

# **eSport Addiction, Purchasing Motivation and Continuous Purchasing Intention on eSport Peripheral Products**

Yu-Tai Wu<sup>1</sup>, Jon-Chao Hong<sup>2</sup>, Yu-Feng Wu<sup>3\*</sup>, Jian-Hong Ye<sup>2</sup>

<sup>1</sup> Department of Physical Education, National Taiwan Normal University. Department of Industrial Education, 162, Heping East Road Section 1, Taipei, Taiwan

<sup>2</sup> Institute for Research Excellence in Learning Sciences, National Taiwan Normal University. Department of Industrial Education, 162, Heping East Road Section 1, Taipei, Taiwan

<sup>3</sup> Graduate Institute of Sport, Leisure and Hospitality Management, National Taiwan Normal University Department of Industrial Education, 162, Heping East Road Section 1, Taipei, Taiwan

\* Corresponding author. Tel.: +886915190821; email: garywu821822@gmail.com

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**Abstract:** eSport games have become a significant trend among modern society. Many related peripheral products have been launched in large numbers, and the craze has brought huge consumer market, especially in China with its large population. However, there is currently little research on the purchase motivation of eSports. Therefore, based on the Self-determination theory and the Theory of planned behavior, a research model is proposed and the structural equation model is verified. In this study, the Chinese eSports players were invited to fill in the online questionnaire by means of intentional sampling. The effective data was 361, and the effective recovery rate was 81.5%. The data was tested using SPSS for reliability and validity, and then tested by AMOS. The results showed that eSport addiction had a positive impact on intrinsic and extrinsic motivation. Moreover, intrinsic and extrinsic motivation had a positive influence on perceived behavioral control, while perceived behavioral control had a positive impact on the continuous to purchase.

**Key words:** Continuous purchase intention, extrinsic motivation, game addiction, intrinsic motivation, perceived behavior control.

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## **1. Introduction**

eSport has grown over the years with popular entertainment events starting from the 1980 with Atari hosting the very first major championships which drew 10000 participants making it the first major event in the video game industry [1]. eSport has become a consumers' demand, with the growth of managed video game competition, it has generated huge attention from sport, event media and entertainment industries [2]. Previous study indicated that eSport has grown from traditional sport and these include professional players, teams, agency and sponsorships etc. [3]. The world eSports market in 2019 is expected to create revenues worth of \$1.1 billion, which increased remarkably by 26.7% from the previous year. eSport audience is expected to reach 453.8 billion at the end of 2019, including occasional viewers of 252.6million [4].

According to a recent report, [5] eSport in the Chinese market alone is expected to hit 350 million audiences, and revenues are expected to hit \$1.9bn this year. Chinese eSport is investing heavily in eSport infrastructures in China's major cities, including Xi'an, Chongqing, Hangzhou, Shanghai, and Hainan [6].

Specifically, Hainan s province in China, announced a billion RMB investment fund to develop their eSport industry. The funds will be used to host eSport competition [7]. In addition, the current numbers of population that plays eSports is half of the country's population with more than 600 million people, this figure is expected to reach 878 million in 2023 [8]. However, current eSport studies highlights the management, education and future research opportunities of eSport [2], [9], little research has focused on Chinese consumers purchasing behavior on eSport. Thus, this study focuses on Chinese consumers eSport addiction and their behaviors in eSport games.

There are many factors that influence consumers eSport addiction and their behaviors. Consumers eSport addiction includes different types of motivations [10]. According to self-determination theory (SDT) is a theory for understanding human motivation and has been proven to recognize factors that can affect the motivation and behavior effectively [11]. SDT has been used in large scale social and cultural process to understand human nature and individual differences [12]. There are different types of Self-determination motivation known as extrinsic motivation and intrinsic motivation [13]. In addition, in social psychological theory, which stated that identity motivation is a situation that the identity of individual or their self-concepts will motivate them to reach their goals [14]. Thus, this study seeks to identify the types of motivation that influences consumers game addiction.

Furthermore, according to [15] Azjen (1988) introduction to "perceived behavioral control" into the theory of planned behavior, which is also a factor of behavior itself and behavioral intention [16]. Perceived behavioral control refers to as one's belief and that their behavior is under their own control. However, perceived behavioral control is evaluated by the comfort or effort of the behavior [17]. Therefore, this study uses eSport addiction to identify consumers' motivation and behavior in purchasing eSport products.

### **1.1. Addiction to eSport**

The core components of excessive gaming ("eSport addiction") are defined as the mood changes, craving, salience or increase in activities related to eSport [18]. Video games are played around the world, and adolescents are particularly prone to have eSport game addiction. Game addiction found in European countries have a rate between 0.6 % and 1.6 % [19]. while in the states there is an average of 8.5% [20]. Moreover, over-engagement in eSport games can have a negative impact and these could lead to low academic success, increased depression and anxiety disorders, deterioration of interpersonal relations, impulsiveness and delinquency [21]-[23].

### **1.2. Extrinsic Motivation**

Extrinsic motivation, gives a separable outcome when something was done differently. there are various propositions in SDT as extrinsic motivation show various degrees to which it is autonomous [13]. For example, a student that is does his homework due to the fears of parental punishment, this is extrinsically motivated as he fears of sanction but on the other hand he obtaining an outcome. likewise, student who does the work as if it is personally valuable for the chosen career this is extrinsically motivated because it is done for its value rather and not because of interest. Both examples consist of instrumentalities the first example consist of compliance with external control and the second consist of intentional behavior [24].

### **1.3. Intrinsic Motivation**

Intrinsic motivation gives personal satisfaction to individuals, these include, reputation autonomy, trust etc. [25] O'Reilly, Chatman, and Caldwell have suggested that intrinsic motivation could be important for commitment, motivation in organizations, such as eSport satisfaction of consumers. Intrinsic motivation can create personal satisfaction when they have intrinsic reward for performing well for the task [26]. Moreover, intrinsic motivation tends to bring pleasure and enjoyment [27]. The best way to define intrinsic motivation is things enable one to be enjoyable or interested. When one is intrinsically motivated it is likely to react for

the fun or challenges and not because of any external, rewards or pressures. Intrinsic motivation was discovered through animal behavior, where they tend to engage due to being exploratory, and was driven with curiosity behaviors without an external drive of reward [28].

#### **1.4. Perceived Behavioral Control**

[15]Azjen (1988) extended TPB by comprising, behavior and intention known as the perceived behavioral control (PBC). Perceived behavioral control is defined as a potential limitation of planned actions, for example, the resources available [29]. Therefore, perceived behavioral control states as the ability of a person able to control a given behavior [30](Hsu and Huang, 2012). According to [31]Azjen (1991) PBC is defined as beliefs of an individual's resources and opportunities they need to be involved in behavior. For example, if two individuals were given with similar levels of intention to be involved in a behavior, an individual with higher confidence in his or her ability, the chance of succeeding will be higher than the individual with doubts [31]. Therefore, PBC is included in TPB as an element that influences an individual's intention [32]. Perceived behavioral control towards eSport is limited, thus how motivation influence consumers perceived behavior control is explored in this study

#### **1.5. Continuous Purchase Intention**

Continuance intention is defined as the propensity of individuals' intention to accomplish in a specific behavior, which represents the definite continuous behavior that represents the continuous behavior and one's perception of their probability to participate in a continuous behavior [33]; continuance purchasing intention is also essential for the presentation of a specific behavior [34]. Therefore, how consumers' purchasing intention is affected by the antecedents is explored.

## **2. Hypotheses**

### **2.1. eSport Addiction Relevant to Motivations**

eSport addiction is a condition of maladaptive and is psychological dependent on eSport games which appears as through a compulsive and obsessive in seeking behaviors that take the place of the expense of other important activities. eSport has shown growth given a popular form of electronic entertainment, [35] [36]. In line with this, individuals addicted to eSport is highly motivated, eSport additives will engage in a behavior to serve their purchase motives [37]. These purchase motives include extrinsic and intrinsic purchasing motivation for eSport, this may include advancing their characters in game play, mastering the mechanics in the game and purchasing because others are doing so [38]. According to the self-determination theory, which consists of intrinsic motivation and extrinsic motivation that involves internal and external focuses, triggering the direct, maintain, development and involvement of eSport. [13]. A previous study has shown that intrinsic motivation is when an individual behaves in response to some internal condition, such as desired to be pleased, learn or excited, or seek satisfaction [39]. While extrinsic motivation, when an individual is acting primarily in response to external forces, such as prizes, like money, or by the influence of others, such as peers or persons of higher authority [40]. In such instances, this study explores the relationship of eSport addiction and motivation is hypothesized as follows:

H1: eSport addiction is positively related to extrinsic motivation

H2: eSport addiction is positively related to intrinsic motivation

### **2.2. Motivations Relevant to Perceived Behavior Control**

In a subjective point of view, motivation seems rather a simple process, for example "I want something, and therefore I attempt to get it" [41]. According to [42] Weinstein, Lyon, Sandman and Cuite, they stated that the increase in motivation is important when it is undecided and it is why behavior is easier to perform

is to make it easier for people with the behavior. TPB has been widely used in many studies, and is also conducted in general population with many levels of motivation [43]. According to [31] Ajzen's (1991) Theory of Planned Behavior (TPB) which was developed to identify individual behavior, such as predicting their intention. In line with this, motivational factors can influence and individual's behavior, it helps to indicate how hard individuals are willing to try and work so that they perform the behavior [31] (Ajzen, 1991) with the extension of TPB, perceived behavioral control was developed to predict an individual's control beliefs and their perceived power, known as the act behavior [44]. In line with this, this study proposed hypotheses as follows:

H3: extrinsic motivation is positively related to perceived behavior control

H4: intrinsic motivation is positively related to perceived behavior control

### 2.3. Perceived Behavioral Control Relevant to Continuous Purchase Intention

One of the well-known theory, the theory of planned behavior [15] (TPB; Ajzen, 1988), states that individuals' behavior expected straight forward by perceived behavioral control (PBC) and intention, which is predicted by the behavior of other beliefs. TPB distinguishes the changes in one's behavior from PBC and intention. For example, people with higher chance to likely change to anything related to eSport (a)change is not difficult in his or her belief (b) has the intention to. Several studies have conducted the theory across different behavior ranges such as, exercise, food choice, review of TPB in health studies, the use of condom and attending the cervical cancer screening [45]-[49]. Thus, it showed a positive intention when PBC had more effective predictor in symptomatic populations [43]. Therefore, the hypothesis is proposed as follows:

H5: Perceived behavior control is positively related to purchase intention

### 2.4. Research Model

According to self-determination theory proposed by [50] Deci and Ryan (2000) and theory of planned behavior by [15] Ajzen (1988), this study focused on how individuals eSport addiction is affected by the level of extrinsic and intrinsic purchase motivation; individuals extrinsic and intrinsic purchase motivation is related to perceived behavioral control and how perceived behavioral control is related to continuous purchase intention. Thus, the research proposed 5 hypotheses as follows:

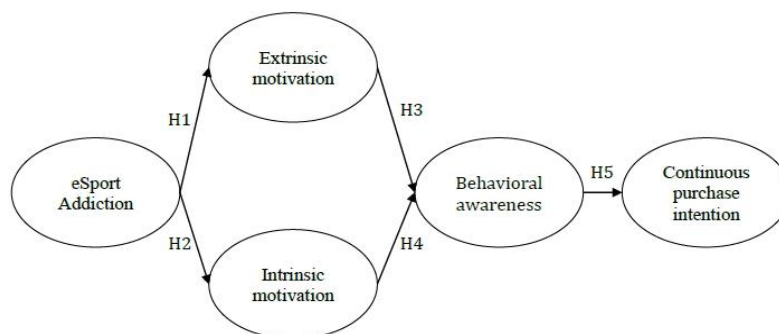


Fig. 1. Research model.

Table 1. Demographic

Variables	Type	Frequency	Percentage
Sex	Male	237	65.7
	Female	124	34.3
Age	below 20	135	37.4
	21-30	181	50.1
	31-40	21	5.8
	above 40	24	6.7

average expense	below 500 RMB	201	55.7
	500-1000 RMB	108	29.9
	above 1001 RMB	51	114.4

### 3. Methodology

#### 3.1. Participants

The questionnaires were collected online focusing on Chinese participants that participate in online eSport gamers on a regular basis. The total of 443 questionnaires were collected and 361 valid questionnaires which is 81.5% were used for the study. All participants conducted the study on a voluntary basis. The list of participants' demographics was as follows.

#### 3.2. Procedure

The questionnaire survey was distributed online on the 13 to 28 of March 2019 to participants that play eSport games. IBM SPSS 23.0 for Windows was used for the descriptive analysis.

#### 3.3. Measurement

eSport addiction consist of key symptoms such as behavioral salience, relapse/reinstatement conflict, and withdrawal, the instrument has been reliable [51]-[53]. Individuals addicted to eSport is highly motivated, eSport additives will engage in a behavior to serve their purchase motives [37]. Thus, an example of the item are as follows: My excitement or expectation of playing an eSports game is far better than other interpersonal interactions. This item was designed to examine individuals eSport addiction.

Extrinsic purchase motivation: This study referred to extrinsic motivation as a task motivation externally, why the purpose of the performed behavior is normally affected externally [54]. Thus, the items designed is related to examine how individuals perceive the extrinsic purchasing motives on eSports. An example of the items are as follows: Colleagues and friends who play eSports games mostly purchase during gaming, so it is strange to not buy.

Intrinsic purchase motivation: This study conducted a five-point item scale developed by [55] Kuvaas and Dysvik (2009) to examine intrinsic purchase motivation related to eSport [56], [57]. Intrinsic motivation is when an individual behaves in response to some internal condition, such as desired to be pleased [39]. In the study, intrinsic motivation represents the internal prospective after making purchases during gaming experience. An example of the item are as follows: When purchasing in gameplay, I felt good about myself and enjoy the moment.

Perceived behavior control: This study conducted five-point item scale which was adapted from the study done by [31], [58]. It contained 6 items regarding behavioral control. An example of the item are as follows: When eSports games have new product activities, I will continue to shop.

Continuous purchase intention: In this study, continuance purchase intention is the propensity an individuals' intention to achieve a specific behavior [33]. Therefore, this study's continuance purchase intention refers to individuals' perception of their continuous purchase intention on eSport. An example of the item is as follow: When eSports games have new product activities, I will continue to shop.

### 4. Results

#### 4.1. Item Analysis

For the individual construct of the initial items was analyzed using the first-order confirmatory factor analysis (CFA) to ensure internal validity of items. According to the residual independence and the value in the parsimony of the model, the number of items was reduced in the construct. Table I shows the value of  $\chi^2/df$  was less than the threshold value of 5, RMSEA was less than 0.08, and GFI and AGFI were greater

than 0.80 [59]. Therefore, the number of items in eSport Addiction (ESA) was reduced from 10 to 7; Extrinsic Motivation (EM) remained the same at 6 to 4; Intrinsic Motivation (IM) was reduced from 7 to 5; perceived behavioral control (PBC) was reduced from 6 to 4; Continuous purchase intention (CPI) was reduced from 5 to 4.

Table 2. First Order CFA

Index	Threshold value	GA	EN	IN	IDN	BA	CP
$\chi^2$	---	24.4	3.2	16.1	5.9	1.5	4.2
df.	---	14	2	5	2	2	2
$\chi^2/df.$	< 5	1.743	1.5	3.22	2.95	.75	2.1
RMSEA	<.1	.045	.041	.078	.073	.000	.055
GFI	>.8	.981	.995	.983	.992	.998	.994
AGFI	>.8	.962	.977	.950	.960	.990	.971

Table 3. Reliability and Validity Analysis

Item	M	SD	FL	t value
<b>eSport Addiction</b>				
M=3.024, SD=.904, Cronbach's $\alpha$ =.912, CR=.911, AVE=.595				
1. My excitement or expectation of playing an eSports game is far better than other interpersonal interactions.	3.05	1.141	.759	50.965
2. I will be complained or blamed by others for playing eSports games.	3.20	1.063	.716	57.431
3. I will be late for school or leave early because I am playing an eSports game.	2.75	1.197	.869	43.891
4. Because of eSport games my marks will regress	2.77	1.189	.846	44.392
5. If someone bothers me while playing an eSport game, I will be angry.	2.99	1.133	.785	50.424
6. I will sacrifice sleep at night because I play eSports games.	3.25	1.007	.674	61.562
7. I will still remember the content of the game activity after I'm offline.	3.15	1.088	.732	55.325
<b>Extrinsic Motivation</b>				
M=3.242, SD=.866, Cronbach's $\alpha$ =.871, CR=.873, AVE=.633				
1. Buying equipment in eSport games can help improve the in-game character	3.25	1.043	.849	59.511
2. Colleagues and friends who play eSports games mostly purchase during gaming, so it is strange to not buy.	3.41	.947	.776	68.601
3. Because I was afraid of not spending while playing eSports games, I was ridiculed by my colleagues and friends.	3.21	1.049	.749	58.472
4. I believe that eSports games are worth spending.	3.10	1.039	.805	56.870
<b>Intrinsic Motivation</b>				
M=3.584, SD=.731, Cronbach's $\alpha$ =.851, CR=.852, AVE=.536				
1. When purchasing in gameplay, I felt good about myself and enjoy the moment.	3.47	.943	.718	70.166
2. I feel satisfied about myself when I make an in-game purchase.	3.54	.910	.689	74.339
3. I feel more secure about myself during the process of purchasing in the game	3.51	.926	.778	72.315
4. Shopping in eSports games can enjoy the benefits of immediate feedback in the game	3.71	.902	.734	78.474
5. When purchasing during the game I can enjoy more service	3.69	.936	.740	75.218
<b>Perceived Behavior control</b>				
M=3.385, SD=.818, Cronbach's $\alpha$ =.845, CR=.82, AVE=.533				
1. As soon as I am close to the date of the eSports game shopping event, I will start watching the activity strategy.	3.48	.943	.686	70.467
2. As long as the eSports game launches great deals, I will buy	3.45	.996	.728	66.140
3. Even if the items launched by the eSports game are not featured, I will still buy them.	3.24	1.020	.719	60.532
4. Every time I go to the eSports game festival, I can't help but want to buy the props.	3.37	1.002	.784	64.113
<b>Continues purchase intention</b>				
M=3.477, SD=.773, Cronbach's $\alpha$ =.828, CR=.813, AVE=.522				
1. When eSports games have new product activities, I will continue to shop.	3.44	.959	.768	68.489
2. If there is an eSports game activity, I can't shop, it will be in my heart.	3.46	.971	.653	67.902
3. Even if the purchase of equipment has no strong effect in the game I would still buy the equipment	3.38	.953	.757	67.679
4. I will invite friends to spend money inside the games	3.63	.926	.706	74.725

Discriminative power was applied to evaluate the external validity of items in each construct. Discriminative power is the significant critical ratio (t-value), which has exceeded 3. In the study, all critical ratios (t-values) were in the range of 39.69 to 79.90 ( $p < .001^{***}$ ), which shows significance in the subscales, and suggests that the items were all discriminative [59].

#### 4.2. Reliability and Validity Analysis



The evaluation of the reliability of the questionnaire was constructed on its internal consistency and composite reliability. [60] Hancock and Mueller’s (2013) specification of Cronbach’s  $\alpha$  value is greater than .6, indicating a satisfactory level of reliability. As seen below in Table 2, the Cronbach’s  $\alpha$  values displays ESA (.912), EM (.871), IM (.851), PBC (.845) and CPI (.828), correspondingly, representing that the variables were reliable [61]. The composite reliability (CR) values of each construct were between .75 and .95, which was greater than the recommended threshold of 0.7 [62].

To confirm convergent validity, confirmation of: (1) the values of each construct .5 shall exceed the average variance extracted (AVE) [63]. Table 2 reveals that AVE value in all the construct exceeded .62. Factor loading (FL) for all constructs were all greater than 0.6 [62]. In Table 2 lowest FL value was .66, signifying an acceptable condition and the validation convergence were met. In the study discriminative and convergent validity analyses all met the required condition [62].

All construct for discriminant validity analysis was used as a requirement for discovering the associations among possible variables, it is necessary to evaluate the average variance extracted (AVE) of the model with the square root of other constructs so that the requirements can be met [64]. Table 3 showed results of discriminant validity analysis. The values of the correlation coefficient within all constructs are less than the square root of the AVE. Thus, discriminant validity can be seen.

Table 4. Construct Discriminative Validity Analysis

Construct	1	2	3	4	5
1.ESA	(.771)				
2.EM	.608	(.796)			
3.IM	.409	.594	(.732)		
4.PBC	.557	.710	.595	(.73)	
5.CPI	.449	.699	.578	.719	(.722)

### 4.3. Path Analysis

To verify the research model, Amos statistical software was used A total of 443 questionnaires were gathered and, after the elimination of invalid responses, 361 valid questionnaires were used. In the study the hypotheses the paths were proposed. Fig. 2 displays the interrelation analysis for the total number of constructs for each path. The path coefficient of EM was affected by ESA ( $\beta = .699, t = 11.942$ ) and IM was affected by ESA ( $\beta = .489, t = 7.467$ ), PBC was affected by EM ( $\beta = .511, t = 8.248$ ) and PBC was affected by IM ( $\beta = .176, t = 3.251$ ). and CPI was affected by PBC ( $\beta = .717, t = 13.18$ ). The figure showed direct effect for eSport addiction on extrinsic motivation was .699, this indicates a strong positive correlation, as the greater the eSport addiction the greater the impact on extrinsic motivation. The direct effect of eSport addiction on intrinsic motivation was .489, which has a positive impact on intrinsic motivation, and the direct effect of extrinsic motivation on perceived behavioral control .511 which showed positive impact. The direct effect of perceived behavioral control on intrinsic motivation was .176. The direct effect of continuous purchase intention on perceived behavioral control was .717.

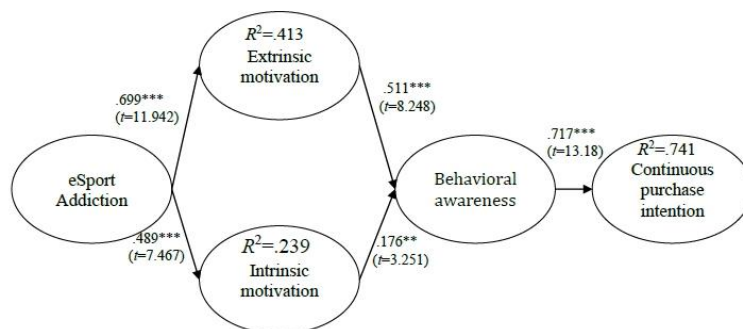


Fig. 2. Research model verification.

In Fig. 2 the hypothesis model. H1: ESA could positively predict EM, H2: ESA could significantly predict IM, H3: EM could significantly predict PBC, H4: IM was positively related to PBC, and H5: PBC was positively related to CPI.

## **5. Discussion**

SDT and TPB were both applied to explain participants eSport addiction, extrinsic motivation, intrinsic motivation, perceived behavioral control and continuous purchase intention in the context of eSport. In comparison of participants mean values, game addiction ( $M = 3.024$ ,  $SD = .904$ ), extrinsic motivation ( $M = 3.242$ ,  $SD = .866$ ) and intrinsic value ( $M = 3.584$ ,  $SD = .731$ ), this is an indication that participants has a higher intrinsic motivation than extrinsic motivation. Moreover, the means of perceived behavioral control ( $M = 3.385$ ,  $SD = .818$ ) and continuous purchase intention ( $M = 3.477$ ,  $SD = .773$ ) were all higher than the value of 3, this shows that participants perceived behavioral control had a great degree in continuous purchase intention.

In H1 and H2, this study showed that participants eSport addiction is significantly related to extrinsic motivation and intrinsic motivation. This is consistent with [37] Xu, Turel, & Yuan's (2012) study where addiction is related to motivation. Thus, this study also indicated that participants who has higher eSport addiction will have a higher extrinsic and intrinsic motivation. That is to say, participants' extrinsic motivation showed that they respond to external forces, such as prizes, like money, or by the influence of others [40]. Participants eSport addiction is significantly related to their intrinsic motivation, such as desired to be pleased, learn or excited, or seek satisfaction [39].

According to the TPB proposed by [15] Azjen (1988) who introduced "perceived behavioral control" a factor of behavior itself and behavioral intention. H3 and H4 indicated that participants' extrinsic motivation and intrinsic motivation was significantly related to perceived behavioral control. The results indicated that participants perceived behavioral control is directly influenced by their extrinsic and intrinsic motivation. The higher the motivation, the higher the perceived behavioral control [42]. This proves that motivational factors can influence eSport participants perceived behavioral control [31].

In H5, PBC was positively significant to continuous purchase intention. This result is consistent with another study [43] Johnston, Johnston, Pollard, Kinmonth and Mant (2004) which stated a positive intention when PBC had more effective predictor in symptomatic populations [15] Ajzen (1988), stated that one's behavior is expected straight forward by perceived behavioral control (PBC) and intention, which is predicted by the behavior of other beliefs. In line with this, eSport participants in this study has high continuous purchase intention toward eSport.

## **6. Conclusion**

The popularity of eSport is evidenced by the number of spectators and participants. Their popularity has become a consumers' demand especially in the eSport market in China, which is expanding rapidly. Thus, based on self-determination theory and theory of planned behavior, this study explored Chinese participants eSport addiction, extrinsic motivation, intrinsic motivation, perceived behavioral control and continuous purchase intention. The results showed that Chinese participants eSport addiction is positively related to extrinsic and intrinsic motivation. Another notable result was that Chinese participants extrinsic and intrinsic motivation was also related to perceived behavioral control. Moreover, the Chinese participants perceived behavior control was significantly related to continuous purchase intention.

## **7. Limitations and Future Studies**

This online questionnaire in this study was distributed to participants in China. Therefore, this study was only limited to Chinese participants who were willing to participate in completing the online questionnaires.



Future studies may choose participants from different countries and compare the differences. The limitation of this study were Chinese participants, and this study did not consider their individual differences. A study has pointed out that research science studies only focus on analyzing demographic differences. Future studies can focus on individuals' personal identities, skills, personality etc [65].

### Conflict of Interest

The authors declare no conflict of interest.

### Author Contributions

First author conducted the research, while second, third and fourth author analyzed the data. All of the authors wrote the paper and approved the final version of the paper.

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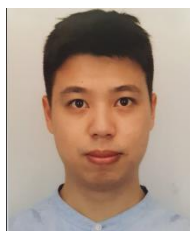
**Yu-Tai Wu** is a PhD student. He is now studying at the Department of Physical Education, National Taiwan Normal University. Mr. Wu's main research interest includes sport marketing, game-based learning, eSport and sport management.



**Jon-Chao Hong** is a chair professor in the Institute for Research Excellence in Learning Sciences, National Taiwan Normal University.

Dr. Hong was granted two "Outstanding Research Award" given by the Ministry of Science and Technology in Taiwan.

Dr. Hong's main research interests includes digital learning, game-based learning, inquiry learning, STEAM education.



**Yu-Feng Wu** is a PhD student at the Graduate Institute of Sport, Leisure and Hospitality Management, National Taiwan Normal University. Mr. Wu's main research interest includes organizational behavior, consumer behavior, sport wearables and game-based learning.



**Jian-Hong Ye** is a PhD student at the Department of Industrial Education, National Taiwan Normal University. He serves as a research assistant at the Department of Industrial Education, National Taiwan Normal University. Mr. Ye's main research interest includes digital learning, game-based learning, design education and vocational education.