

Tug-of-war between Self-determination and Addiction: A Case of Mobile Games

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Abstract

Drive technology has grown rapidly with the development of the knowledge age, and many companies have turned the computer game industry into a mobile game market. Mobile games have received considerable interest because of the pleasant feeling they bring to users. The motivation of users comes from social factors. Their individual behavior is due to their intrinsic and extrinsic motivations for self-determination. This study randomly selected 284 mobile phone players as sample and was analyzed thru Smart-PLS software. The results of the study suggest that once a habit is created, humans will decide whether to continue playing the game based on the difficulty of the game level or the number of users within their circle of friends. However, there will be a possibility of addiction after the habit is created. Overall, the combination of two theories elucidates the understanding of the current mobile game industry on the use of mobile games.

Keywords: Mobile game, Self-determination, Mobile game industry

1 Introduction

Currently, people's pace of life is becoming increasingly fast, thus gradually trivializing people's free time. With the rapid development of smartphones, mobile games have become a very popular leisure activity and are also the fastest-growing entertainment in the global economy.

People realized that they may enhance their social presence and enjoyment in virtual games. It was found that playing against other people in mobile games brings additional excitement and experiences. Playing mobile games reduces the likelihood of feeling emotionally impaired and increases calmness. Many scholars have reported that people who are addicted to mobile games have negative psychosocial and antisocial behaviors, and excessive playtime may lead to addiction and can cause long-term depression and sleep problems [1]. By contrast, some scholars have

believed that mobile games can help students learn and grow.

In recent years, many studies have suggested that mobile games can be used to meet the needs of players. Player-to-game interactions in mobile games can be rewarded. Self-determination theory (SDT) means to meet the satisfaction of an individual based from their needs [2]. Broadly speaking, the more mobile games that meet SDT requirements, the more satisfied players will be from the experience [2]. Recent studies have suggested that games can enhance personal autonomy, abilities, and connections [3].

Many studies have pointed out that in SDT, players have different needs when they use two different types of mobile games [2]. From another point of view, when individuals focus on stories and characters in the game, connectedness will occur, and mobile players will have more autonomy and ability. Games are controlled by the subjectivity of each individual [4]. This type of control is associated with ability and autonomy. Individuals can feel their personal abilities and autonomy when playing mobile games, and they are correlated with the group of people they connect when playing mobile games [5]. This viewpoint can accurately predict gamers' satisfaction by means of these two games, Action Role Playing Game and Strategy Role-Playing Game. This study mainly studies the factors that affect the player's addiction or intention to stop playing the games.

In the field of information systems, mobile game addiction has gradually received the attention of many scholars [6]. Past researches have confirmed various factors of game addiction and personal psychological related factors, such as addiction liability [7], self-control and perceived enjoyment were the common factors to most users. Most researchers ignore the conditions under which users are suspended or addicted. The main reason is that people play mobile games individually with their phones without considering internal and external motivations. Therefore, researches on mobile games in the past also showed that individuals' internal and external

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motivations are often ignored, and most scholars used a single theoretical explanation with regards to the mobile game industry. The current phenomenon has not considered the potential of mobile game addiction under personal motivation. Therefore, there is no systematic concept and theoretical basis for mobile game addiction. This research proposes a framework that combines two different theoretical foundations, the self-determination theory and the binary system theory. The self-system theory mainly explores the internal and external motivations of individuals to understand the phenomenon of user addiction. Furthermore, this study uses the binary system mainly to seek the use of reflective and reflexive system to understand the final decision process of the user in considering the environmental factors in the mobile game decision process. These two different theories can be used to understand the phenomenon of mobile phone addiction. The purpose of this study is to construct a mobile game addiction model to supplement the lack of literature on the psychological mechanism of mobile game addiction in the past.

The game industry has developed rapidly around the world, but researches on game-related industries are limited to the research industry development or user purchase stage [8]. There is little literature on user addiction or suspension. In recent years, most of the literatures in gaming industry are focused on the support of social and individualistic motivations in games [8], and [9] used dual-system theory to understand the current symptoms of player addiction. According to the above literature, most of the studies focused on discussing cybercrime and the activities of the circle of friends. Only the phenomenon of mobile game addiction was proposed in these studies but the processes of addiction and intention to stop were not described in details. This study proposed two theories: one mainly uses the three motivational processes in the SDT, and the other is the decision mechanism of the human brain in the dual system. Two different systems were considered interchangeably in the execution of the strategy. With regards to academic researches, it is considered the most important research in this field. With regards to practical aspects, it is better to consider the psychological state of the game player in order to allow the player to relax and enjoy the fun that the game brings and not causing game addiction.

The game industry is currently developing rapidly worldwide, but game-related industry research has been limited to industry development or user purchase studies. However, the literature on user addiction or suspension studies has remained minimal. In the present study on SDT (SDT), intrinsic and external motivations are affected by negative factors from the environment and some reward and punishment mechanisms in mobile games. Therefore, through the reflexive system in dual system theory (DST), players can use a previous situation to generate a correct

behavioral response. The reflective system in DST has slow behaviors, and people make quick judgments using the intrinsic motivation of SDT. Therefore, this study explores the behavior patterns of mobile game players through integration theory.

2 Literature Review

2.1 Mobile Game

An activity is called a game and must satisfy several characteristics. First, players must be regulated by “rules” when playing games. Rules build conditions, such as obstacles, challenges, and victory. Players are subjected to the rules to overcome challenges or obstacles in order to win.

A game typically has a “background story” and simulates virtual time and space. Thus, the background, scene, or character can evolve with the plot, thereby creating a sense of “reality” or distance. Therefore, games have non-real and pretend components [10]. That is, games fictionalize psychological situations that are immersive and feel real and help players liberate their mind and immerse themselves in creative and imaginative spaces. Second, people are intrinsically motivated to play games, and playing under persecution is difficult. Finally, playing games can provide people with a happy experience. Players are involved in a high degree of mental activity during a game, and numerous psychological or emotional experiences or changes are obtained through gaming experiences, players can gain optimal life experiences to build self-worth.

2.2 Self-determination Theory

[11] proposed SDT. This theory is a cognitive motivation developed in the context of positive psychology in the 1980s; SDT originated from the motivation or factors that explore people’s use of media behavior [12]. SDT considers that individuals are encouraged by motivation and participation or use of activities that meet basic psychological needs. Self-determination is not only an individual’s ability but also a need. People have an inherent self-determination tendency to engage other people in activities that are of interest and beneficial to the development of their abilities.

SDT can mainly explore the practical experience of mobile game players. SDT [11] is a theory that explores human motivation and behavior. It has been widely used to explain and describe human behavior. SDT is mainly affected by three basic needs, ability, connection and autonomy. Many studies have pointed out that these three different needs will affect gamers and make them more immersed in the game [13]. At present, many mobile games use sound and light effects and experiences to make players connect,

autonomous, and satisfied [14]. As with many activities, it is necessary to satisfy the player's psychological state in order to attract their attention more. Therefore, personal self-determination has become one of the most important conditions for gamers. In recent years, if the three needs of self-determination are met in the game, players will spend more time on the game for greater enjoyment [15]. At present, the research scope of SDT is mainly: 1. gamers will have positive effects (such as positive energy and self-confidence) but also negative effects (such as depression and addiction) from their satisfaction and frustrations when playing. If the player is unable to achieve balance in autonomous regulation, there will be adverse behaviors.

2.3 Dual System Theory

DST is based on behavioral research that describes two conceptually different systems in informing social behavior [16]. A reflective system uses individual abilities to assess the current behavior to achieve superior goals [17]. This system enables people to use reasonable action to achieve rational goals; however, this system is laborious and relatively slow to use [18]. A reflexive system is automatic, impulsive, and responsive and combines emotional and cognitive impulses to make an instantaneous behavioral response. This system is based on pre-existing behavioral patterns and does not emphasize considerably on the cognitive assessment of the current situation to make appropriate behavioral responses [19]; behavioral responses are fast [20], and users are sometimes unconscious of making them.

Many scholars have developed models of dual systems theory to describe two conceptually different systems for communicating social behavior [20]. The dual system theory has been widely used in various fields mainly to explain addictive behaviors. The theory states that the external temptation triggers a player's behavior through two different systems, namely a reflexive system and a reflective system. Phone players will express their desires through two different systems. The first type of desire is the desire of the individual, hoping that the individual completes an action without being affected by the social group. The second type of desire is a kind of social desire, which is rooted in a person's self-concept of the members of a particular social group and reflects the social interaction among individuals and members of social groups. This is an individual's self-concept for social groups. The first system is the reflective system, which is a process of restraining behavior, self-regulation, and personal control. Decisions can be made rationally through personal thinking. When personal behavior and negative consequences are interconnected, the reflexive system accelerates self-regulation (social self-regulation) and inhibits the generation of habits in line with personal long-term

goals [17]. Therefore, the reflective system enables a person to take reasonable actions, which may override existing actions to achieve rational goals [29]. The second is the reflexive system, which mainly describes automatic, impulsive, and immediate responses. The reflexive system emphasizes immediate response to the current situation and less emphasis on the current situation assessment [19]. The reflexive system is a habitual and immediate response that is, to a certain extent, an automatic process for individuals [21]. It is believed that the system accelerates the triggering of personal behavior; a behavior that is more in line with short-term needs (such as habits), and it does not require to consider the consequences. In normal life, these two systems are in tug of war with each other. If you lose your balance, you will be addicted.

The dual system theory has now been extended to the field of information technology. Most studies focused on the idea that addiction is a symptom that is produced through a reflexive-reflective imbalance, and these addiction symptoms would often accelerate with strong habits. Furthermore, the reflexive-reflective system is usually a driving factor that will entice mobile phone players to achieve cognitive dissonance.

In this study, using the dual system perspective in the personal use of mobile games is regarded as a social behavior, but this behavior has the ability to develop and counterbalance simultaneously. Social interactions provided by mobile games are a kind of continuous link and individuals would keep information (clues) on the internet permanently. Therefore, in the perspective of the reflective system, this kind of clue stimulus will conflict with the perception of the reflexive system. On the other hand, reflexive system mobile phone players will immediately respond (eg: habits) through stimuli (eg: games).

In recent years, medical researchers have pointed out that the dual system theory can effectively explain the decisions made by the human brain. In behavioral science, although individuals showing high reflexive system have higher chances of impulsive behavior, they usually manage these behaviors through the reflective system. However, when the impulsive system wins this tug of war, a series of problematic behaviors occur, which can lead to symptoms of addiction [22].

3 Research Methodology

3.1 Research Framework

Mobile game players are used as subjects. This study uses SDT and DST to divide the research framework into two parts. The first part is autonomy, ability, and controlled motivation; the second part is social self-regulation, habit, discontinuance, and addiction. Based on the above-mentioned works, this study forms an integrated model. The research

framework is shown in Figure 1.

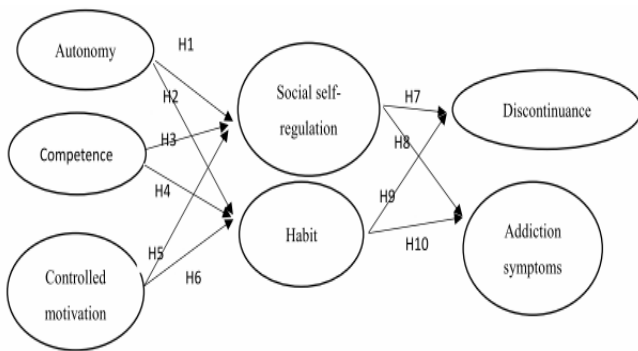


Figure 1. Proposed model

3.2 Theoretical Derivation

The autonomy and ability in SDT positively impact social self-regulation [23]. It was determined that the positive and intrinsic motivations of social self-regulation and physical education students are positively correlated [24]. In addition, it was stated that social self-regulation can enhance students' after-school self-determination motivation. The learning environment supported by society can promote self-determination motivation, healthy development, and high psychological function. Based on the above-mentioned literature, this study infers the following hypotheses:

- H1: Autonomy has a significant and positive effect on social self-regulation.
- H2: Autonomy p has a significant and positive effect on habit.

The internal and external motivations of SDT interact with habits ; this phenomenon is due to past behaviors can increase the habitual power of intrinsic motivation, which directly impacts existing habits. Internal and external motivations from past behaviors produce habits, and the frequency of behavior affects the severity of the habit [25]. Continuous willingness and habits directly affect the continuous usage behavior of social media users. Autonomy, abilities, and controlled motivations impact the habits of online media users through intrinsic motivation. In particular, habits can only be achieved through autonomy, ability, and controlled motivations. Based on the above-mentioned literature, this study infers the following hypotheses:

- H3: Competence has a significant and positive effect on social self-regulation.
- H4: Competence has a significant and positive effect on habit.

Autonomy can predict an adolescent's well-being and social behavior [26]. By contrast, controlled motivation is not conducive to satisfying the basic psychological requirements of adolescents and thus

cannot effectively enhance their sense of well-being and social behavior. Prosocial autonomous behavior stimulated by controlled motivation allows a player to feel that he/she is passively helping other players [27]. Given that social autonomous behavior is not from an individual's will, this behavior does not only weaken an actor's ability but also reduce his/her intimacy with other actors. This situation naturally cannot bring happiness to the players. Based on the above-mentioned literature, this study infers the following hypothesis:

- H5: Controlled motivation has a significant and negative effect on social self-regulation.
- H6: Controlled motivation has a significant and positive effect on habit.

[28] argued that ego itself not only perceives social pressure but also produces a sense of responsibility toward the surrounding environment. Social media users' discontinuance intentions depend on the user making a rational decision [28]. Based on the above-mentioned literature, this study infers the following hypothesis:

- H7: Social self-regulation positively affects discontinuance.

Individuals with high levels of social self-regulation are not vulnerable to the negative effects of social network services (SNS) addiction [29]. This aspect is because people with social self-regulation have determined their goals and can reject them to resist addiction. People with high social self-regulation have an established goal and will not succumb to excessive addiction even if they are influenced by friends or colleagues. Based on the above-mentioned literature, this study infers the following hypothesis:

- H8: Social self-regulation has a significant and negative effect on addiction symptoms.

SNS users form a habit of using the technology because of their trust in this technology; however, it may also be the reason for deciding whether to continue or stop using it [30]. Moreover, the user's personal inclination is affected by their own intentions. The ability to stop using SNS and the suspension of SNS are also based on their trust. Based on the above-mentioned literature, this study infers the following hypothesis:

- H9: Habits has a significant and negative effect on discontinuance.

Considering personal habits or lack of self-control can easily promote addiction to SNS use [31]. It is believed that user addiction is easily generated through SNS and mobile communication media [31]. Many scholars have assumed that users have developed a habit of using Facebook. When they want to change, they find that they have become addicted to Facebook [32]. Based on the above-mentioned literature, this

study infers the following hypothesis:

H10: Habits has a significant and positive effect on addiction symptoms.

3.3 Research Design

3.3.1 Pre-test and Pilot Test

This study designed a questionnaire, which was pre-tested on 10 doctoral degree students to validate the questionnaire design. This study used focus group meeting to understand the content of the questionnaire. At the focus group meeting, the investigator was only given 15 min to complete the survey. Feedback was provided on the basis of the questionnaire topic, and the problematic words were corrected. A total of 60 surveys were distributed in the pre-test stage of this study. A total of 60 questionnaires were used to correct the problematic texts as the final improvement of the questionnaire. The authors hired an assistant to conduct a pre-test questionnaire analysis, which showed Cronbach's alpha and composite reliability of construct values exceeding 0.8.

The questionnaire was divided into two parts. The first part is the respondents' personal data, and the second part pertains to the model information. The measure of autonomy was mainly based on [33]. The measure of ability was mainly based on [34]. The measure of controlled motivation was mainly based on [18]. The measure of social self-regulation mainly adopted that of [18]. The habitual metrics were mainly based on [18]. Discontinuance was mainly based on [33]. The addiction metrics were mainly based on [18].

3.3.2 Sampling Method

In this study, structural equation model analysis is mainly performed through Smart PLS. Smart PLS mainly enables researchers to evaluate the causality between indicators/topics and verify the causality of potential variables. Smart PLS able to: (1) handle multiple dependent variables and multiple independent variables; (2) overcome the problem of multivariate collinearity; (3) robustly handle interference data and missing values; (4) input response variables that have the strong ability to predict potential variables. The use of PLS is not limited by the type of variable allocation and the number of samples, and it has good prediction and interpretation capabilities. PLS can evaluate the overall fit of the model through the structural model, use the heterotrait-monotrait ratio of correlations (HTMT) to measure the discriminant validity, and Dijkstra-Henseler's rho (ρ_A) to measure the fit of the model.

The measurement tools, questionnaires, statistical analysis methods, and convenient sampling methods are used in this study to conduct questionnaire surveys for game players.

A total of 400 questionnaires were sent out to

college students in Taiwan, and 362 were returned. In this study, the data were first aggregated in EXCEL to find the missing value through the "COUNTBLANK" function. A total of 78 data were deleted, and only 284 remained. The overall recovery rate was 71%. Table 1 summarizes the basic background information of the current respondents.

Table 1. Sample characteristics

	Characteristics	Frequency	Percent
Gender	Male	109	38.4
	Female	175	61.6
Age	0-20	121	42.6
	21-40	157	55.2
	41-50	3	1.1
	50-60	3	1.1
Education	Diploma	36	12.7
	Bachelor	198	69.7
	Master	48	16.9
	PhD	2	0.7

3.3.3 Common Method Variance (CMV) Test

In this section, the research sample data are tested. All the items are subjected to exploratory factor analysis by Harman's single-factor test. The results show that eight factors can be extracted, and the explanatory factor of the first factor is extracted at 29.27% and did not reach 50%.

4 Data Analysis

4.1 Goodness-of-fit Model

Overall, model adaptation must be performed through the PLS software prior to the measurement and structural models. Standardized root mean square residual (SRMR), normed-fit index (NFI), and standardized root mean square residual (RMS_theta) are provided as the measures of fitness for evaluating the model-fitted PLS software. The SRMR is a kind of evaluation observation value, and the difference in the prediction results can be used as the model fitting degree evaluation index. It is mainly between 0 and 1 and is typically below 0.08, and the research standard value is 0.08. The NFI is mainly between 0 and 1 and usually exceeds 0.9. The standard value of this study is 0.86. The RMS_theta indicator is mainly below 0.12, and the standard value of this study is 0.16. The overall fitting value of this study approaches the standard value and is considered a superior model fit.

4.2 Construct Validity and Reliability

In Table 4, the load of all factors is greater than the threshold value of 0.7. Composite reliability that exceeds 0.7 indicates good internal consistency. Cronbach's alpha values range from 0.77 to 0.93. The

values of r_A are within the threshold (>0.7). All values greater than 0.5 in the convergent validity portion indicate improved convergence validity. The verification discriminant validity section is described in Table 2 to Table 4. First, the Fornell–Larcker criterion is used to evaluate the discriminant validity, as displayed in Table 2. The diagonal lines in Table 2 denote that the square root is higher in AVE than in the correlation coefficient value below the diagonal. This study’s model has discriminant validity. Second, HTMT ratio of the correlations as a tool for analyzing the

discriminant validity of constructs. A potential problem of discriminant validity for HTMT values exceeding 0.85. In the present study, all HTMT values were less than 0.85. Thus, the discriminant validity problem was not observed. Third, cross-loading values were used to measure the reflective measurement models. The indicator’s load for the constructed factor is greater than the load between the indicator and other constructs in the model. Table 5 lists the cross-loading values in the overall model. Table 5 shows that each cross-loading value follows the standard.

Table 2. Fornell-Larcker criterion

Constructs	Dis	CM	ADD	Ss	Ha	Co	AM
Dis	0.90						
CM	-0.10	0.90					
ADD	-0.09	0.67	0.82				
Ss	0.39	-0.35	-0.25	0.83			
Ha	-0.07	0.53	0.54	-0.18	0.81		
Co	-0.19	0.47	0.34	-0.12	0.42	0.86	
AM	0.55	-0.07	0.01	0.39	-0.06	-0.19	0.82

Table 3. Heterotrait-Monotrait ratio (HTMT)

	Dis	CM	ADD	Ss	Ha	Co
CM	0.16					
ADD	0.19	0.71				
Ss	0.46	0.38	0.26			
Ha	0.20	0.61	0.61	0.25		
Co	0.23	0.50	0.34	0.13	0.47	
AM	0.68	0.09	0.16	0.41	0.17	0.22

Table 4. Construct validity

Constructs	Item	Item Loading	ρ_A	AVE	C.R.	Cronbach Alpha
Autonomy; AM	AM1	0.84	0.91	0.67	0.91	0.88
	AM2	0.85				
	AM3	0.79				
	AM4	0.83				
	AM5	0.77				
Competence; CO	Co1	0.92	0.96	0.74	0.94	0.93
	Co2	0.92				
	Co3	0.93				
	Co4	0.80				
	Co5	0.78				
	Co6	0.78				
Controlled motivation; CM	Cm1	0.90	0.92	0.81	0.94	0.92
	Cm2	0.92				
	Cm3	0.93				
	Cm4	0.84				
Social self-regulation; Ss	Ss1	0.80	0.91	0.69	0.93	0.91
	Ss2	0.87				
	Ss3	0.84				
	Ss4	0.87				
	Ss5	0.82				
	Ss6	0.77				
Habit; Ha	Ha1	0.75	0.80	0.66	0.85	0.74
	Ha2	0.80				
	Ha3	0.88				

Table 4. Construct validity (continue)

Constructs	Item	Item Loading	ρ_A	AVE	C.R.	Cronbach Alpha
Discontinuance; Dis	Dis1	0.91	0.78	0.82	0.90	0.77
	Dis2	0.89				
Addiction symptoms; Add	Add1	0.80	0.95	0.68	0.95	0.94
	Add2	0.84				
	Add3	0.80				
	Add4	0.87				
	Add5	0.82				
	Add6	0.81				
	Add7	0.82				
	Add8	0.81				
	Add9	0.83				

Table 5. Cross loadings

	Dis	Cm	Add	Ss	Ha	Co	Am
Add1	0.09	0.54	0.80	-0.25	0.43	0.24	0.01
Add2	0.09	0.53	0.84	-0.10	0.43	0.25	0.16
Add3	0.07	0.46	0.80	-0.12	0.39	0.21	0.08
Add4	-0.11	0.67	0.87	-0.27	0.52	0.32	0.01
Add5	-0.21	0.62	0.82	-0.27	0.52	0.39	-0.06
Add6	-0.04	0.55	0.81	-0.18	0.37	0.22	0.09
Add7	-0.05	0.49	0.82	-0.12	0.38	0.28	0.01
Add8	-0.26	0.53	0.81	-0.28	0.44	0.29	-0.15
Add9	-0.14	0.53	0.83	-0.20	0.46	0.29	-0.04
Am1	0.50	-0.04	0.03	0.32	-0.05	-0.23	0.85
Am2	0.53	0.03	0.12	0.27	-0.01	-0.13	0.85
Am3	0.45	-0.03	0.07	0.22	-0.06	-0.13	0.79
Am4	0.49	0.01	0.12	0.27	-0.02	-0.15	0.83
Am5	0.34	-0.18	-0.18	0.43	-0.09	-0.12	0.77
Cm1	-0.10	0.90	0.56	-0.32	0.47	0.44	-0.06
Cm2	-0.03	0.92	0.61	-0.26	0.48	0.42	-0.02
Cm3	-0.06	0.93	0.59	-0.31	0.49	0.41	-0.05
Cm4	-0.17	0.84	0.64	-0.37	0.46	0.44	-0.12
Co1	-0.16	0.46	0.37	-0.15	0.43	0.92	-0.12
Co2	-0.13	0.45	0.31	-0.11	0.38	0.92	-0.14
Co3	-0.11	0.49	0.37	-0.09	0.44	0.93	-0.13
Co4	-0.23	0.36	0.22	-0.06	0.30	0.80	-0.25
Co5	-0.20	0.31	0.24	-0.10	0.27	0.78	-0.19
Co6	-0.17	0.32	0.18	-0.08	0.24	0.78	-0.20
Dis1	0.91	-0.20	-0.20	0.37	-0.15	-0.17	0.48
Dis2	0.89	0.02	0.05	0.33	0.03	-0.17	0.53
Ha1	0.12	0.34	0.39	0.01	0.75	0.20	0.11
Ha2	-0.11	0.33	0.34	-0.18	0.80	0.37	-0.13
Ha3	-0.14	0.56	0.54	-0.24	0.88	0.42	-0.10
Ss1	0.24	-0.30	-0.23	0.80	-0.11	-0.02	0.23
Ss2	0.25	-0.36	-0.27	0.87	-0.19	-0.04	0.28
Ss3	0.33	-0.35	-0.28	0.84	-0.23	-0.08	0.28
Ss4	0.36	-0.24	-0.16	0.87	-0.13	-0.11	0.34
Ss5	0.40	-0.28	-0.16	0.82	-0.12	-0.17	0.41
Ss6	0.33	-0.21	-0.15	0.77	-0.12	-0.16	0.39

4.3 Structural Model

After verifying the measurement modeling, the next step was to verify the potential relationships in the structural model. This study used Smart-PLS for hypothesis verification. For the accuracy in the

estimation, 284 samples were used for verification to determine the statistical significance. The results were verified through the 5000 resampling method. Table 6 shows that all values of the direct hypotheses are supported and have high path coefficients and t-values.

Table 6. Hypothesis testing

Hypothesis Testing	Original Sample	Standard Deviation	T-value	Decision
H1: Autonomy -> Social self-regulation	0.39	0.05	7.74	Support
H2: Autonomy -> Habit	0.01	0.06	0.14	Reject
H3: Controlled motivation -> Social self-regulation	-0.39	0.06	7.10	Support
H4: Controlled motivation -> Habit	0.43	0.05	8.29	Support
H5: Competence motivation> Social self-regulation	0.14	0.06	2.22	Support
H6: Competence motivation > Habit	0.22	0.06	3.61	Support
H7: Social self-regulation -> Discontinuance	0.39	0.06	6.31	Support
H8: Social self-regulation -> Addiction symptoms	-0.16	0.06	2.69	Support
H9: Habit -> Discontinuance	0.00	0.07	0.01	Reject
H10: Habit -> Addiction symptoms	0.51	0.05	10.79	Support

The path analysis results can show the strong and weak relationships and directionality among variables. When the coefficient value is positive, it indicates a positive effect and a negative value indicates a negative effect. The results of this study show that there is no significant relationship between H2 and H9, while other hypotheses have influence relationships. There is no impact between self needs and habits of gamers. When the player has a habit of playing games, it will not have impact on discontinuance. Therefore, gamers who have strong self needs will also have strong social self-regulation. When faced with many games, players can decide whether they will purchase game equipment through their own observation and judgment. Addiction occurs when the player has insufficient self-control.

5 Conclusion

In a fun environment, online players will follow personal psychological processes confirming the consistency of the results with past researches. This study believes that in the player experience, there must be a constant and irrational tug of war in the brain to drive or inhibit behavior. At present, many related literatures have appeared, including research fields related to dual systems and SDT. This research can extend and margin past researches and establish that social autonomous mediation and habits is related to the player's behavior. The symptoms of addiction extended in this study are an immediate response process that is different from what medically believes that addiction symptoms require long-term use. This kind of segmentation is important and the main thing is that short-term addiction is more in line with the behavior and status of many players. For example: a person is not completely obsessed with the use of the game, but a strong desire will appear in a week or a month. In this case, the players' desire will determine their behavior this week or month rather than his long-term addiction.

Autonomous motivation is an instinct to interact with others, where gamers will interact with other gamers and social autonomy is linked. This also shows that players themselves will have an immediate

reaction with other game players. However, there is no significant relationship between the self-motivation and the reflexive system (habit). The study indicates that players do not develop habits because they want to keep in touch with other players. Competence is to understand the individual's own ability. In the competence and social autonomy adjustment, it is found that when the game player has better ability, the more differences is shown under social autonomy adjustment. This study believes that players with higher personal abilities can withstand higher social pressures and have higher goals to control their desires. Controlled motivation is a process that stimulates a person to produce behaviors and decisions. The study found that players can immediately respond to game stimulation.

In this study, the establishment of social autonomy through the reflection system is mainly reflected at the social level, and taking the pressure of gamers and social activities into account. The social pressure reflects problematic behavior and fixes this behavior. This study understands player addiction from social pressure through the dual system and SDT, and proposes self-determination and social autonomy to prevent addiction that are not shown in the past researches. This study believes that from social activities in games can inhibit the occurrence of game addiction, and it has obtained confirmation.

The data obtained from the 284 gamer respondents supported the integrated model used in this study, and understood the phenomenon of player addiction through the self-regulation and habits of the game society. This study also believes that people who can control their behavior under social pressure are less likely to develop addiction. This also means that gamers can respond to social pressure through their control. Players can directly accelerate player addiction through the habit-driven ability, which also strengthens the transition from habit to bad habit. This study uses DST and SDT to understand whether mobile games are addictive or can cause discontinuance to users. This study suggests that self-motivation from the heart of mobile game players does not have a relationship with habits. The hypothesis of habit on discontinuance is not supported. Once humans have adapted to it, they will

decide whether to continue using it in accordance with the difficulty of the game level or the number of users in the circle of friends. No discontinuance behavior was observed. This result is consistent with past studies. However, when the habit is formed, addiction may follow. Overall, we can understand the current mobile game industry and the use of mobile games by combining two theories.

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