Study on the influence factors of college students' loyalty in PUBG game

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Abstract. In view of the consumption potential of students to the game, the survey collected 119 validated questionnaires by questionnaires method to explore the influences of game loyalty. The results show that the consumer's social experience and the operator's game design are both promoting their loyalty. Among them, trust has some intermediary effect on the influence of game design and social experience on game loyalty. In addition, gender plays a significant role in the relationship between trust and loyalty, that is, the more the trust of women in teammates and game operators, the more their loyalty on the game. Furthermore, women have a stronger influence on this aspect than men.

1. Introduction

The survey found that the mainland and overseas markets of PUBG are huge and the number of users is rising[1]. The fast growth rate has aroused the attention of the major game operators. But PUBG also need to face challenges from similar "chicken-eating" games and emerging markets[2]. Therefore, the game operators believe that improving the loyalty of the PUBG users is an important task for today's game operators. Past researches have shown that game design will influence the initial experience of game players[3], trust was an intermediate factor between social experience and loyalty[3], and there was a positive influence relationship between trust and loyalty[3-4]. But the relationship between trust in game design and social experience on loyalty has not studied. In addition, it does not discuss the relationship between trust and loyalty from the perspective of gender. In summary, the survey hopes to provide management suggestions for game operators through studying the impact of game design, social experience, trust and gender on game loyalty.

2. Literature review

2.1. Game design and social experience

The game design includes the picture, the sound, and the operation method and so on. Past researches have shown that game design will affect the experience of the first game of players[3], that is, the higher the quality of game design is, the more players trust the game and the more loyal players will be. The game social experience includes the interaction among the user and the user and the game operator interaction. That is, players in the game of interactive behaviour are generated by the subjective feelings and emotional experience. A large number of empirical studies show that the social experience in online games is an important factor affecting customer consumption. In the game,
interacting with other players can increase players' trust in their teammates and their loyalty to the game.

So we propose the following assumptions: H1: (a) game design and (b) social experience have a significant impact on trust. H2: (a) game design and (b) social experience have a significant impact on loyalty.

2.2. Trust and loyalty

Through interacting with the game, trust is a sense of psychology in the game products, in cooperation with other players and the game player group of trust[5-6], from the creation of social experience. Game loyalty refers to during the changes in the environment and the marketing efforts of other game operators triggered by a variety of options, customers still maintain a sense of game, commitment and preferences, keeping the intention and behaviour of continuing to use, and be willing to pay for specific additional services and extend the behaviour including the intent to recommend in the game[7-9]. Many researches have shown that there is a positive relationship between trust and loyalty[1-2, 10-11], and trust is an intermediary variable between social experience and game loyalty[4]. Similarly, the better the game design is, the easier it is to make players believe the game, so that they will feel more loyal to it.

So we propose the following assumptions: H3: trust has a significant effect on loyalty. H3 (a): trust plays an intermediary role in the relationship between game design and loyalty. H3 (b): trust plays an intermediary role in the relationship between social experience and loyalty.

2.3. Gender

We think men and women play different roles in the game. Men are very competitive and have confidence in their game technology and they are tend to play the leading role in the game so that they can gain a sense of accomplishment or find opportunities to vent their dissatisfaction through the game. Women are weak and timid, and they have less talent in games than men, so that they are tend to rely on their teammates to win the game. Therefore, the more women trust their teammates, the more they want to communicate and cooperate with others and immerse themselves in the game, which leads to the greater loyalty of the game. Men are the opposite.

So we come up with the assumption: H4: gender plays a regulatory role in the relationship between trust and loyalty.

3. Research methods

The survey uses questionnaires method whose respondents are students from the Beijing Institute of Technology, Zhuhai. Variable test questions are selected from previous studies, as shown in table 1, with four questions in game design[12] and five in social experience[13]. Three questions on trust[14]and three questions on loyalty[15]are all used in the Likert 5 scale. In this survey, 282 questionnaires were collected, and in the confidence interval of 95%, they met the requirement to take each number, of which 119 were removed. Finally, the effective sample number is 163, and the recovery rate reaches 58%. Of these, 47.9% are men and 52.1% are women; the frequency of the game is up to 32.5% times a month and the length of the game is up to 0.5~1 hour, which occupies 24.5% of the players.

4. Data analysis and results

4.1. Analysis of reliability and correlation

As can be seen from table 1, Cronbach’s $\alpha$>0.7 for all variables, the revised project total related >0.5, factor load >0.7, Cr>0.7, AVE>0.5, which shows that the variable test has a high internal consistency and good convergence efficiency. As can be seen from table 2, the AVE is higher than the relative coefficients between variables, which is after extracting a root, showing that there are good different effects between the variables.
Table 1 reliability and convergent validity

| Construct & Item                                                                 | Cronbach’s α | Item-total correlation | Convergent validity |
|---------------------------------------------------------------------------------|--------------|------------------------|---------------------|
| Social experience (M=15.785) is from Yu Ping & Sang wen tian (2001)[13]          |              |                        |                     |
| Sc1 in the game, I like to interact with other players and feel happy.          | .871         | .796                   | .906                |
| Sc2 in the game, I can know a lot of friends and bring me happiness.           | .725         |                        | .864                |
| Sc3 in the game, I love to be involved in all kinds of activities.              | .715         |                        | .827                |
| Sc4 in the game, I love working with partner teams and fighting together.       | .647         |                        | .773                |
| Sc5 in the game, (opposite sex) friends can give me care and help and comfort. | .714         |                        | .828                |
| Game design (M=12.595) is from Zhang yen (2015)[12]                             |              |                        |                     |
| Gd1 PUBG’s scene will make you comfortable                                      | .850         | .899                   | .691                |
| Gd2 the special effects of PUBG will shock you                                  | .758         |                        | .879                |
| Gd3 the way you get your clothes and props for PUBG will please                 | .615         |                        | .776                |
| Gd4 PUBG’s mode makes you feel convenient                                        | .637         |                        | .795                |
| Trust (M=9.196) is from Mayer et al. (1995)[14]                                  |              |                        |                     |
| Tru1 I believe that the game operators can be very good to protect my interests.| .825         | .897                   | .744                |
| Tru2 I will recommend this game to others.                                      | .835         |                        | .940                |
| Tru3 I think players are capable of fulfilling their specific tasks.            | .567         |                        | .786                |
| Game loyalty (M=10.129) is from Chaudhuri & Holbrook (2001)[15]                 |              |                        |                     |
| Loy1 in general, I’m satisfied with this game                                    | .887         | .931                   | .817                |
| Loy2 the next time I play a game, I’ll still choose this game                   | .836         |                        | .932                |
| Loy3 if people around me go to play other games, I will still choose this game. | .778         |                        | .903                |

Table 2 correlation analysis between variables (differential validity)

| Constructs | gdm | trum | scm | loym |
|------------|-----|------|-----|------|
| gdm        | .831|      |     |      |
| trum       | .607**| .863|     |      |
| scm        | .696**| .579**| .812|      |
| loym       | .701**| .673**| .696**| .904|

Note: The square root of AVEs is shown in bold on the diagonal of the matrix; Diagonal elements are the association between constructs.

4.2. Independent-sample t test

Using gender as a classification variable, the survey uses social experience, game design, trust and loyalty as test variables to do the independent-sample t test. According to the test results, there is no significant difference (p>0.5) between the male and female in game design, social experience and loyalty, while the significance (p=0.016<0.5) has a significant difference in trust of gender.
4.3. Regression analysis

Regression analysis shows that game design on trust (β=0.607, t=9.698, p<0.001) and loyalty (β=0.701, t=12.481, p<0.001) have a significant positive effect. And the adjusted interpretation force reached 36.5% and 48.9% respectively and the two F values are 94.049 and 155.776. Therefore, H1 (a) and H2 (a) are supported. In addition, social experience on trust (β=0.338, t=8.999, p<0.001) and loyalty (β=0.696, t=12.297, p<0.001) also have significant positive effect. Also, the adjusted interpretation force reached 33.5% and 48.4% respectively as well as as the two F values are 80.990 and 151.214 and VIF values both are 1.000. Therefore, H1 (b) and H2 (b) are supported.

In the role of intermediary, trust has a positive effect on loyalty (β=0.673, p<0.001), and the adjusted interpretation force is 45.3% and F value is 133.276, which shows that the more the trust is, the more the loyalty is. Therefore, H3 is supported. After adding trust, the influence of game design on game loyalty fromβ=0.701(P< 0.001) dropped toβ=0.464 (p<0.001). Also, the influence of social experience on game loyalty fromβ=0.696(P< 0.001) dropped toβ=0.461 (p<0.001), which is lower than when not joined, and the adjusted interpretation is 58.9% and 59.4% respectively. The F values are 144.417 and 117.139 respectively and VIF values are in 1.000~1.584 and 1.000~1.503, that is, it doesn’t has collinear problem. Therefore, there are some intermediary effects between trusts on game design; social experience and game loyalty, that is, H3 (a) and H3 (b) are supported.

In terms of moderation, trust (β=0.670, t=11.330, p<0.001) has a significant positive effect on loyalty, and the adjusted interpretation force is 45.3% as well as F value is 133.276. Gender(β=-0.19, t=-0.314, p>0.5) does not has a significant impact on trust; The relationship between trust and gender multiplication and trust reach a significant level (β=-0.143, t=-2.302, p<0.05), and the adjusted interpretation reached 47.1% as well as F value=47.163 also reach a significant level (p<0.001). The positive relationship of trust in its loyalty will make the relationship significantly different because of gender, that is, H4 is supported.

5. Conclusions and recommendations

Game design, social experience and trust are important factors that influence players' game loyalty. Therefore, the game operators should improve the game loyalty in the following three aspects: (1) To improve the game's own quality and enhance its market competitiveness; (2) To enhance after-sales service and retaining user groups; (3) To meet the needs of different users and enhance the trust of the game. In addition, according to the analysis of moderating effect, the more women trust their teammates and operators, the more loyal they are to the game. Therefore, game operators should seize potential customer groups such as women strengthen women's trust in the game by matching women to teammates with high trust values and paying attention to women's feedback on the game, which can improve their game loyalty.

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