork creation on game loyalty: Mediation effect of perceived value*. Retrieved from <https://www.sciencedirect.com/science/article/abs/pii/S0040162522000270>
- Dabrowski, D. (2014). *Impact of usability website attributes on users' trust, satisfaction and loyalty*. Retrieved from [https://www.researchgate.net/publication/287396516\\_Impact\\_of\\_Usability\\_Website\\_Attributes\\_on\\_Users'\\_Trust\\_Satisfaction\\_and\\_Loyalty](https://www.researchgate.net/publication/287396516_Impact_of_Usability_Website_Attributes_on_Users'_Trust_Satisfaction_and_Loyalty)
- Dzandu, M., Pathak, B., & Gulliver, S. (2020). *Stimulus-organism-response model for understanding autonomous vehicle adoption in the UK*. Retrieved from <http://centaur.reading.ac.uk/91325/>
- Emir, A., Halim, H., Hedre, A., Abdullah, D., Azmi, A., & Kamal, S. B. M. (2016). Factors influencing online hotel booking intention: A conceptual framework from stimulus-organism-response perspective. *International Academic Research Journal of Business and Technology*, 2(2), 129–134.
- GeekTonight. (2022). *Customer value and customer's perceived value*. Retrieved from <https://www.geektonight.com/customer-value/#:~:text=Customer%20Value%2C%20also%20known%20as%20customer-perceived%20value%20shows,is%20paying%20for%20the%20particular%20product%20or%20service>.
- Girish, G. (2011). *Ease of use*. Retrieved from <https://www.interaction-design.org/literature/topics/ease-of-use>
- Girish, P. (2013). *The relationship between consumer characteristics and willingness to pay for general online content: Implications for content providers considering subscription-based business models*. Retrieved from <https://link.springer.com/article/10.1007/s11002-013-9273-y>

- Gnambs, T., & Batinic, B. (2013). The roots of interpersonal influence: A mediated moderation model for knowledge and traits as predictors of opinion leadership. *Applied Psychology*, 62(4), 597-618. <https://doi.org/10.1111/j.1464-0597.2012.00497.x>
- Harappa. (2020). *SOR model*. Retrieved from <https://harappa.education/harappa-diaries/what-is-sor-model/>
- Hassanein, K., & Head, M. (2007). Manipulating perceived social presence through the web interface and its impact on attitude towards online shopping. *International Journal of Human-Computer Studies*, 65(8), 689-708. <https://doi.org/10.1016/j.ijhcs.2006.11.018>
- International Design Foundation. (2021). *The game industry in depth report: Evolving the game industry amid changes in technology*. Retrieved from <https://xueqiu.com/>
- Jansz, J., & Martens, L. (2005). Gaming at a LAN event: The social context of playing video games. *New Media & Society*, 7(3), 333-355. <https://doi.org/10.1177/1461444805052280>
- Jatinxcx, C. (2022). *The definition and application of variance*. Retrieved from <https://www.geeksforgeeks.org/how-to-calculate-variance/>
- Jeng, S.-P., & Teng, C.-I. (2008). Personality and motivations for playing online games. *Social Behavior and Personality: An International Journal*, 36(8), 1053-1060. <https://doi.org/10.2224/sbp.2008.36.8.1053>
- Katz, E. (1957). The two-step flow of communication: An up-to-date report on an hypothesis. *Public Opinion Quarterly*, 21(1), 61-78. <https://doi.org/10.1086/266687>
- Kim, M. J., Lee, C.-K., & Jung, T. (2020). Exploring consumer behavior in virtual reality tourism using an extended stimulus-organism-response model. *Journal of Travel Research*, 59(1), 69-89. <https://doi.org/10.1177/0047287518818915>
- Kui, J., Wang, L., & Liu, Y. (2020). Study on the influence factors of short video on users' book purchase intention. *China Publishing Journal*, 12(1), 51-59.
- Lavie, T., & Tractinsky, N. (2004). Assessing dimensions of perceived visual aesthetics of web sites. *International Journal of Human-Computer Studies*, 60(3), 269-298. <https://doi.org/10.1016/j.ijhcs.2003.09.002>
- Lin, H.-C., Bruning, P. F., & Swarna, H. (2018). Using online opinion leaders to promote the hedonic and utilitarian value of products and services. *Business Horizons*, 61(3), 431-442. <https://doi.org/10.1016/j.bushor.2018.01.010>
- Lynn, D. (2012). *What is 'the game experience'?* Retrieved from <https://www.gamedeveloper.com/disciplines/what-is-the-game-experience->
- Park, J., Song, Y., & Teng, C.-I. (2011). Exploring the links between personality traits and motivations to play online games. *Cyberpsychology, Behavior, and Social Networking*, 14(12), 747-751. <https://doi.org/10.1089/cyber.2010.0502>
- Pavlov, P. I. (2010). Conditioned reflexes: An investigation of the physiological activity of the cerebral cortex. *Annals of Neurosciences*, 17(3), 136-141. <https://doi.org/10.1001/archneurpsyc.1930.02220110256018>
- Penn, J. (2021). *Enthusiast gaming: The biggest opportunity in gaming*. Retrieved from <https://seekingalpha.com/article/4405600-enthusiast-gaming-biggest-opportunity-in-gaming>
- Peters, C. S., & Malesky Jr, L. A. (2008). Problematic usage among highly-engaged players of massively multiplayer online role playing games. *Cyber Psychology & Behavior*, 11(4), 481-484. <https://doi.org/10.1089/cpb.2007.0140>
- Phan, M. H., Keebler, J. R., & Chaparro, B. S. (2016). The development and validation of the game user experience satisfaction scale (GUESS). *Human Factors*, 58(8), 1217-1247. <https://doi.org/10.1177/0018720816669646>
- Ratan, R., & Sah, Y. J. (2015). Leveling up on stereotype threat: The role of avatar customization and avatar embodiment. *Computers in Human Behavior*, 50, 367-374. <https://doi.org/10.1016/j.chb.2015.04.010>
- Sheeks, M. S., & Birchmeier, Z. P. (2007). Shyness, sociability, and the use of computer-mediated communication in relationship development. *Cyber Psychology & Behavior*, 10(1), 64-70. <https://doi.org/10.1089/cpb.2006.9991>
- Skhirtladze, N., Van Petegem, S., Javakhishvili, N., Schwartz, S. J., & Luyckx, K. (2019). Motivation and psychological need fulfillment on the pathway to identity resolution. *Motivation and Emotion*, 43, 894-905. <https://doi.org/10.1007/s11031-019-09795-5>
- Tencent News. (2017). *Panorama of China's short video industry*. Retrieved from <https://new.qq.com/rain/a/20221201A03YI600>

- Textor, H. (2022). *Data say | 2021 annual consumption scale, more than 700 billion yuan to read several university students of the new consumption*. Retrieved from <https://www.iimedia.cn/c460/80182.html>
- Turcotte, J., York, C., Irving, J., Scholl, R. M., & Pingree, R. J. (2015). News recommendations from social media opinion leaders: Effects on media trust and information seeking. *Journal of Computer-Mediated Communication*, 20(5), 520-535. <https://doi.org/10.1111/jcc4.12127>
- Weber, R., Katharina, M., Jacob, T., Chelsea, L., & Christian, Q. (2020). *Video game violence and interactivity: Effect or equivalence?* Retrieved from <https://academic.oup.com/joc/article-abstract/70/2/219/5823594>
- Woodworth. (1929). *Stimulus-organism-response (SOR) model*. Retrieved from <https://www.phdassistance.com/blog/stimulus-organism-response-sor-model/>
- Xue, Y., & Xv, Z. (2016). Factor analysis and model construction of user information behavior in wechat marketing environment: From the perspective of immersion theory. *Information Theory and Practice*, 39(6), 104-109.
- Yi, Z. (2021). *Short video era game short video status and development countermeasures*. Retrieved from <https://www.fx361.cc/>
- Zach, Z. (2021). *How to perform a durbin-watson test in excel-statology*. Retrieved from <https://www.statology.org/durbin-watson-test-excel/>
- Zhang, H., Lu, Y., & Xiang, C. (2017). Research on consumer partn in the context of social commerce: An experience-based perspectiveicipation intentio. *Journal of Management Engineering*, 2017(2), 40-46.
- Zhang, Z., Tang, Y., & Wang, H. (2015). The innovation of ideographic function by dynamic social language: An analysis of the new space given to news communication by mobile short video social application. *China Publishing Journal*, 2015(5), 77-81.

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