

Research on the Impact of Perceived Entertainment Obtained by Players in Female-oriented Games on Their Gaming Behaviors

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Abstract:

With the vigorous development of digital entertainment, female-oriented games, as an important niche market in the gaming industry, have shown a significant growth trend in recent years. These games, with their unique design concepts and rich content, have attracted a large number of female players and gradually become the main force of game consumption. However, current research on the influence of perceived entertainment in female-oriented games on playing behavior is still relatively scarce. Based on the Theory of Planned Behavior (TPB), this study collected 413 valid samples through a questionnaire survey and deeply explored the influence mechanism of perceived entertainment in female-oriented games on playing behavior. The research results show that players' attitudes towards female-oriented games, subjective norms, and perceived behavioral control all have a significant positive impact on playing behavior. Specifically, the more positive the players' evaluations of the game, the stronger the perceived social support, and the greater the sense of control over game behavior, the higher the frequency of playing. This study not only provides theoretical support for understanding the behavior of female-oriented game players but also offers practical guidance for game developers and operators, suggesting that enhancing game entertainment, strengthening social attributes, and optimizing payment mechanisms can increase players' playing behavior.

Keywords: Female-oriented games; Perceived entertainment; Theory of Planned Behavior; Gaming behavior

1. Introduction

In the current era of booming digital entertainment, the gaming industry has become a significant component of the global cultural economy. With market segmentation and the diversification of user demands, games targeted at women have emerged as a highly promising niche market within the gaming sector. According to relevant data, the number of female gamers has been steadily increasing in recent years, and the market share of female-oriented games has also been expanding. These games have evolved from early simple dress-up and nurturing genres to encompass a wide range of themes including romance, adventure, and puzzle-solving, demonstrating considerable influence. In recent years, the popularity of female-oriented games such as “Shining Nikki”, “Twilight of Love”, and “Love Producer” has not only attracted a large number of female players but also made them the main force in game consumption. According to Frost & Sullivan, the global market size of female-oriented games reached 95.8 billion yuan in 2023, growing by 11% year-on-year, and their share in the overall game market has risen from 19% in 2018 to 32% in 2023.

However, despite the vigorous development of the female-oriented game market, research on the impact of perceived entertainment in these games on player behavior remains relatively scarce. Due to their unique design concepts, content structures, and target audiences, the sources of perceived entertainment for players of female-oriented games and the pathways through which they influence player behavior are worth in-depth exploration. This can help to enrich the theoretical framework of game experience and expand the gender perspective in game research. It also provides references for game developers to formulate more targeted marketing strategies and promote the healthy and sustainable development of the game industry. Based on this, this study focuses on the following key questions: What are the specific dimensions of perceived entertainment in female-oriented games? How do these dimensions influence player behavior (play frequency)? The research aims to comprehensively analyze the constituent elements of perceived entertainment for female-oriented game players and the mechanism through which they affect player behavior, providing theoretical support and practical guidance for the development of the game industry.

2. Literature Review

2.1 Theory of Planned Behaviour

Proposed by Icek Ajzen in 1985 and further refined in

1991, TPB is a classic theory for predicting behavior. Its core components include attitude, subjective norm, and perceived behavioral control. Ajzen believes that the combination of an individual's subjective norm, perceived behavioral control, and behavioral attitude will generate behavioral intention, which in turn leads to the implementation of a certain behavior [1]. Han and Hsu et al. hold that TPB can well explain and predict the process of individual behavior generation [2]. To date, TPB has been widely applied in research fields such as consumer behavior, sociology, and education, and there have been relatively rich research results in the aspect of individual behavioral intention [3].

2.2 Female-oriented games.

Also known as female games (Japanese: 女性向けゲーム), they refer to a category of games targeting female users [4]. Female-oriented games originated from “Angelique” produced by Koei in Japan in 1994. These games target female players and are subdivided into three types: “shoujo romance”, “BL type”, and “nurturing type” [5]. Domestic female-oriented games emerged in the early days of China's internet game development, but they truly entered the public eye and became independent from the male market with the appearance of the professional shoujo game website “Orange Light Games” in 2012. In 2013, Papergames launched the “Nikki Dress-up” series of APPs, gradually expanding the female-oriented game market; since 2017, the development momentum has been even stronger, with games like “Mr. Love: Queen's Choice”, “Tears of Themis”, and “Light and Night” emerging one after another [6].

3. Research Hypotheses

The Theory of Planned Behavior (TPB) is a significant theoretical framework in the field of behavioral prediction, suggesting that an individual's behavioral intention is jointly determined by three core factors: behavioral attitude, subjective norm, and perceived behavioral control [7]. Behavioral attitude reflects an individual's positive or negative evaluation of the behavior; subjective norm represents the perceived social pressure; and perceived behavioral control involves the individual's subjective perception of the ease and control ability of the behavior. Numerous studies have demonstrated that TPB has wide applicability in explaining and predicting individual behaviors, such as in health behaviors, environmental protection behaviors, and consumption behaviors.

In the gaming field, TPB theory is also widely applied to study players' behaviors. In this study, perceived entertainment is measured through attitude, subjective norm,

and perceived behavioral control. Based on TPB theory and relevant research in the female-oriented game domain, the following hypotheses are proposed:

H1: Players' attitude towards female-oriented games has a positive effect on their playing behavior.

According to TPB theory, behavioral attitude is a core factor influencing an individual's behavioral intention. In female-oriented games, players' positive evaluations of game plots, character designs, and picture quality significantly enhance their willingness to play. For instance, if players consider a game's plot immersive (such as the multi-line narrative in "Love & Producer") or the character images attractive (such as the high-precision 3D modeling in "Shining Warm"), they are more likely to invest more time and pay [8]. Additionally, Chen and Tsai's (2007) research indicates that players' positive attitudes towards game content directly affect their continued use behavior [9].

H2: Players' subjective norm has a positive effect on their playing behavior.

Subjective norm reflects the social pressure or support perceived by players, such as the degree of recognition of game behavior by friends, family, or social circles. Female-oriented games often enhance players' sense of belonging through social functions (such as friend systems and community sharing). For example, the "friend circle" interaction design in "Light and Shadow Love" makes players more susceptible to the influence of their social circles and increases their game time. Research also shows that when players are surrounded by active game communities, their game stickiness significantly increases [10].

H3: Players' perceived behavioral control has a positive effect on their playing behavior.

Perceived behavioral control involves players' perception of their own resources and abilities, including time, economic conditions, and equipment support. In the context of female-oriented games, when players believe they have sufficient resources and abilities to participate in the game, they are more likely to increase their participation frequency and investment. For instance, players with stable incomes and high degrees of free time are more likely to frequently participate in games and purchase paid content (such as the time-limited event design in "Miracle Warm"). Behavioral analysis studies have shown that players' behaviors are closely related to their resource accessibility. For example, a dynamic player profile of a certain game indicates that high-spending players are more inclined to complete high-difficulty tasks [11]. Moreover, Ajzen (1991) emphasizes that perceived behavioral control not only influences behavioral intention but may also directly affect actual behavior [7].

In summary, guided by the TPB framework, a model of the impact of perceived entertainment in female-oriented games on players' playing behavior is constructed, as shown in Figure 1.

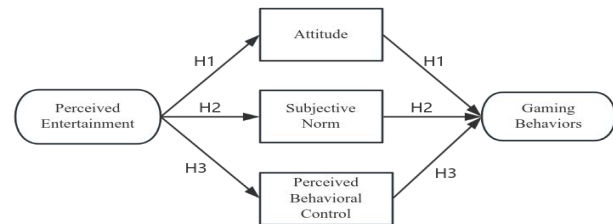


Figure 1: Hypothesis Model Based on the Theory of Planned Behavior

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4. Research Design

4.1 Questionnaire Design

This study mainly employs the questionnaire survey method for analysis. The questionnaire survey method can effectively collect a large amount of data from female-oriented game players, quantify the perceived entertainment value they obtain during gameplay and its impact on their playing behavior, thereby providing objective and quantifiable analysis basis for the research. The study is based on the Theory of Planned Behavior (TPB) model and designs the questionnaire from three aspects: players' attitudes towards playing behavior, subjective norms, and perceived behavioral control, and targets female-oriented game players. A total of 413 valid samples were collected from all over the country, and all respondents had experience playing female-oriented games. The questionnaire questions are specifically set in the following aspects: first, players' attitudes towards female-oriented games; second, players' perceived subjective norms; third, players' perceived behavioral control; fourth, players' actual playing behavior (frequency). The questionnaire items are measured using the Likert scale, drawing on the scales of Viswanath Venkatesh and Icek Ajzen. The researchers used SPSS 26.0 to conduct descriptive statistical analysis, correlation analysis, and regression analysis on the data.

4.2 Data Sources

This research mainly adopted an electronic questionnaire survey, with a total of 413 valid questionnaires collected. The results are presented in Table 1.

Table 1. Descriptive Statistical Analysis

Project	Option	Frequency	Percentage
Gender	Female	413	100.0
	Male	0	0
Age	20 years old and under	103	24.9
	21-31 years old	176	42.6
	32-42 years old	117	28.3
	43 years old and above	17	4.1
Education	High school	154	37.3
	Junior college	180	43.6
	Bachelor's degree	68	16.5
	Master's degree and above	11	2.7
Occupation	Government agencies/Institutions	18	4.4
	Private and foreign-funded enterprises	149	36.1
	Self-employed	88	21.3
	Freelancer	55	13.3
	Student	103	24.9
Monthly income	5,000 yuan and below	103	24.9
	5,001-10,000 yuan	100	24.2
	10,001-15,000 yuan	131	31.7
	15,001-20,000 yuan	66	16.0
	20,000 yuan and above	13	3.1

From the statistical results of the sample, all the respondents of this survey were female, which is relevant to the research topic (such as female-oriented games). The majority of the respondents were in the 21-31 age group, accounting for the highest proportion (42.6%), indicating a relatively young demographic. The educational attainment distribution showed that respondents with a junior college degree accounted for the highest proportion (43.6%), followed by those with a high school degree (37.3%), suggesting that the educational level of the respondents was generally below average. Among the respondents, those working in private and foreign-funded enterprises had the highest proportion (36.1%), and those with an income range of 10,001-15,000 yuan accounted for the

highest proportion (31.7%), indicating a certain level of consumption capacity. In summary, the sample coverage and proportion of this questionnaire survey are basically reasonable and have certain value.

5. Analysis and Verification of Research Results

5.1 Correlation Analysis

Table 2 conducts a correlation analysis on the main variables of the study. The results show that the two variables are significantly positively correlated, which allows for further research.

Table 2. Correlation Analysis

		19. The average frequency of playing female-oriented games per week is	Perceived Entertainment
19. The average frequency of playing female-oriented games per week is	Pearson Correlation	1	857**
	Sig. (2-tailed)		000
	N	413	413

Perceived Entertainment	Pearson Correlation	857**	1
	Sig. (2-tailed)	000	
	N	413	413

Note: **. Correlation is significant at the 0.01 level (2-tailed).

5.2 Hypothesis Testing

This study employed linear regression analysis to verify the hypotheses, with perceived entertainment as the independent variable and player gaming behavior (measured by “average frequency of playing female-oriented games per week”) as the dependent variable, to examine the relationship between the two.

5.2.1 Model Fit

1 $R^2 = 0.734$, indicating that perceived entertainment explains 73.4% of the variance in player gaming behavior, suggesting a high model fit.

1 Adjusted $R^2 = 0.734$, further confirming the model’s explanatory power.

1 F value = 1135.070, with a significance level of 0.000 ($p < 0.001$), indicating that the regression model is statistically significant.

Table 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	857 ^a	734	734	420	734	1135.070	1

Table 4. ANOVA^a

Model		Sum of Squares	Degrees of Freedom	Mean Square	F	Significance
1	Regression	199.913	1	199.913	1135.070	000b
	Residua	72.387	411	176		
	Total	272.300	412			

a. Dependent Variable: 19. How often do you play female-oriented games on average per week?

b. Predictors: (Constant), Perceived Entertainment Value

5.2.2 Regression coefficients

1 Constant = -0.393, standard error = 0.102, t-value = -3.865, significance level = 0.000 ($p < 0.001$).

1 Perceived entertainment: Regression coefficient = 0.899, standard error = 0.027, standardized coefficient (Beta) = 0.857, t-value = 33.691, significance level = 0.000 ($p < 0.001$).

Table 5. Coefficient ^a

Model	B	Unstandardized Coefficient		Standardized Coefficient	t	Significance	95.0% Confidence Interval for B
		Standard Error	Beta			Lower Limit	
1	(Constant)	.393	102		-3.865	000	-.592
	Perceived Entertainment	899	027	857	33.691	000	847

5.2.3 Collinearity Diagnostics

1 Condition Index: The maximum value is 9.737, which is less than 10, indicating that there is no serious multicollinearity problem among the independent variables.

1 The variance ratio: The variance ratio of perceived entertainment is 0.99, further verifying the independence of the independent variable.

Table 6. Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	Perceived Entertainment
1	1	1.979	1.000	01	01
	2	021	9.737	99	99

a. Dependent Variable: 19. How often do you play games targeted at women on average per week?

The results of the regression analysis indicate that perceived entertainment has a significant positive impact on players' gaming behavior ($\beta = 0.899$, $p < 0.001$), supporting research hypotheses H1, H2, and H3. Specifically, the higher the perceived entertainment that players obtain from female-oriented games, the higher the frequency of their weekly gaming. This result is consistent with the Theory of Planned Behavior (TPB), indicating that perceived entertainment is an important factor influencing players' behavior.

6. Conclusion and Implications

6.1 Research Conclusions

Based on the Theory of Planned Behavior (TPB), this study explored the influence mechanism of perceived entertainment in female-oriented games on players' gaming behavior. Through the analysis of 413 valid samples, the following conclusions were drawn:

1 Model Validity

The measurement model, structural model, and all fit indices of this study met the recommended standards, indicating that the TPB theoretical model can effectively explain the gaming behavior of female-oriented game players. Specifically, the fit indices (such as CFI, TLI, RMSEA, etc.) of the model all reached or exceeded the recommended values, suggesting that the model has good structural validity and explanatory power. This result provides empirical support for the application of the TPB theory in the field of female-oriented games.

1 Direct Impact of Perceived Entertainment on Gaming Behavior

The research results show that the perceived entertainment that players obtain from female-oriented games has a significant positive impact on their gaming behavior. Specifically, the stronger the players' feelings of pleasure, immersion, and emotional satisfaction in the game, the more active their gaming behavior. This finding is consistent with existing research and further validates the core role of perceived entertainment in gaming behavior.

Subjective Norm: The expectations and pressure from significant others (such as friends and family) that players

perceive regarding playing female-oriented games significantly enhance their behavioral intention. For example, when players' friends are also playing female-oriented games, players are more inclined to increase their game investment. **Attitude:** Players' evaluations of female-oriented games (such as whether the game content is healthy and conforms to social norms) also positively influence their gaming behavior. The study found that players' positive ethical evaluations of game content can significantly enhance their gaming willingness. **Perceived Behavioral Control:** The influence of players' perceived abilities and external conditions (such as time and money resources) on gaming behavior is also significant. For example, players with more leisure time and disposable income are more likely to increase their game duration and engage in paid behavior.

6.2 Practical Implications

The research findings offer the following practical implications for the design and operation of games targeted at women:

1 Enhance game entertainment: Developers should focus on optimizing game plots, character designs, and interactive experiences to increase players' sense of immersion and emotional satisfaction.

1 Strengthen social attributes: By adding social features (such as friend systems and community interactions), and leveraging the influence of subjective norms, more players can be attracted and retained.

1 Optimize payment mechanisms: Based on players' income levels and consumption habits, design reasonable payment models to reduce players' perceived behavioral control barriers.

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