

探討消費者參與、心流體驗與持續使用意圖關連性之研究
-以 The Collectors 玩家為例

**Exploring the Relationship Among Customer Engagement, Flow Experience
and Continuance Usage Intention: A Study on Players of The Collectors**

黃義俊¹

國立高雄科技大學 企業管理系 教授

peterhun@nkust.edu.tw

江倩潔²

F110157118@nkust.edu.tw

國立高雄科技大學 企業管理系碩士班 研究生

Abstract

In recent years, there has been a growing emphasis on the concept of sustainability. In 2015, the United Nations introduced 17 Sustainable Development Goals (SDGs) as a global framework for addressing environmental and social challenges through international cooperation across the economic, social, and environmental aspects. To achieve these sustainable development goals, consumers play a key role as one of the influencing factors. In this study, it is believed that enhancing consumers' awareness of sustainability helps facilitate their understanding and support for sustainable actions, leading to the success of SDGs, especially for SDG 12 (responsible production and consumption). Drawing from previous research that highlights the positive effects of gamification in learning, the current study focuses on the sustainable game "The Collectors" to investigate the relationships among consumer engagement, flow experience, and continuance usage intention. The data were collected through an online survey among The Collectors players. 248 valid responses were obtained and analysed with SPSS software. The results revealed that both consumer engagement and flow experience have a significant positive impact on continuous usage intention. Furthermore, consumer engagement was found to positively influence the flow experience. Additionally, the study further confirmed that flow experience is a mediating variable between consumer engagement and continuous usage intention.

關鍵詞：顧客參與度，心流體驗，持續使用意圖，永續發展目標，遊戲化

Keywords: Consumer engagement, Flow experience, Continuance usage intention, Sustainable Development Goals, Gamification

Chapter 1 Introduction

1.1 Background

Climate change is a major issue people are facing globally nowadays, it affects not only our environment but also our economy and society as a whole. In light of the urgent need to tackle the climate crisis, there is a growing global focus on the sustainability issues, particularly among non-governmental organizations (NGOs) and business enterprises. The United Nations introduced the Sustainable Development Goals (SDGs) in 2015, which aimed to achieve development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Burton, 1987). However, promoting the concept of sustainability and changing people's long-term behaviour is not easy. Therefore, the True Corporation Company has decided to develop a sustainable gamified application called "The Collectors". The game primarily contributes to SDG 12 (i.e., ensuring sustainable consumption and production patterns), specifically focusing on the targets

of ‘achieving the sustainable management and efficient use of natural resources’ (SDG 12.2), ‘reducing waste generation through prevention, reduction, recycling, and reuse’ (SDG 12.5), and ‘ensuring the general public have the relevant information and awareness for sustainable development and lifestyles in harmony with nature’ (SDG 12.8). By promoting these goals, the game aims to raise awareness and promote the concept of sustainability among its players. It encourages players to adopt sustainable behaviours, such as responsible consumption, waste reduction, and resource efficiency, thus contributing to the overall promotion of sustainable practices and lifestyles.

1.2 Research Objectives and motivation

The objective of this research is to explore the relationship among consumer engagement, flow experience, and continuance usage intention. By studying the experiences of players of ‘The Collectors’, it is expected to gain a deeper understanding of how consumer engagement and flow experience affect players’ intentions to continue playing the game.

In the field of marketing literature, it is common to measure behavioural intentions using flow experience and engagement as indicators. However, when it comes to the perspective of gamification for sustainability, it is still a relatively new area. Flavián et al. (2019) suggested that new technologies, including virtual reality, augmented reality and mixed reality, generate a greater sense of consumer engagement by providing more realistic experiences. In recent years, scholars have started to pay attention to how gamification can be used to encourage consumers’ sustainable behaviour, such as reducing domestic energy consumption (Casals et al., 2020) and promoting sustainable food consumption habits (Kao, 2019). The findings of this study are expected to contribute to the existing literature on player behaviour and inform strategies to enhance player engagement and promote sustained usage in the gaming industry.

Chapter 2 Literature Review

2.1 Sustainable Marketing

2.1.1 Sustainability and Marketing

The concepts of marketing and sustainability have evolved over the years. People have recently started to combine these two concepts and apply sustainable marketing practices to business. According to Charter (1991), sustainable marketing is a process of minimizing the negative impact of the environment from every stage of a product’s life cycle (i.e., from production to post-purchasing service), while Lunde (2018) considered it as a strategic process of creating value through consumption behaviours, business practices, and the marketplace, while lowering harm to the environment and ethically and equitably enhancing the quality of life and well-being of consumers and global stakeholders, both presently and for future generations. In addition, Elkington (1994) proposed the framework of the Triple Bottom Line, which has expanded the traditional focus of business beyond just financial performance. It incorporates three dimensions of sustainability namely economic, environmental, and social. All dimensions are equally important and influence each other. It is suggested that companies should strive to strike a balance between these three dimensions in order to achieve sustainable marketing. From another perspective, sustainable marketing helps to encourage consumers to take sustainable actions and to raise their awareness about the importance of sustainability, which might result in a mitigation of the negative impact on the environment and a reduction of resource consumption (White, Habib, & Hardisty, 2019; Whittaker, Mulcahy & Russell-Bennett, 2021). Marketers have a significant role in promoting sustainable marketing and cultivating consumers’ awareness of sustainable consumption practices. Therefore, for the purpose of this study, the definition as given by Lunde (2018) is adopted.

2.1.2 Gamification and Sustainable Marketing

With the advancement of technology today, gamification has gained popularity and widespread usage in various domains. The term ‘gamification’ was first introduced by Nick Pelling in 2002 (Marczewski, 2013; Hebebcı & Selahattin, 2021). It refers to the utilization of game design elements in contexts outside the area of gaming (Detering et al., 2011;

Hebebe & Selahattin, 2021). The concept attracted growing interest from both scholars and practitioners, leading to its extensive application in different research areas, especially in marketing and education. In fact, previous research has provided evidence of the effectiveness of gamification in promoting consumer sustainable behaviour. Various studies have explored the application of gamification in areas such as water conservation (Koroleva & Novak, 2020; Whittaker, Mulcahy & Russell-Bennett, 2021), eco-driving (Günther et al., 2020; Whittaker, Mulcahy & Russell-Bennett, 2021) and sustainable tourism practice (Negrusa et al., 2015; Whittaker, Mulcahy & Russell-Bennett, 2021). These studies have demonstrated that gamification is a useful tool for educating and raising public awareness by enhancing learners' engagement and motivation (De-Marcos, Garcia-Lopez, & Garcia-Cabot, 2016; Dichev et al., 2014; Sun & Hsieh, 2018). Therefore, the study suggested that marketers can shape and influence people's behaviour through the utilization of gaming elements.

2.2 Continuance Usage Intention

Continuance usage intention is a variable commonly found in the field of information systems. It primarily focuses on the behaviour of consumers after experiencing a product or service (Ahmad et al. 2010). According to Fishbein and Ajzen (1975), continuance usage intention refers to the willingness of an individual to engage in certain behaviours, while Davis (1989) considered it as the degree of users' intention to use a specific system. Scholars believed that the continuance usage intention of consumers is the key to the success of a business (Davis, 1989; Delone & McLean, 2003), and some scholars suggested that satisfied consumers are more likely to repurchase a product or continue to engage in an activity (Bhattacharjee 2001; Limayem et al., 2007; Lin et al., 2005; Lin et al., 2012). In the present study, it is expected that players of The Collectors will continue to play the game after the study is over. When players are satisfied with the game, they may have a higher degree of willingness to continue to play the game in the future.

2.3 Consumer Engagement

In today's world, consumer engagement is commonly considered as an essential factor for measuring the performance of a brand and has become an inevitable component to gaining competitive advantages in the intense marketing competition (Van Doorn et.al, 2010; Raghavan & Pai, 2021). Consumer engagement is an emotional connection between the company and its consumer (Rieger & Kamins, 2006; Vivek, 2009). From the marketer's point of view, it mainly focused on the interactions with and participation of consumers (Nambisan, 2002; Wagner & Majchrzak, 2006; Vivek, 2009; Stringer, 2006; Nammir, Marane & Ali, 2012). It is believed that the change in consumer engagement would affect consumers' satisfaction and loyalty (Hollebeek, 2011; Raghavan & Pai, 2021), which would then affect consumers' intentions for future actions (Harrigan et al., 2017; Hollebeek et al., 2014; Suh & Eck, 2021). Vivek et al. (2014) have redefined consumer engagement in a different light that it was the intensity of an individual's participation and connection with the organization's offering, and/or organized activities. With the aim of this study, which is to investigate the relationship between consumer engagement and continuance usage intention, the definition of Vivek et al.'s (2014) would be adopted in this study.

2.4 Flow Experience

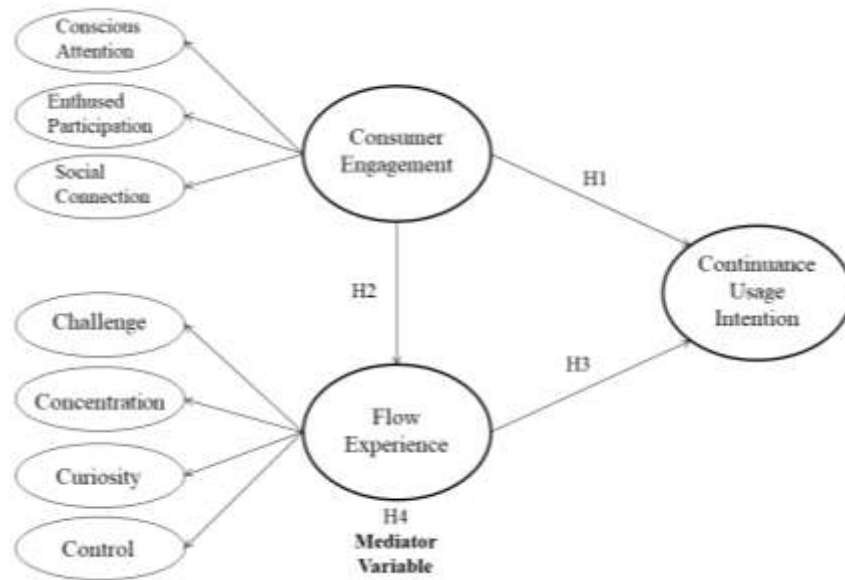
The concept of flow theory, which also called the flow experience, was first introduced by Mihaly Csikszentmihalyi in 1975. He discovered that peoples' enjoyment did not create from relaxing or having a stressless moment. Instead, their enjoyment was obtained when they were participating in intense activities, in which their attention was fully focused. Csikszentmihalyi called this state as flow (Biasutti, 2011; Csikszentmihalyi, 1975). Flow has been studied and applied in a broad range of contexts, such as education, sports, and gaming (Siekpe, 2005). It is a common metric to determine the performance of consumers' engagement and participation. According to the original statement, flow was described as a state in which people are so involved in an activity that nothing else seems to matter. The experience the person engages in is enjoyable and he is willing to pay a cost for doing so, even when the cost is great (Csikszentmihalyi, 1990).

Chapter 3 Research Methodology

3.1 Research Model and Hypotheses

The present study investigates the relationships among consumer engagement, flow experience, and continuance usage intention. "Consumer engagement" is considered as the independent variable, "continuance usage intention" as the dependent variable, and the variable "flow experience" is considered as a mediator. The developed research framework is illustrated in Figure 1.

Figure 1. The research model of the study



Source: Organized by the Author

3.1.1 Consumer Engagement and Continuance Usage Intention

Recent research has shown that there is a positive relationship between consumer engagement and continuance usage intention (Lim et al., 2021; Friederich et al., 2023; Rahardja et al., 2023; Waqas & Najmi, 2023). Engaged consumers are more likely to have a stronger intention to continue using a product or service due to their higher satisfaction, emotional attachment, and perceived value. They tend to exhibit greater loyalty, repeat purchase behavior, and positive word-of-mouth. Therefore,

H1. Consumer engagement will have a direct positive effect on continuance usage intention.

3.1.2 Consumer Engagement and Flow Experience

According to Csikszentmihalyi (1975), consumers have to first balance the two main antecedent factors between challenge and skill in order to create enjoyment and enter the state of the flow zone. In the present study, it is expected that consumers will enter the state of the flow zone base on their engagement in the activities. When consumers are highly engaged, this increases their loyalty and satisfaction with the brand, hence, they are more likely to fully involve in the activities and more willing to pay for a cost even when the cost is great. Therefore,

H2. Consumer engagement will have a direct positive effect on flow experience.

3.1.3 Flow Experience and Continuance Usage Intention

Findings from various studies imply that there is a positive relationship between flow experience and continuance usage intention (Shih, Shiau & Huang, 2010; Wang & Lin, 2021; Zhao & Khan, 2022). As individuals experience higher levels of flow, they tend to feel more satisfied with the product or activity, thus becoming more willing to continue using it. Therefore,

H3. Flow experience will have a direct positive effect on continuance usage intention.

3.1.4 Mediating role of Flow Experience

The study of Goh and Yang (2021) demonstrated that engagement would lead to flow experience and hence improve students continued use intention. In this study, it is expected that the results under the field of marketing will be similar to the study of Goh and Yang (2021), flow experience is considered as a mediating factor influencing the relationship between customer engagement and sustainable consumption intention in the present study. Therefore,

H4. Flow experience will have a mediating effect on the relationship between consumer engagement and continuance usage intention.

3.2 Measurement Scales

3.2.1 Consumer Engagement

In this study, consumer engagement is defined as the degree of active and emotional involvement of players with a game and its related activities. The scale used to measure consumer engagement is adapted from Vivek et al. (2014). It consists of 15 items. The reliability of the scale, assessed by Cronbach's α coefficient, is 0.92.

3.2.2 Flow Experience

In this study, flow experience is defined as a state of optimal engagement and immersion in an activity where individuals are fully absorbed and deeply focused. The flow experience scale used in this study is adapted from the works of Novak, Hoffman, and Yung (2000), Koufaris (2002), and Agarwal & Karahanna (2000). It consists of 13 items. The reliability of the scale, assessed by Cronbach's α coefficient, is 0.90.

3.2.3 Continuance Usage Intention

In this study, continuance usage intention is defined as the player's intention or willingness to continue playing the game.

3.3 Data collection

This study employed an online survey to collect data from individuals who have played "The Collectors" game. The questionnaire aimed to measure the users' levels of consumer engagement, flow experience, and continuance usage intention in relation to the game. The survey used Likert five-point scale, ranging from "Strongly Agree" to "Strongly Disagree," with scores ranging from 5 to 1 to represent varying levels of agreement.

3.3.1 Gamified application — “The Collectors”

True Corporation Company has developed a gamified mobile application called "The Collectors" with the aim of promoting climate actions and encouraging sustainable behaviors. This application is designed to educate players about recycling and foster a sustainable consumption pattern. It also integrates the concept of Sustainable Development Goals (SDGs) within the game. In the game, players are required to collect trash bags and convert them into various goods. Throughout the game, players learn about recyclable materials and the recycling process. The game incorporates gamification elements such as achievements and storytelling to provide an entertaining experience while encouraging users to make conscious consumption choices aligned with sustainability principles.

3.3.2 Data Analysis Strategy

The data analysis was conducted by using SPSS 24.0 software, which involved descriptive statistics, reliability analysis, Pearson correlation analysis, independent samples t-test, one-way analysis of variance (ANOVA), regression analysis, and mediation analysis.

Chapter 4 Data Analysis Result

4.1 Demographic Characteristics

A total of 280 survey responses were received through the use of SurveyCake. The study was promoted through social networking platforms such as Facebook, Instagram, and Line. All respondents self-administered the survey, and they were

made aware that their responses would be kept confidential. After conducting the data cleaning process to eliminate unengaged responses and outliers, 248 usable responses remained for further analysis. This represents an effective response rate of 88.6% (248 out of 280 surveys).

Table 4-1 provides a comprehensive overview of the demographic characteristics of respondents. The study findings indicate a slightly higher proportion of male respondents (54.4%) compared to females (45.6%). The majority of respondents (74.2%) fall within the 15-24 age range. Additionally, nearly 90% of the respondents are students. In terms of education level, most respondents hold a bachelor's or associate degree (75%), while a significant proportion (16.1%) have achieved a master's degree or higher.

Table 4-1. Demographic profile of the respondents.

Characteristics		Frequency (N = 248)	Percentage (%)
Gender	Male	135	54.4
	Female	113	45.6
Age group	Under 15	2	0.8
	15 - 24	184	74.2
	25 – 34	49	19.8
	35 – 44	5	2.0
	Over 44	8	3.2
Education Level	Junior high school and below	4	1.6
	Senior and vocational high School	18	7.3
	University or college	186	75.0
	Master's degree or above	40	16.1
Occupation	Student	213	85.9
	Civil servant	4	1.6
	Service	8	3.2
	Finance	5	2.0
	Information technology	6	2.4
	Retiree	1	0.4
	Unemployed	1	0.4
	Other	10	4.0
Average Usage Time Per Day	Less than 30 minutes	129	52.0
	Between 30 minutes and 1 hour	92	37.1
	Between 1 and 1.5 hours	17	6.9
	Between 1.5 and 2 hours	6	2.4
	More than 2 hours	4	1.6
Average Usage Time Per Week	Less than 1 day	63	25.4
	1 - 2 days	129	52.0
	3 - 4 days	46	18.5
	5 or more days	10	4.0
Average Usage Time Per Month	Less than 1 week	70	28.2
	1 - 2 weeks	108	43.5
	2 - 3 weeks	55	22.2
	3 or more weeks	15	6.0

Source: SPSS results of sample

4.2 Reliability Analysis

Cuieford (1965) suggested that Cronbach's alpha values higher than 0.7 indicate high reliability, while values within the range of 0.7 to 0.35 are considered acceptable. In this study, the Cronbach's α values for each dimension were found to be above 0.7, indicating that the survey items the survey items used in this study are reliable (see Table 4-2).

Table 4-2. Results of reliability analysis.

Variable	Dimension	Item	Cronbach's α
Consumer Engagement	Conscious Attention	6	0.84
	Enthused Participation	6	0.92
	Social Connection	3	0.85
Flow Experience	Challenge	3	0.77
	Concentration	4	0.90
	Curiosity	3	0.86
	Control	3	0.78
Continuance Usage Intention	--	5	0.94

Source: SPSS results of sample

Note. The absence of data in the "Dimension" column indicates that no specific dimension was applicable for the corresponding variable.

4.3 Descriptive Statistics

4.3.1 Consumer Engagement

As shown in Table 4-3, the average scores of each question in the consumer engagement survey are higher than 3, falling in the range of neutral and strongly agree. Question with the highest average score (4.49) is "SC03. Playing the application (game) is more fun when other people around me do it too." And the question "SC02. I enjoy playing the application (game) more when I am with others." has the second highest average score (4.42), showing that respondents agreed that playing the game with their friends would increase enjoyment and fun. However, the question "CA06. Anything related to the application (game) grabs my attention." has the lowest average score (3.10) among the questions in this survey, reflecting that respondents were not engage in any aspect of the game.

Table 4-3. Descriptive statistics of consumer engagement dimensions.

Dimension	Label	Question	Average score	S.D.	ranking
Conscious Attention	CA01	I like to know more about the application (game).	3.83	0.67	3
	CA02	I like events that are related to the application (game).	3.89	0.66	2
	CA03	I like to learn more about the application (game).	3.97	0.65	1
	CA04	I pay a lot of attention to anything about the application (game).	3.40	1.06	4
	CA05	I keep up with things related to the application (game).	3.17	1.05	5
	CA06	Anything related to the application (game) grabs my attention.	3.10	1.02	6
Enthused Participation	EP01	I spend a lot of my discretionary time playing the application (game).	3.54	1.08	5
	EP02	I am heavily into the application (game).	3.40	1.06	6
	EP03	I try to fit the application (game) into my schedule.	3.99	0.91	2
	EP04	I am passionate about the application (game).	3.65	0.95	4
	EP05	My days would not be the same without the application (game).	3.85	0.91	3
	EP06	I enjoy spending time on the application (game).	4.06	0.77	1
Social Connection	SC01	I love playing the application (game) with my friends.	4.29	0.72	3
	SC02	I enjoy playing the application (game) more when I am with others.	4.42	0.67	2
	SC03	Playing the application (game) is more fun when other people around me do it too.	4.49	0.64	1

Source: SPSS results of sample

4.3.2 Flow Experience

Table 4-4 revealed that the average scores of each question in the flow experience survey are higher than 3, which is in the range of agree. Question with the highest average score (4.19) is “CU01. Playing the application (game) excites my curiosity.” And the question “CC03. I concentrated fully on the application (game).” has the second highest average score (4.16), showing that the game was attractive for the respondents, they were fully engrossed while playing the game. However, the question “CC01. I was absorbed intensely during gaming time.” has the lowest average score (3.73) among the questions in this survey, reflecting that some of the respondents had low interest in playing the game.

Table 4-4. Descriptive statistics of flow experience dimensions.

Dimension	Label	Question	Average score	S.D.	ranking
Challenge	CH01	The application (game) challenged me to perform to the best of my ability.	3.88	0.54	1
	CH02	The application (game) provided a good test of my skills.	3.83	0.62	2
	CH03	The application (game) stretched my capabilities to the limits.	3.78	0.69	3
Concentration	CC01	I was absorbed intensely during gaming time.	3.73	0.92	4
	CC02	My attention was focused on the application (game).	4.13	0.77	2
	CC03	I concentrated fully on the application (game).	4.16	0.71	1
	CC04	I was deeply engrossed during gaming time.	3.80	0.90	3
Curiosity	CU01	Playing the application (game) excites my curiosity.	4.19	0.75	1
	CU02	Interacting with the application (game) makes me curious.	4.12	0.79	2
	CU03	Playing the application (game) arouses my imagination.	3.81	0.78	3
Control	CT01	When playing the application (game) I feel in control.	3.99	0.70	1
	CT02	I feel that I have control over my interaction with the application (game).	3.79	0.69	3
	CT03	The application (game) allows me to control my mobile phone interaction.	3.87	0.69	2

Source: SPSS results of sample

4.3.3 Continuance Usage Intention

In Table 4-5, it can be observed that the average scores of each question in the continuance usage intention survey are higher than 3, which is in the range of agree. Question with the highest average score (4.20) is “CI05. I am willing to play the application (game) in the future.” And the question “CI04. I expect to continue playing the application (game) in the future.” has the second highest average score (4.15), showing that the respondents are likely to continue playing the game in the future. However, the question “CI02. I will keep playing the application (game) as regularly as I do now.” has the lowest average score (3.82) among the questions in this survey, reflecting that some of the respondents might spend less time on this game in the future.

Table 4-5. Descriptive statistics of continuance usage intention dimensions.

Label	Question	Average score	S.D.	ranking
CI01	I intend to continue playing the application (game) in the future.	3.99	0.68	4
CI02	I will keep playing the application (game) as regularly as I do now.	3.82	0.84	5
CI03	I will continue playing the application (game) as much as possible in future.	4.00	0.73	3
CI04	I expect to continue playing the application (game) in the future.	4.15	0.76	2
CI05	I am willing to play the application (game) in the future.	4.20	0.73	1

Source: SPSS results of sample

4.4 Analysis of Variance

4.4.1 Average Daily Frequency

In this subsection, one-way analysis of variance (ANOVA) is conducted to examine whether there are significant differences in various variables and dimensions in terms of the average daily frequency. As shown in Table 4-6, all the p values were less than 0.05 except for the challenge and control dimensions.

Table 4-6 ANOVA test for average daily frequency.

Average daily frequency Dimensions	Mean					F-value	P-value	Scheffe
	1	2	3	4	5			
Consumer Engagement	3.64	3.90	4.18	4.48	4.23	7.84	0.000***	2 > 1, 3 > 1, 4 > 1
Conscious Attention	3.48	3.52	3.94	4.39	4.13	5.57	0.000***	3 > 1, 4 > 1, 4 > 2
Enthusied Participation	3.52	3.91	4.23	4.42	4.21	7.09	0.000***	2 > 1, 3 > 1,
Social Connection	4.20	4.61	4.59	4.78	4.50	8.29	0.000***	2 > 1
Flow Experience	3.87	3.94	4.14	4.27	4.33	2.64	0.035**	NS
Challenge	3.84	3.77	3.96	4.00	4.08	1.00	0.408	
Concentration	3.85	3.97	4.41	4.46	4.38	3.55	0.008**	3 > 1
Curiosity	3.88	4.18	4.22	4.33	4.50	3.92	0.004**	2 > 1
Control	3.90	3.82	3.88	4.22	4.33	1.48	0.208	
Continuance Usage Intention	3.83	4.18	4.49	4.70	4.25	8.72	0.000***	2 > 1, 3 > 1, 4 > 1

Source: SPSS results of sample

Note. *p<0.1, **p<0.05, ***<0.001

NS: no significant differences between the groups.

(1) Less than 30 minutes (2) Between 30 minutes and 1 hour (3) Between 1 and 1.5 hours (4) Between 1.5 and 2 hours (5) More than 2 hours

4.4.2 Average Weekly Frequency

In this subsection, one-way analysis of variance (ANOVA) is conducted to examine whether there are significant differences in various variables and dimensions in terms of the average weekly frequency. As shown in Table 4-7, all the p values were less than 0.05, reaching a statistically significant level.

Table 4-7 ANOVA test for average weekly frequency.

Average weekly frequency Dimensions	Mean				F-value	P-value	Scheffe
	1	2	3	4			
Consumer Engagement	3.21	3.91	4.23	4.17	48.41	0.000***	2 > 1, 3 > 1, 4 > 1, 3 > 2
Conscious Attention	3.07	3.65	3.87	4.03	22.14	0.000***	2 > 1, 3 > 1, 4 > 1
Enthusied Participation	2.96	3.89	4.34	4.15	49.53	0.000***	2 > 1, 3 > 1, 4 > 1, 3 > 2
Social Connection	4.01	4.46	4.74	4.50	17.91	0.000***	2 > 1, 3 > 1, 4 > 1, 3 > 2
Flow Experience	3.47	4.06	4.10	4.29	33.61	0.000***	2 > 1, 3 > 1, 4 > 1
Challenge	3.53	3.92	3.92	4.10	11.00	0.000***	2 > 1, 3 > 1, 4 > 1
Concentration	3.34	4.13	4.22	4.33	26.73	0.000***	2 > 1, 3 > 1, 4 > 1
Curiosity	3.49	4.17	4.30	4.57	24.83	0.000***	2 > 1, 3 > 1, 4 > 1
Control	3.55	4.01	3.91	4.17	11.18	0.000***	2 > 1, 3 > 1, 4 > 1
Continuance Usage Intention	3.36	4.18	4.47	4.36	48.06	0.000***	2 > 1, 3 > 1, 4 > 1, 3 > 2

Source: SPSS results of sample

Note. *p<0.1, **p<0.05, ***<0.001

(1) Less than 1 day (2) 1 - 2 days (3) 3 - 4 days (4) 5 or more days

4.4.3 Average Monthly Frequency

In this subsection, one-way analysis of variance (ANOVA) is conducted to examine whether there are significant differences in various variables and dimensions in terms of the average monthly frequency. As shown in Table 4-8, all the p values were less than 0.05, reaching a statistically significant level.

Table 4-8 ANOVA test for average monthly frequency.

Average monthly frequency Dimensions	Mean				F-value	P-value	Scheffe
	1	2	3	4			
Consumer Engagement	3.24	3.92	4.21	4.10	49.31	0.000***	2 > 1, 3 > 1, 4 > 1, 3 > 2
Conscious Attention	3.11	3.67	3.81	3.94	20.11	0.000***	2 > 1, 3 > 1, 4 > 1
Enthusied Participation	2.99	3.91	4.32	4.02	52.79	0.000***	2 > 1, 3 > 1, 4 > 1, 3 > 2
Social Connection	4.02	4.43	4.78	4.58	21.94	0.000***	2 > 1, 3 > 1, 4 > 1, 3 > 2
Flow Experience	3.54	4.05	4.13	4.14	25.60	0.000***	2 > 1, 3 > 1, 4 > 1
Challenge	3.57	3.91	3.98	3.89	9.40	0.000***	2 > 1, 3 > 1
Concentration	3.45	4.09	4.25	4.28	20.32	0.000***	2 > 1, 3 > 1, 4 > 1
Curiosity	3.55	4.16	4.36	4.27	22.30	0.000***	2 > 1, 3 > 1, 4 > 1
Control	3.62	4.03	3.88	4.07	8.40	0.000***	2 > 1, 3 > 1, 4 > 1
Continuance Usage Intention	3.40	4.17	4.49	4.36	51.17	0.000***	2 > 1, 3 > 1, 4 > 1, 3 > 2

Source: SPSS results of sample

Note. *p<0.1, **p<0.05, ***<0.001

(1) Less than 1 week (2) 1 - 2 weeks (3) 2 - 3 weeks (4) 3 or more weeks

4.5 Correlation Analysis

To examine the extent of correlation between consumer engagement, flow experience, and continuance usage intention, Pearson correlation coefficients were used in this study. The Pearson correlation coefficient ranges from -1 to +1, where values closer to 1 represent a stronger relationship among variables, and vice versa. In addition, when the absolute value is higher than 0.7, indicating a strong correlation. Values between 0.3 and 0.7 indicate a moderate correlation, while values lower than 0.3 indicate a low linear relationship. As shown in Table 4-9, consumer engagement, flow experience, and continuance usage intention demonstrated significant positive correlations.

Table 4-9 Result of the Pearson correlation analysis.

Variables	1	2	3	4	5	6	7	8
1 CA	1.000							
2 EP	0.660***	1.000						
3 SC	0.299***	0.605***	1.000					
4 CH	0.584***	0.539***	0.318***	1.000				
5 CC	0.659***	0.619***	0.351***	0.466***	1.000			
6 CU	0.597***	0.606***	0.407***	0.539***	0.652***	1.000		
7 CT	0.459***	0.499***	0.169**	0.460***	0.444***	0.369***	1.000	
8 CI	0.625***	0.755***	0.564***	0.501***	0.606***	0.608***	0.450***	1.000

Note. *p<0.1, **p<0.05, ***<0.001

Abbreviations: CA, Conscious Attention; EP, Enthused Participation; SC, Social Connection; CH, Challenge; CC, Concentration; CU, Curiosity; CT, Control; CI, Continuance Usage Intention.

4.6 Multiple Regression Analysis

4.6.1 The Impact of Consumer Engagement on Continuance Usage Intention

Based on the findings in Table 4-10, it can be concluded that all three dimensions of consumer engagement (i.e., conscious attention, enthused participation, and social connection) have a significant positive impact on continuance usage intention.

Table 4-10 Regression Analysis: Consumer Engagement and Continuance Usage Intention

Dependent variable	Independent variables	Unstandardized Coefficients		t-value	P-value	significant
		β	SE			
Continuance Usage Intention	(Constant)	0.611	0.224	2.726		
	Conscious Attention	0.268	0.054	4.958	0.000***	Yes
	Enthused participation	0.379	0.053	7.146	0.000***	Yes
	Social Connection	0.238	0.056	4.226	0.000***	Yes

Source: SPSS results of sample

Note. *p<0.1, **p<0.05, ***<0.001

SE: Standard error

4.6.2 The Impact of Consumer Engagement on Flow Experience

Based on the findings in Table 4-11, it can be concluded that:

1. Conscious attention and enthused participation have a significant positive impact on challenge.
2. Conscious attention and enthused participation have a significant positive impact on concentration.
3. All three dimensions of consumer engagement (i.e., conscious attention, enthused participation, and social connection) have a significant positive impact on curiosity.
4. All three dimensions of consumer engagement (i.e., conscious attention, enthused participation, and social connection) have a significant positive impact on control.

Table 4-11 Regression Analysis: Consumer Engagement and Flow Experience.

Dependent variable	Independent variables	Unstandardized Coefficients		t-value	P-value	significant
		β	SE			
Challenge	(Constant)	1.922	0.219	8.777		
	Conscious Attention	0.323	0.053	6.108	0.000***	Yes
	Enthused participation	0.149	0.052	2.867	0.005**	Yes
	Social Connection	0.046	0.055	0.830	0.407	No
Concentration	(Constant)	0.946	0.285	3.321		
	Conscious Attention	0.504	0.069	7.327	0.000***	Yes
	Enthused participation	0.274	0.067	4.072	0.000***	Yes
	Social Connection	0.043	0.071	0.598	0.550	No
Curiosity	(Constant)	1.119	0.278	4.020		
	Conscious Attention	0.388	0.067	5.778	0.000***	Yes
	Enthused participation	0.244	0.066	3.696	0.000***	Yes
	Social Connection	0.141	0.070	2.023	0.044**	Yes
Control	(Constant)	2.731	0.265	10.290		
	Conscious Attention	0.176	0.064	2.746	0.006**	Yes
	Enthused participation	0.344	0.063	5.473	0.000***	Yes
	Social Connection	-0.173	0.067	-2.604	0.010**	Yes

Source: SPSS results of sample

Note. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$

SE: Standard error

4.6.3 The Impact of Flow Experience on Continuance Usage Intention

Based on the findings in Table 4-12, it can be concluded that all four dimensions of flow experience (i.e., challenge, concentration, curiosity, and control) have a significant positive impact on continuance usage intention.

Table 4-12 Regression Analysis: Flow Experience and Continuance Usage Intention.

Dependent variable	Independent variables	Unstandardized Coefficients		t-value	P-value	significant
		β	SE			
Continuance Usage Intention	(Constant)	0.462	0.264	1.754		
	Challenge	0.189	0.076	2.477	0.014**	Yes
	Concentration	0.258	0.058	4.447	0.000***	Yes
	Curiosity	0.285	0.063	4.493	0.000***	Yes
	Control	0.175	0.062	2.802	0.005**	Yes

Source: SPSS results of sample

Note. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$

SE: Standard error

4.7 Mediation Analysis

To test the mediation effect between variable, Baron and Kenny (1986) guidelines were followed in this study. There are four conditions that need to be satisfied so as to verify the mediation effect between variables:

1. Consumer engagement has a significant influence on flow experience.
2. Consumer engagement has a significant influence on continuance usage intention.
3. Flow experience has a significant influence on continuance usage intention.
4. Conduct a multiple regression analysis with consumer engagement and flow experience.

- If the effect of consumer engagement becomes non-significant, it is considered a complete mediation. On the other hand, if the effect of consumer engagement remains significant while the value of beta decreases, it is considered a partial mediation.

As shown in Table 4-13, M1 demonstrated that there is a significant positive relationship between consumer engagement and flow experience ($\beta=0.787$, $p<0.001$), supporting Condition 1. M2 demonstrated that there is a significant positive relationship between consumer engagement and continuance usage intention ($\beta=0.786$, $p<0.001$), supporting Condition 2. M3 demonstrated that there is a significant positive relationship between flow experience and continuance usage intention ($\beta=0.696$, $p<0.001$), supporting Condition 3. Lastly, M4 demonstrated that the beta value of consumer engagement decreased from 0.786 to 0.627 while still remaining significant, indicating a partial mediating effect.

Table 4-13 Tests of Mediated Effects.

Model	Independent variables	Dependent variable	β	P-value	Result
M1	Consumer Engagement	Flow Experience	0.787	0.000***	Supported
M2	Consumer Engagement	Continuance Usage Intention	0.786	0.000***	Supported
M3	Flow Experience	Continuance Usage Intention	0.696	0.000***	Supported
M4	Consumer Engagement Flow Experience	Continuance Usage Intention	0.627 0.203	0.000*** 0.001**	Supported

Source: SPSS results of sample

Note. * $p<0.1$, ** $p<0.05$, *** <0.001

4.8 Hypothesis testing

In this study, consumer engagement was considered as the independent variable, continuance usage intention as the dependent variable, and flow experience as the mediating variable. The data was analyzed through using SPSS and linear regression analysis. Based on the analysis results above, the results of hypothesis testing are summarized in Table 4-14.

Table 4-14 Hypotheses Testing Summary.

Hypothesis	Result
H1. Consumer engagement will have a direct positive effect on continuance usage intention.	Supported
H2. Consumer engagement will have a direct positive effect on flow experience.	Supported
H3. Flow experience will have a direct positive effect on continuance usage intention.	Supported
H4. Flow experience will have a mediating effect on the relationship between consumer engagement and continuance usage intention.	Supported

Chapter 5 Conclusion and Future Recommendations

5.1 Research Conclusion

The research findings of this study lead to the following conclusions:

1. Consumer engagement will positively affect continuance usage intention.
2. Consumer engagement will positively affect flow experience.
3. Flow experience will positively affect continuance usage intention.
4. Flow experience will have a mediating effect on the relationship between consumer engagement and continuance usage intention.

5.2 Limitations and Recommendations

One limitation of the study is that it solely relied on an online survey conducted within a specific country. As a result, the findings may not be directly applicable to other countries or populations. Therefore, it is recommended that future researchers could consider conducting surveys in multiple countries or regions. This may ensure a more diverse and representative sample.

Another limitation of the study is the relatively small sample size. The game being new and unfamiliar to the public resulted in a limited number of individuals who had heard of or played the game, which can impact the generalizability of the findings. Therefore, further researchers could consider using a more popular game in their future studies. This would increase the potential participant pool and allow for a larger sample size. Using a popular game may also lead to a higher level of engagement and familiarity among participants, providing a more realistic context for studying the variables of interest.

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