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A Study on the Influencing Factors of Online Game Characters' Willingness to Deal with Fees

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Abstract: Currently, online games have become an important form of entertainment for the general public's leisure and consumption, and player payment has become the main source of profit for game companies. However, due to subjective factors such as players' personal consumption tendencies, financial ability, and objective factors such as game appeal and gaming experience, not all players are willing to pay for the game. This article aims to study the influencing factors of players' willingness to pay in online games from the perspective of game characters. Through questionnaire survey and SPSS data processing, this study investigates the impact of game character visual experience, character operation experience, and character emotional experience on players' willingness to pay, using them as independent variables. The empirical results show that the role visual experience, role operation experience and role emotional experience all have a positive impact on the player's willingness to pay, and based on this, we propose marketing promotion, role vision, role operation and role emotion and other related strategies to enhance the player's sense of experience related to role vision, operation and emotion from the perspective of role design, and improve the player's Willingness to pay for game payment, Thus promoting the occurrence of related purchasing behaviors and bringing corresponding improvements to the profits of game companies.

1. Introduction

1.1. Research Background

Online games, rely on modern Internet transmission technology and servers and other media to enable players to play online. They are divided into stand-alone networking, and can be subdivided into different types of games, including but not limited to business, timely combat, cultivation, risk taking, decryption, and so on. Players learn about the plot of the game, explore game play methods, and achieve a sense of entertainment and achievement by playing games. While the game has become popular, the characters in the game have also begun to be loved by players, and peer works or peripherals have emerged in an endless stream, increasing the popularity of the game itself and promoting the development of the economy around the game.

As of December 2022, the number of Internet users in China reached 1.067 billion, an increase of 35.49 million compared to December 2021, and the Internet penetration rate reached 75.6%. The huge number of Internet users in China and the development of Internet technology have provided a user base and technical support for the prosperity of online games in China. According to the 2022 China Game Industry Report, the actual sales revenue of the Chinese game market in 2022 was 265.884 billion yuan, a year-on-year decrease of 10.33%. The number of game users reached 664 million, a year-on-year decrease of 0.33%. This is the first decline in the past eight years after the significant slowdown in scale growth in 2021, indicating that the industry has entered the era of stock markets.

Online games are internet technology online games that earn revenue by selling game software or hardware devices. This is one of the most traditional profit models for game companies. In online games, players purchase game skins, game equipment, and so on through payment. Chinese game users have entered an era of inventory, and simply relying on the number of players to obtain traffic is far from enough. In online games, some players have a high willingness to consume. For a game, players are willing to pay for the content in the game, which is the main source of online game flow or revenue. Therefore, game companies should guide players to pay through corresponding products to increase game sales revenue. Therefore, this paper will conduct an empirical study on the willingness of game players to pay for online game characters, understand the user experience of online game characters, and further understand the key factors that affect the willingness of players to pay.

1.2. Research Purpose

The actual experience and feelings of players with game characters is one of the important factors for players to pay for their games, and it is also one of the sources that drive the game itself to continue to develop and bring new game content and experiences. As one of the main sources of revenue for game companies, game payment has become an important issue for game companies to consider and explore. This article will explore the impact of game characters on players when they use the game through empirical analysis, and analyze what aspects of game characters promote game players' willingness to pay for the game, thereby providing relevant ideas for the development and design of game characters.

2. Theoretical Basis

2.1. General Stratification Theory

American scholar Norman believes that there is a process for users to understand new things, from shallow to deep, and also from shallow to deep in the web user experience. It has a certain depth and breadth. After users have reached a certain level of understanding and recognition of new things, they continue to deepen their understanding, and generally present a gradual level of experience. Norman believed that human universal experience is divided into three levels: the instinctive level, the behavioral level, and the reflective level [1]. The instinctive layer refers to the biological reaction that a user has when seeing or feeling something. Under the influence of the reaction, it sends signals to the motor system to activate related concepts or memories of the object in the brain, which is the beginning stage of emotional processing; the behavioral layer describes the specific behavior of the user. The instinctive layer affects the behavioral layer but also receives its control. On the other hand, the behavioral layer also strengthens or suppresses the emotional expression of the reflective layer; the reflective layer is located at the highest level of the experience, and it does not directly receive input from the perceptual system or is controlled by the behavioral

layer. On the contrary, it plays an irreplaceable role in controlling, adjusting, and reflecting on the behavioral layer [2].

2.2. User Experience Theory

In the process of using a product, people have the purest, most direct, and most subjective feelings emanating from the depths of their hearts based on their understanding and use of the product. This is the user experience. In the 1990s, the American industrial designer Donald Norman proposed the "user experience theory", and the user experience began to spread.Kearsley G (1998) pointed out in the user participation theory that user experience includes aesthetics, usability, emotions, attention, challenges, feedback, motivation, perceptual control, and sensory attractiveness ; Csikszentmihalyi M et al. (1975) pointed out in the optimal experience theory that user experience attributes include usability, user skills, challenges, attention, pleasure, arousal, and presence [3].

2.3. Theory of Willingness to Pay

Willingness to pay is the value or price consumers are willing to pay for the goods and services they receive. The concept of will itself first appeared in the field of psychology. Generally speaking, it refers to an individual's subjective view of something, which is an important factor constituting the structure of individual attitude and has the ability to influence individual behavior. The willingness to pay is a kind of personal subjective thinking, such as the view or idea generated by the consumer through some kind of payment. The willingness to pay is an important part in the process of the consumer to complete the purchase behavior.

Flow theory, which emerged from the development of willingness to pay theory, plays an important role in the study of willingness to pay and purchase decisions. Flow theory was first proposed by Csikszentmihalyi. It is mainly used to describe the experience of individuals immersing all their energy in a certain activity, losing their ability to perceive and respond to the external environment, and gaining high pleasure and pleasure by immersing themselves in a certain activity. Flow theory is often used to explain the occurrence of individual behaviors. In the paying behaviors of consumers, because individuals are deeply attracted and obtain mental and emotional pleasure in the process of experiencing products or services, they may have the motivation and willingness to consume, and may also make the final purchase price decision.Zhang Chunhua (2018) took college students as a research sample and found that college students' online game consumption is influenced by entertainment and social interaction, game innovation, perceived ease of use of games, and game marketing methods, and the impact of factors on different demographic characteristics of the sample varies [4].

Based on the above universal stratification theory, user experience theory and willingness to pay theory, this paper holds that in playing games, game characters can enhance the sense of user experience, improve the durability of users' interest in games, and generate the willingness to pay for games from high experience.

3. Model Establishment

The research hypothesis model in this paper consists of a role visual experience, a role operational experience, a role emotional experience, and a willingness to pay. According to the aforementioned universal hierarchical theory and user experience, combined with the actual situation of players, each variable definition is operationally customized, with different dimensions divided, and item settings and analysis conducted. The questionnaire for this study uses the Likert

5-component scale. The answers to each question are divided into five different levels, namely: very disagree, disagree, agree, agree, very agree.

3.1. Role Visual Experience

According to four scholars, including Lu Mengtian, Wang Yapeng, and Cao Diancheng, mentioned in "The Visual Experience of H5 Creative Marketing" [5], visual design should conform to the unity of visual style, reasonable collocation of visual elements, rich and diverse interactive forms, and reasonable layout and composition; Therefore, in this study, visual experience is defined as the intuitive feeling of game players towards all visual elements of game characters during the process of playing. Therefore, this article proposes the following assumptions:

H1: Character visual experience has a positive impact on gamers' willingness to pay.

3.2. Role Operation Experience

According to Zhang Yao's operational customization of game operation challenges in "Research on MOBA Mobile Game Payment Intention Based on Emotional Satisfaction" [6], players will continuously practice their game role operation skills during the game process, as well as Chen Yangbo's understanding of game operation. Game operation design should start from a low level, consider humanized operation, and attach importance to the perfection of micro operation and execution process; The author defines character operation experience as the operational challenges encountered by game players in the process of operating game characters, mainly including whether there are operational prompts, whether there are differences in game operations between different roles, role switching systems, and whether the growth of characters is reasonable. Therefore, this article proposes the following assumptions:

H2: Character manipulation experience has a positive impact on gamers' willingness to pay.

3.3. Role Emotional Experience

Zhang Heng (2014) pointed out that streaming experience can have an impact on game preferences, which in turn affects the payment attitude of mobile online game players [7]. Flow is the experience that individuals lose their perception of the external environment and obtain a high degree of pleasure and pleasure when they are engaged in an activity, while game players will have deep interaction with the characters themselves and the related game content and change their psychological attitude during the Genshin Impact play, including role dubbing, role interaction, role behavior, role limiting plot, etc, This is because it is defined here as the psychological and emotional experience that game players experience with the character itself and related game content. Therefore, this article proposes the following assumptions:

H3: Character emotional experience has a positive impact on game players' willingness to pay.

3.4. Willingness to Pay

Willingness to pay is also defined as willingness to pay, willingness to buy, willingness to consume, etc. It refers to the subjective tendency or possibility of consumers to purchase a specific product; Willingness to pay can predict the occurrence of payment behavior to a certain extent. Armstrong and Morwitz have also demonstrated in their empirical research that consumer willingness has an important impact on consumer behavior, and that consumer willingness has a stable and effective guiding tendency in yet to come consumer behavior [8]. This study defines willingness to pay as the likelihood that gamers will purchase characters and related virtual products

during the game [9], including but not limited to recommendations from characters, friends around the plot, and their own pursuit of certain virtual achievements, which can to some extent stimulate gamers' willingness to pay [10].

4. Scale Development and Data Collection

4.1. Scale Development

As shown in the Table 1, based on the above theoretical basis and research assumptions, this article designed the following scale for the three dependent variables of role visual experience, role manipulation experience, and role emotional experience, as well as a dependent variable of willingness to pay, and distributed it in the form of a questionnaire.

Table 1: Scale Design

Factor	Question Number	Measured Question
Character Visual Experience	CV1	The visual elements of the character are eye-catching
	CV2	The character's color scheme is very vivid and eye-catching
	CV3	Characters with various styles and diverse designs have strong appeal
Role Operation Experience	RO1	The role's prompt information and operation prompts have good guidance functions
	RO2	The role operation methods are similar and can be quickly mastered
	RO3	The role switching system is fast, convenient, and very smooth
	RO4	Character value settings and attribute growth are both very reasonable and will not be out of balance
Role Emotional Experience	RE1	The character's past and encounters can cause emotional fluctuations
	RE2	Obtaining an ideal role or defining a role can have a sense of satisfaction
	RE3	There will be a sense of achievement when completing the character limit plot
Willingness to pay	WP1	Willing to consume games for ideal or limited characters
	WP2	Willing to consume games for ideal or limited characters Willing to grow their attributes or set equipment for game consumption
	WP3	Predict that character related game consumption will start or continue in the future

4.2. Data Collection

This study mainly adopts the method of questionnaire survey to collect data, and distributes questionnaires through online and offline channels. A total of 225 questionnaires were distributed in this study, excluding invalid questionnaires such as unclear data. A total of 210valid questionnaires were collected, with a questionnaire recovery rate of 93%.

The collected questionnaires were counted, and the descriptive statistical results of the sample population were shown as follows:

In terms of gender, there are 210 valid respondents, among which male players account for a relatively high proportion, while female players account for a relatively low proportion, respectively 78.1% and 21.9%. In the field of game, there are more male players, and the ratio of male to female does not affect this study. The sample is representative to some extent in this paper.

In terms of age distribution, the majority of players are young, ranging from 18 to 36 years old, accounting for 71% of the sample. Young gamers are relatively loyal to the game.

As for the education level of the total sample, it is mainly concentrated in junior college and undergraduate, so the sample players have a certain degree of education acceptance, and there will be no major deviation in the understanding and filling of the questionnaire.

In terms of the sample's exposure to online games and their consumption behavior, more than 76.2% of the surveyed players have played online games for 90-180 days or more, and more than 77.6% of the players spend an average of 1-2 hours a day playing online games. More than 95.2% of players have had game consumption behavior in online games, and the main consumption area tends to be in the character card pool, accounting for 40%.

5. Results and Analysis

5.1. Reliability Analysis

Reliability refers to the consistency and reliability between measurement results. Usually, a reliability coefficient is used for judgment. The judgment standard is Cronbach's alpha coefficient. The higher the alpha value, the higher the credibility of this questionnaire. In addition, based on the Cronbach's a coefficient measurement method, when 0.5<Alpha<0.7, it is reliable, when 0.7<Alpha<0.9, it is very reliable, and when Alpha>0.9, it is very reliable. As shown in Table 2, the reliability test results of this questionnaire are good.

Table 2: Statistical Table of Cronbach's a Values in the Questionnaire

Cronbach's a value of the total variable	Number of terms
0.928	13

5.2. Validity Analysis

As shown in the Table 3, factor analysis of data in statistics requires samples to pass the KMO Bartlett spherical test. When the value of KMO approaches 1, it indicates that the higher the degree of correlation between different variables, and the variables are suitable for factor analysis; On the contrary, the worse is the situation, which is not suitable for factor analysis.

Table 3: KMO&Bartlett spherical test for all variables

KMO&Bartlett spherical test for all variables	0.900
Approximate chi-square	1961.089
Free degree	105
Conspicuousness	0.000

To test the feasibility of constructing game character dimensions and the effectiveness of questionnaire item design, this article conducted exploratory factor analysis and regression analysis on the collected questionnaires.

5.3. Exploratory Factor Analysis

As shown in the Table 4, the factor load corresponding to a single item measured in the questionnaire is above 0.6, which belongs to the standard measurement range. This indicates that the questionnaire has a clear item structure, clear hierarchical differentiation, and good structural validity.

Table 4: Component matrix after rotation

	Composition			
	1	2	3	4
RO1	0.838			
RO3	0.816			
RO2	0.682			
RO4	0.633			
WP2		0.836		
WP1		0.792		
WP3		0.783		
RE2			0.794	
RE1			0.781	
RE3			0.759	
CV1				0.822
CV2				0.783
CV3				0.633
Extraction method: principal component Rotation method: Orthogonal rotation method with Kaiser standardization A. Rotation converges after 6 iterations				

5.4. Regression Analysis

This article uses spss to conduct linear regression analysis on the collected questionnaires to explore the significance of the linear relationship between independent variables and dependent variables.

Table 5: Linear Regression Analysis

Model	Denormalization coefficient		t	Conspicuousness	Collinearity statistics	
	B	Standard Error			Tolerance	VIF
(Constant)	0.567	0.264	2.149	0.033		
Character visual experience	0.270	0.080	3.391	0.001	0.466	2.145
Role operation experience	0.224	0.080	2.809	0.005	0.577	1.733
Role emotional experience	0.329	0.076	4.327	0.000	0.566	1.767
R^2				0.427		
F				51.168		
P				0.000		
Dependent variable: willingness to pay						

As shown in Table 5, the fitting degree of this linear regression model is qualified, with R2>0.3, which means that the calculation results can better reflect the impact relationship between the role

visual experience, role operational experience, role emotional experience, and willingness to pay, and the VIF is less than 5. With willingness to pay as the dependent variable, there is no multicollinearity among the three independent variables; The significance P values of role visual experience, role operational experience, and role emotional experience are all less than 0.01, so it can be determined that the three variables of role visual experience, role operational experience, and role emotional experience have a positive impact on willingness to pay. This article assumes that the test results are shown in Table 6, and the test results are all supported.

Table 6: Hypothesis Test Results

Assumption number	Assumptions	Validation results
H1	Character visual experience→Willingness to pay	Support
H2	Role operation experience→Willingness to pay	Support
H3	Role emotional experience→Willingness to pay	Support

6. Conclusion and Inspiration

6.1. Research Conclusion and Analysis

First, the visual experience of game characters has a positive impact on game players' willingness to pay. The beauty of character clothing, makeup, hair, and other modeling aspects can satisfy the aesthetic feeling of the player, and the diverse and full colors can catch the player's eye. In addition, game character IP is also an important extension of current online games. In addition to paying for favorite characters during game play, players also purchase peripheral products such as handheld devices in the real world outside of the game, improving the diversity of game sales products. Therefore, players are willing to generate a willingness to pay due to the high sense of experience of game character vision.

Secondly, game character operating experience has a positive impact on game players' willingness to pay. When players complete difficult or challenging operations during the game, they experience a sense of excitement. The generation of a sense of achievement can trigger deeper game desire among players, making them willing to unlock more game content or operating experience, resulting in a willingness to pay.

Thirdly, the emotional experience of game characters has a positive impact on game players' willingness to pay. When playing games, players tend to engage in immersive experiences and bring themselves into the gaming world due to their tendency to concentrate. Therefore, in the process of playing, it is easy to have emotional resonance for situations such as victory, failure, and adventure. In addition, there is also a love or admiration for game characters. Therefore, the emotional experience of game characters can improve players' immersive love of the game, thereby enhancing their willingness to pay.

6.2. Relevant Enlightenment

From the empirical analysis above, it can be seen that role visual experience, role operational experience, and role emotional experience have a positive impact on willingness to pay. Therefore, as an important part of the game profit model, game companies should attach importance to the development of game characters and the role of user experience. Based on this, this article draws the following inspiration.

One is the design of new marketing points and promotion points, which increases the visual and operational experience of players. At present, the main selling point of the anime games on the

market is still the game characters, which attract a certain group of players by virtue of the exquisite vertical drawing and animation effects. The exquisite game characters do have a certain attraction for the players, and the game manufacturers compete to imitate, leading to a certain degree of homogeneity, and the players have a certain aesthetic fatigue, Excessively pursuing market trends while ignoring the experience brought to players by other attributes of game characters; Therefore, when conducting game promotion, game manufacturers can conduct targeted publicity for game characters, such as character sketches, character animations, sense of attack, and character stories. Game merchants conduct role-related publicity on online platforms, including the visual elements of characters, as well as artistic design, operating mechanisms, operating methods, brief backgrounds, and interpersonal relationships, While presenting game characters to players, it also leaves some suspense and raises their expectations.

The second is to strengthen the game character operation technology and improve the game character operation experience. Players also have different experiences and feelings about game operations due to differences in the length of contact with the game and their technical level. The design of game characters should take into account the different levels of players in terms of operation, achieve simplicity, clarity, and humanization in terms of operation design, and reduce the threshold for entry to the level of game operation. At the same time, it is possible to set hierarchical matching and different level challenges, which helps players have the autonomy to choose the appropriate roles and levels based on their own level, which is conducive to the ease of use of players during game operation, while enhancing the satisfaction and pride of different players during game play, and is willing to pay for the use of the game for their sense of satisfaction.

The third is to improve character design and improve the emotional experience of players. Game character design should make multiple and more attempts at visual experience. Based on existing characters, it is possible to conduct character popularity evaluations, allowing players to select their favorite characters, analyze the visual elements of the characters based on their popularity rankings, find common ground, and use this as a reference for future character design; In addition, it is possible to disclose mysterious characters, collect players' reactions, analyze them, and use them as a reference to add a part of the character's design, which can improve the players' sense of participation to a certain extent; In terms of role operation experience and role emotion, multiple iterations are conducted based on existing foundations to improve the operating system and improve the smoothness of play; Improve the character's storyline, provide sufficient immersion in the storyline experience, and allow players to deeply integrate into the current character, taking into account the character's stance. To sum up, the design of game characters should pay more attention to the initial impression and emotional experience of players on the characters. With similar operating mechanisms, the visual element design and background stories of the characters themselves can bring profound experiences to the players, thereby improving their willingness to pay for the characters, and make a final purchase decision.

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