

# **Why do you buy digital goods in the mobile game? The value perspective**

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## **Abstract**

Mobile games had dominated the games market in the last decade; meanwhile, mobile games become one of the most popular leisure activity to modern people. People can use their mobile phones or tablets to enjoy the fascinated and absorbed gaming environment. But, previous studies of mobile games neglect the scenario of purchase intention, meaning that what factors influence users to buy digital goods in mobile games. As a result, this research proposes and verify a research framework and hypotheses, including the factors of hedonic value, utilitarian value, economic value, satisfaction, loyalty, and purchase intention. The results of this study state that perceived values are key determinants of users' loyalty, satisfaction, and purchase intention of digital goods. More importantly, this study found that loyalty serves as an essential mediating factor between satisfaction and purchase intention. The research findings provide significant observations to know how game developers should emphasize lock-in activities to improve users' satisfaction, loyalty, and purchase intention.

**JEL classification numbers:** L82, M31

**Keywords:** Mobile Games, Perceived value, Satisfaction, Loyalty, Purchase Intention

## **1. Introduction**

In the rapid-varying environment, mobile technology has profoundly influenced our daily life, empowering people to accomplish everything by their mobile phones. The use of mobile phones has increased rapidly in the world, originated from the characteristics of mobility and connectedness. The mobile phone penetration is a widespread presence in Asia, Europe, and North America and the average percentage of the population owning a mobile phone exceed 60% (Mak et al., 2014).

Global game markets are also changed under this wave of revolution. Due to the pervasiveness of mobile phones and tablets, abundant and various applications (APPs) were developed and encouraged to support and entertain personally daily activities.

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According to the survey from the Market Intelligence Center (MIC) center in 2016, games and communication are the most frequently downloaded APPs in Taiwan. Mobile games have been prevailing over the last decade and becoming a most popular leisure activity.

As reported by a game consulting company, Newzoo, the market share of mobile games has already outstripped the console games and PC games. The profits of mobile games will reach \$46.1 billion in 2017, which claimed 42% of the whole games market. In 2020, mobile games are expected to overtake 50% of the total games market.

The previous studies for mobile games have investigated the determinants of growth and decline of mobile games (Yi et al., 2019), the types of smartphone use and dependence (Bae, 2017), the construction of a mobile game app to prevent cyberbullying (Singh et al., 2017) and the game platform (support mobile phones, tablets, and computer) for video content annotation using a collaborative approach (Viana and Pinto, 2017). Furthermore, Park et al. (2014) explored the motivations of user acceptance of mobile social network games. Even though Hsiao and Chen (2016) explored the factors drive in-apps purchase intention for mobile games, but they did not consider the satisfaction and utilitarian value. Consequently, little is known about how the relationship between hedonic value, utilitarian value, economic value and the purchase intention of the mobile game user. Hence, this research tries to address the research question.

To response the research question, this study proposes a research framework and hypotheses by drawing upon the perceived value perspective and the literature of satisfaction, loyalty, as well as purchase intention. This research verifies the hypotheses against data collected from 531 mobile game users, via an online survey. In subsequent sections, this study will first present the theoretical background, research hypotheses, and research framework in section 2. Section 3 will depict the research methodology and the data analysis and results are summarized in section 4. Finally, the conclusion will be organized in section 5.

## **2. THEORY AND HYPOTHESES**

### **2.1 Perceived Value (Hedonic, Utilitarian, and Economic) and Satisfaction**

Perceived value is an important concept for understanding customers' whole evaluation for specific product or service resulted from their perception (Zeithaml, 1988). According to prior studies, the concept of perceived value has been recognized as one of the most essential notions for realizing customer thought (Ha and Jang, 2010; Jensen,

1996). Furthermore, perceived value is considered a multidimensional factor (Ha and Jang, 2010). In this study, the perceived value is divided into three dimensions, which are hedonic value, utilitarian value, and economic value (Ray et al., 2012; Ha and Jang, 2010; Park, 2004).

Hedonic value means the hedonic fulfillment, which concerns with the customer's detailed appraisal of experiencing profit and loss, like amusement and escapism (Overby and Lee, 2006). The hedonic dimension is recognized as a perception, which is about the peculiarity, signified meaning, and emotional incitement (Ha and Jang, 2010; Spangenberg et al., 1997). Moreover, the utilitarian dimension is correlated to efficient, goal-oriented, and task-specific perspectives of the product or service (Ha and Jang, 2010). Further, utilitarian value is characterized as a comprehensive evaluation of functional satisfaction and disappointment (Overby and Lee, 2006). Furthermore, the economic value is emphasized the perceived candor of the value of products (or services) for the level of quality and the intricacy of features provided (Ray et al., 2012; Verhoef, 2003). When people's calculation economic value (such as low price, good quality, and better benefits) of this product (or service) are better than the other competitors, they will choose the original one (Ray et al., 2012).

Satisfaction signifies a customer's pleasurable level of gratification and fulfillment into a supplier and its offerings (Oliver, 1997). Based on the prior research, satisfaction judgments should have consisted of both affective and cognitive elements (Jones et al., 2006). The two-appraisal model of satisfaction evaluation emphasized that the responses arose from the assessment of the outcomes of the usage of products or services, followed by cognitive and affective assimilation as well as related processes and then lead to satisfaction (Jones et al., 2006; Oliver, 1989). Consequently, it is reasonable to infer that the perception of the value of the mobile game should be critical elements of the utilitarian and hedonic appraisals on satisfaction. Therefore, this research poses the following hypotheses:

**H1: Hedonic value is positively related to satisfaction.**

**H2: Utilitarian value is positively related to satisfaction.**

**H3: Economic value is positively related to satisfaction.**

## **2.2 Perceived Value (Hedonic, Utilitarian, and Economic) and Loyalty**

Oliver (1999) suggested that loyalty was customers' profoundly commitment to take

part in an affirmative behavior for some specific favorite products (or services) in the future; therefore, the repetitive purchasing behavior happens. Loyalty is described as the positive attitude of customers toward specific product or service, and they will repurchase repeatedly (Dick and Basu, 1994). Furthermore, loyalty means an intensely held promise to a specific product or services (Jones et al., 2006; Oliver, 1999). A prior study also indicated the hedonic and utilitarian values were positively influenced loyalty (Jones et al., 2006).

An individual will develop positive attitudes and thoughts toward the experiences which offer psychological and physical fulfillment (Chuang et al., 2016; Jones et al., 2006; Katz, 1960). For example, the people who feel a pleasant experience in the mobile game will dedicate much time, effort, and commitment to it. Thus, this study proposes the following hypotheses:

**H4: Hedonic value is positively related to loyalty.**

**H5: Utilitarian value is positively related to loyalty.**

**H6: Economic value is positively related to loyalty.**

### **2.3 Satisfaction, Loyalty and Purchase Intention**

Satisfaction has been verified and viewed as an essential trigger of loyalty (Wu and Liang, 2011) and purchase intention (Ha and Jang, 2010). Prior studies indicated that satisfaction had a positive effect on loyalty (Jones et al., 2006) and behavioral intention (Ha and Jang, 2010; Jones et al., 2006). If an individual has a positive feeling with a specific product or service, their satisfaction will contribute to continuous loyalty and purchase intention. In the same vein, when the player is satisfied with this game, he or she will have positive affection on this game and then the loyalty and purchase intention is formed; therefore, the gamer has a high probability to retain in this game. In contrast, if this game is not gratified to players' needs, they are very likely switching or deleting the game (Sirakaya-Turk et al., 2015).

Additionally, prior research suggested that satisfaction had a positive impact on loyalty and continuance intention (Sirakaya-Turk et al., 2015; Saba, 2012; Jones et al., 2006). Given this background, this study proposed:

**H7: Satisfaction is positively related to loyalty.**

**H8: Satisfaction is positively related to continuance intention.**

## 2.4 Loyalty and Purchase Intention

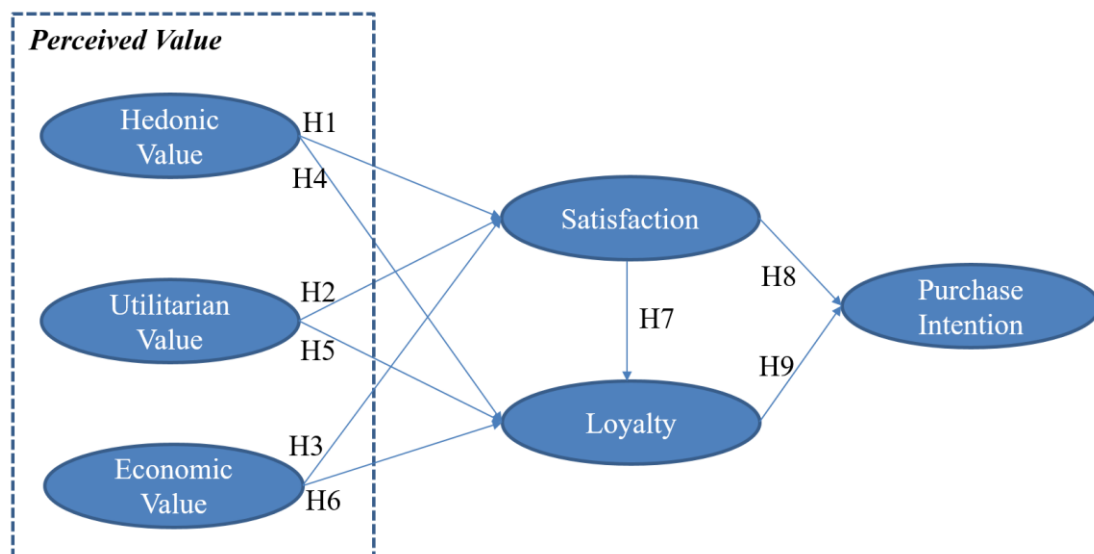
In marketing literature, purchase intention is usually regarded to be better captured by customers' loyalty to repurchase a preferred product or service persistently (Lu et al., 2015; Oliver, 1999). Dick and Basu (1994) also suggested that loyalty is a relative attitude toward an entity (brand or service or store or vendor) and patronage behavior. In the online context, Sohn and Lee (2005) suggested that loyalty was an important predecessor of customers' intention to revisit a website. Also, Chuang et al. (2016) indicated that consumer' loyalty is high, the possibility of re-purchasing the product or service will also be high. Customers who have high preferences and affective attachments to a particular online shopping website can be regarded as high loyalty to the vendor. Similarly, if the gamer has a mental attachment to a specific mobile game, they can be seen as high purchase intention in this game. Thus, this study proposed:

**H9: Loyalty is positively related to purchase intention.**

## 3. Research Design and Methodology

### 3.1 Respondents and procedure

A purposive sampling method to conduct an online survey is adopted in this research, and the targeted objects are the people who have mobile game experiences. A total of 531 valid questionnaires was received from the associated PTT Bulletin Board System Forum (the biggest online forum in Taiwan) and Bahamut (the biggest online game forum in Chinese world). The research framework of this study is depicted in Figure 1.



**Fig. 1. The Research model**

### 3.2 Measurements

The Measurements for all the factors in this research framework were developed and suggested in the antecedent research and these items were modified to conform to the context of this research. All items used a seven-point Likert-scale ranging from 1 to 7 (“strongly disagree” to “strongly agree.”), which is showed in Table 1 and the respondent characteristics can be found in Table 2.

**Table 1. Factors and measurements used in the research framework**

Factor		Source
<b>Hedonic Value</b>		Zhou et al., 2012; Griffin et al., 2000
HV1	While playing this mobile game, I enjoyed being immersed in the environment	
HV2	While playing this mobile game, I feel that it is exciting	
HV3	While playing this mobile game, I had a feeling of adventure	
<b>Utilitarian Value</b>		Zhou et al., 2012
UV1	While playing this mobile game, I finished just the tasks I initially intended to	
UV 2	I could do what I really needed to do in this mobile game	
UV 3	I accomplished just what I initially wanted to in this mobile game	
<b>Economic Value</b>		Ray et al., 2012
EV1	This mobile game is reasonably priced.	
EV2	This mobile game offers value for money.	
EV3	This mobile game is a good service for the price.	
<b>Satisfaction</b>		Zhou et al., 2012
SA1	I feel pleased in this mobile game	
SA2	I feel contented in this mobile game	
SA3	I feel delighted in this mobile game	
<b>Loyalty</b>		Ray et al., 2012; Chang and Chen, 2008
Loy1	I consider myself to be highly loyal to the mobile game.	
Loy2	When I want to play mobile games, this game is my first thought of mobile games	
Loy3	I believe that this is my favorite mobile game	
<b>Purchase Intention</b>		Park and Lee (2011)
PI1	I intend to buy game items in the future	
PI2	I predict that I will buy game items in the future	
PI3	I hope to buy game items soon	

**Table 2. Respondent Characteristics**

Characteristics	Number	Percentage
<i>Gender</i>		
Male	462	87%
Female	69	13%
<i>Age</i>		
10-19	124	23.4%
20-29	400	75.3%
30-39	7	1.3%
<i>Daily average time to surf Internet</i>		
Under 1 hour	3	0.6%
1-2 hour	27	5.1%
2-3 hour	81	15.3%
3-4 hour	134	25.2%
4-5 hour	87	16.4%
5-6 hour	51	9.6%
6 hour and above	148	27.9%
<i>Daily average time to play this mobile game</i>		
Under 1 hour	57	10.7%
1-2 hour	210	39.5%
2-3 hour	146	27.5%
3-4 hour	73	13.7%
4-5 hour	24	4.5%
5-6 hour	7	1.3%
6 hour and above	14	2.6%

## 4. Results

### 4.1 Estimation of the measurement model

This study uses structural equation modeling (SEM) to examine the hypotheses in the research framework. SEM contains two models of analyses, which are the measurement model and a structural model (Hair et al., 2018; Anderson and Gerbing, 1988).

The measurement model affirmed that the exact correlation between the factors and their observed measures, meaning that factor loading. The criterion of the factor loading is 0.6 and satisfies the reliability requirement (Churchill, 1979). Furthermore, the convergent validity and discriminant validity both meet the criteria, showed in Table 3 and Table 4. In general, the model fit of the measurement model is adequate because these measures of fit come to the acceptable criteria ( $\chi^2/df=2.47$ ; GFI = 0.94; AGFI = 0.91; RMSEA=0.05; NFI =0.95; NNFI =0.96; CFI = 0.97; IFI =0.97; RFI =0.94).

### 4.2 Estimation of the structural model

All the hypotheses conform the expectation except H8, showed in Figure 2 and Table 5. The model fit of the structural model is also satisfied, resulted from all measures of criteria meet the required level ( $\chi^2/df=2.51$ ; GFI = 0.93; AGFI = 0.91; RMSEA=0.05;

NFI =0.95; NNFI =0.96; CFI = 0.97; IFI =0.97; RFI =0.94).

**Table 3. Assessment results of the measurement model**

Construct	Items	Standardized loading	CR	AVE
Hedonic Value	HV1	0.73***	0.84	0.64
	HV2	0.83***		
	HV3	0.83***		
Utilitarian Value	UV1	0.86***	0.87	0.69
	UV2	0.81***		
	UV3	0.82***		
Economic Value	EV1	0.82***	0.86	0.67
	EV2	0.74***		
	EV3	0.89***		
Satisfaction	Sat1	0.93***	0.93	0.82
	Sat2	0.84***		
	Sat3	0.95***		
Loyalty	Loy1	0.77***	0.84	0.64
	Loy2	0.80***		
	Loy3	0.82***		
Purchase Intention	PI1	0.94***	0.95	0.87
	PI2	0.94***		
	PI3	0.92***		

Notes: (1) CR= Composite Reliability; AVE= Average Variance Extracted. (2)\*\*\* denotes significance at  $p < 0.001$

### 4.3 Hypotheses Testing

Regarding hypotheses testing, this study examines the presumed linear relationships between the exogenous and endogenous factors through SEM analysis. According to the analysis result of the structure model, all the other hypothesized relationships except H8 are supported and the parameter estimates, as well as T-values for all of the hypotheses, are organized in Table 5. In general, the variance of this research framework can explain 59.8% in satisfaction, 56.8% in loyalty, and 19.1% in purchase intention.



**Table 4. Correlation matrix of constructs**

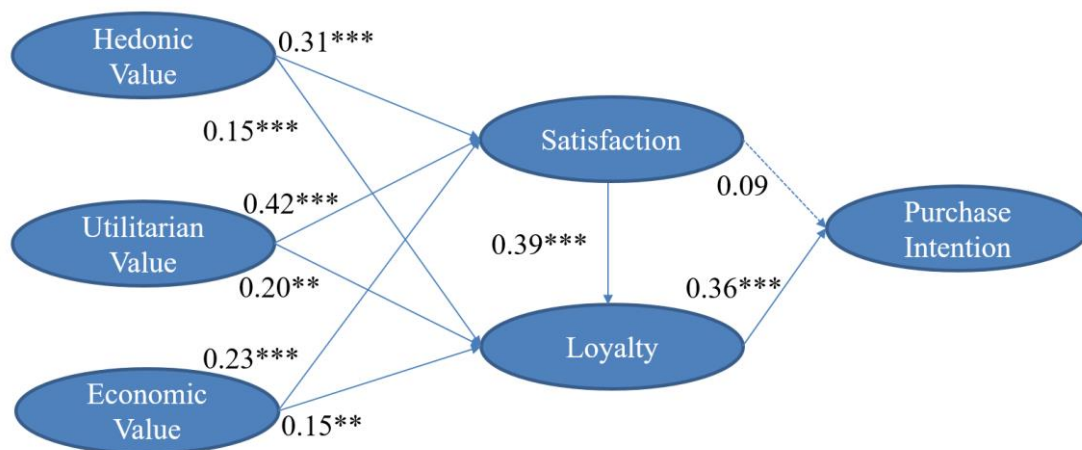
Construct	(1)	(2)	(3)	(4)	(5)	(6)
(1) Hedonic Value	0.80					
(2) Utilitarian Value	0.54	0.83				
(3) Economic Value	0.35	0.36	0.82			
(4) Satisfaction	0.62	0.67	0.49	0.91		
(5) Loyalty	0.56	0.61	0.47	0.70	0.80	
(6) Purchase Intention	0.32	0.26	0.33	0.35	0.42	0.93

Note: Diagonal elements are the square root of the average variance extracted (AVE). Off-diagonal elements are the correlations among constructs.

**Table 5. The research results**

Relationship	Standardized parameter estimates	T-value	Hypothesis testing
H1: Hedonic value is positively related to satisfaction.	0.31***	6.66	Supported
H2: Utilitarian value is positively related to satisfaction.	0.42***	9.23	Supported
H3: Economic value is positively related to satisfaction.	0.23***	6.28	Supported
H4: Hedonic value is positively related to loyalty.	0.15**	2.93	Supported
H5: Utilitarian value is positively related to loyalty.	0.20***	3.62	Supported
H6: Economic value is positively related to loyalty.	0.15***	3.41	Supported
H7: Satisfaction is positively related to loyalty.	0.39***	6.20	Supported
H8: Satisfaction is positively related to purchase intention.	0.09	1.40	Not Supported
H9: Loyalty is positively related to purchase intention.	0.36***	5.17	Supported

\*, \*\*and \*\*\* denote significance at  $p < 0.05$ ,  $p < 0.01$ , and  $p < 0.001$  respectively.



**Fig. 2. The Structural Model**

#### 4.4 Mediating Effect Testing

The result of the structural model showed that satisfaction had a positive but insignificant effect on purchase intention; meanwhile, satisfaction has a positive and significant influence on loyalty as well as loyalty significantly affects purchase intention. Thus, the mediating effect between satisfaction and purchase exists or is needed to be examined.

To verify the mediating effect of satisfaction and loyalty, the guidelines proposed by Zhao et al. (2010) was followed. The result of mediating effect was summarized in Table 6. According to the suggestion of Zhao et al. (2010), the significance of indirect effects was firstly examined and which indicate that the indirect effect of satisfaction on purchase intention via loyalty is significant at  $p < 0.05$  level and zero is excluded in the 95% confidence interval. This study then verified the significance of direct effect from satisfaction to purchase intention with the mediator (loyalty) controlled to examine full or partial mediation. According to Table 6, loyalty fully mediates the relationship between satisfaction and purchase intention.

**Table 6. Significance of mediating effect**

	Point Estimates	Product of Coefficients		Bias-Corrected CI		Percentile CI	
		SE	Z	Lower	Upper	Lower	Upper
Satisfaction→Loyalty→Purchase Intention	0.250	0.060	4.167	0.147	0.393	0.138	0.379
Direct Effect (Satisfaction→Purchase Intention)	0.159	0.127	1.252	-0.088	0.408	-0.087	0.412
Total Indirect Effect	0.410	0.104	3.942	0.203	0.617	0.201	0.616

## 5. Conclusion

This study proposed and tested the research framework, based on literature to identify the perceived value (hedonic, utilitarian, and economic value), satisfaction, loyalty, and purchase intention in the mobile game context. According to the research result, this study found that the hedonic value, utilitarian value, and economic value have positive impact on purchase intention via satisfaction and loyalty. The possible reason for satisfaction has an insignificant effect on purchase intention is buying digital items is an additional expenditure so that the game player will not rashly to buy digital goods. Once the player continues to play and loyal to this game, the further purchase intention will be triggered.

Consequently, this study not only verified the cause effects among perceived value, satisfaction as well as loyalty, but also empirically proved that the mediating role of loyalty between satisfaction and purchase intention; hence, the mobile game companies should pay much attention to think how to attract and lock players in their games. A possible solution is trying to design a game, combined with hedonic, utilitarian, economic elements. The ultimate goal for game companies is not pursuing satisfied customers, but also high loyal customers. Taken together, this study provided a comprehensive and examined the theoretical model with complete information for other scholars to conduct future research.

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