



A study of the paying behavior for subscribing social network sites



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ABSTRACT

This paper adopted a decomposed theory of planned behavior as the research framework to study users' behavior of paying subscriptions for a social network site. An online survey was conducted of the users of a popular social network site in Taiwan. Two factors, experience level, and financial resources, were hypothesized to test whether these factors would moderate the relationship between paying intention and real paying behavior. Partial Least Square was used and the results of 577 effective samples provided evidence for our model with all of the causal effects supported. A strong connection between paying intention and paying behavior was found. The two moderating factors, experience level and financial resources, were found to be significant. Users with tenure of more than six months and strong financial resources are more likely to pay for subscriptions than those with tenure of less than three months and weak financial resources. Other factors including age, gender, education, usage frequency of the social network site, and duration on the social network site per visit, were also tested for their moderating effect on the paying intention and paying behavior of users, but the results were all insignificant. The theoretical and managerial implications of these results are identified and discussed.

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1. Introduction

The success of social collaborative technologies such as Wikis, blogs, and mashup has developed an extraordinarily fast-growing number of online social networking sites (SNSs). Three different resource models have been adopted to generate revenue for SNSs: a transaction model charges users service fees based on their transactions made on the site; an advertising model collects fees from advertisers; and a subscription model receives payments from heavy users in exchange for special services [1].

For the transaction model, user trust in the platform is the driver for revenue [1]. However, it takes time to build trust in a website, while at the same time most new online services need reliable and sustainable revenues to survive, if not thrive. As for the advertising model, websites have to accumulate a certain number of members in order to profit from better advertising prices [2]. With respect to the subscription model, social network sites make a profit by charging users membership fees.

Websites usually attract a large number of users to register as members by providing them with free services at the early stage of their membership, and then charge heavy users a subscription fee. However, online users who utilize free services establish an expectation for continued free services online [3]. Even if website

operators successfully attract users to participate in their online activities, they risk losing users if they begin to charge for services previously offered for free. Users might switch to other sites with similar services because switching costs are relatively low [4]. Therefore, providing premium services with fees on top of the free basic services is commonly observed in practice. For example, i-partment, a website providing online virtual space for users to experience social life, has 3.5 million users in Taiwan and 27 million users in China [5]. Its users establish loyalty based on its free services and are willing to pay subscription fees in exchange for additional and customized services. Though all of the three models are applied by SNS operators, a successful online service adopting the subscription model characterized by the users' willingness to pay is the strongest revenue driver [1], providing a more reliable source of revenue compared to the transaction and advertising models. Whereas most newly developing SNSs adopt advertising models, collecting subscription fees as a business model avoids competing directly with large-scale websites that have built up a high volume of traffic with the advantage of attracting advertising [1]. Hence, the intention of this study is to investigate the subscription model to provide suggestions for new entrants of social network site operators.

Although the behavior of online users has been widely studied, most of the studies limit their framework to the objective of user intention, excluding their real behavior as the final construct [6,7]. The relationship between intention and real behavior seems reasonably correlated. However, the concept of free mentality [8], in which users consider that all online information is free, might provide an obstacle

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preventing those with a high intention of paying for online services from actually doing it. Therefore, it is one of the purposes of this study to understand whether or not the intention of paying for services is correlated with paying behavior.

The behavioral factors of online users are usually regarded as statistical characteristics of surveyed respondents. However, these factors are able to provide information that helps to comprehend the relationship between intention and real paying behavior [9]. Studies typically review relevant literature and select several factors to investigate why users adopt specific social network sites. In this research, online users' behavioral factors were tested for their moderating effects on the relationship between paying intention and real behavior [10]. Understanding these results should provide social network site operators valuable information for the purpose of deriving strategies and implementing services for online users more effectively. In summary, by surveying a social network site offering both free and subscription-based membership, this study intends to fulfil the following two objectives in the context of the subscription model adopted by a social network site:

- Investigate the relationship between paying intention and paying behavior.
- Understand the moderating effects of online users' behavioral factors on the relationship between paying intention and paying behavior.

2. Literature review

The Theory of Planned Behavior (TPB) was derived and extended from the Theory of Reasoned Action (TRA), a model developed to predict behavioral intentions and to comprehend the human-specific behaviors behind intentions [11]. In TPB, an individual's behaviors are influenced not only by attitude and social norms, but also by perceived behavioral control [12] referring to individuals' perceptions of the difficulty or ease of performing the behavior of interest. Moreover, an individual must grapple with situations in which the individual might lack complete volitional control over the behavior of interest. Hence, the individual's intended behavior is not only affected by attitudes and social norms, but also by external conditions, such as resources and opportunities (e.g., money, time, skills, cooperation with others), in enhancing behavioral intention [13]. In order to predict behavior more effectively, the TPB model was decomposed and the results showed better explanatory power than the pure TPB and TRA models [14]. Various types of decomposed TPB have been developed to study online users' behavior with different degrees of success [15,16]. Therefore, decomposed TPB will be adopted as the research framework for this study.

Behavioral intention is the most important factor in predicting specific behavior [12], and several studies have focused on the relationship between intention and actual behavior. Two studies adopted the decomposed TPB model and investigated faculty decisions to adopt web 2.0 technology; both of them confirmed that the behavioral intention positively affected the behavioral decision. One of them used a university faculty as the sample [17] while another one surveyed pre-service teachers [18]. However, the items used to represent the construct of actual behavior in both of the studies were the perceived easiness and willingness of the action, not the actual behavior. Another study also adopted TPB in an educational setting, and the respondents' intention to use e-learning systems had a significantly positive relationship with the actual behavior as determined by how long the respondents had used the system [19].

Two studies investigated primarily the relationship between intention and behavior. The first one tried to identify moderating factors of the intention–behavior relationship for leisure-time activity [20]. The second study added a construct of behavioral expectation that partially mediated the relationship between intention and

employees' behavior of using a new information system. Behavior was measured by three actual activities: duration, frequency, and intensity of system use [21]. The results showed that behavioral expectation was a better predictor of frequency and intensity of use than behavioral intention. When focusing on purchasing behavior online, an empirical study used data from log files as well as purchase data and demographical information of customers from a commercial wine retailer [22]. The results showed that clickstream behavior is important when determining the tendency to buy. Two papers explored the factors affecting the behavior of paying for online subscriptions. The first one focused on behavioral intention [23] affected by website loyalty, subjective norms, and perceived behavioral control. The other represented user status as either free membership or paying membership in a logistic regression analysis. Usage purpose and past online purchasing experience were tested as significant predictors [24].

3. Methodology

3.1. Research framework

The study applies decomposed TPB as its primary research framework. Perceived website quality represents the behavioral belief of attitudes that were decomposed into two constructs of satisfaction and loyalty. Subjective Norms (SN) and Perceived Behavioral Control (PBC), constructs of TPB, are also applied in this research. This study further investigated the relationship between paying intention and real paying behavior defined as becoming a paying member for a subscription; it further explored the moderating effects of user experience, and the financial resources of users for the relationship mentioned above. The research framework is illustrated in Fig. 1 and the following sections will describe the hypotheses in detail.

3.2. Research hypotheses

Perceived website quality has a positive influence on satisfaction [25]. The study defined perceived website quality as website efficiency, system stability, privacy, website design, and interaction fairness [26,27]. Web quality-related literature demonstrated that perceived website quality had a significant positive influence on online users' satisfaction [28]. Based on the above studies, we suggest:

H1. *Perceived website quality will positively influence website satisfaction.*

Satisfaction refers to consumers' evaluation after their purchase and response to their experience with products or services [28]. Moreover, customer loyalty was found to be affected by perceived value, trust, habit, and customer satisfaction [29,30]. Thus, we assume:

H2. *Website satisfaction will positively influence website loyalty.*

A previous study investigated the antecedents and consequences of customer loyalty in an online business-to-consumer environment [30]. The results revealed that e-loyalty had an impact on two customer-related outcomes of word-of-mouth promotion and willingness to pay more. When studying the online merchant of an e-marketplace, the results showed that online customers' loyalty will significantly influence their purchase intention toward the e-marketplace [31]. Consequently, we propose:

H3. *Website loyalty will positively influence online users' intention of becoming paying members.*

According to TPB, individuals' behavioral intention can be predicted by subjective norms. TPB is able to explain why some forms of behavior encouraged by social groups are important to individuals

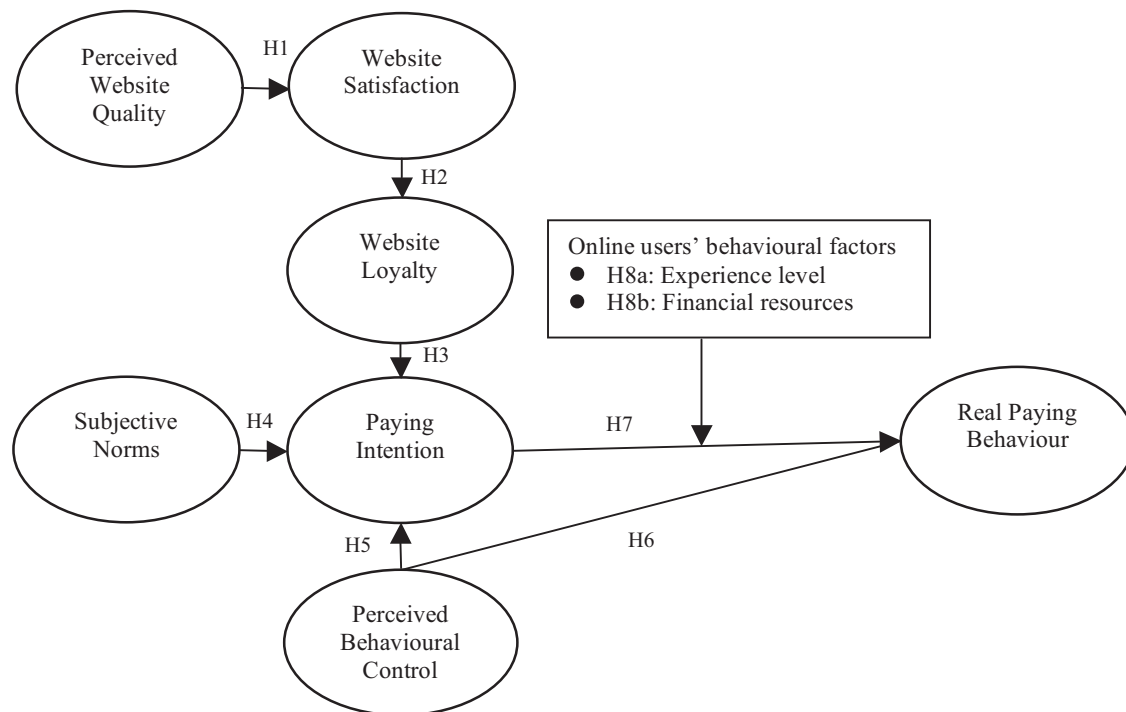


Fig. 1. Research framework.

who actuate their behavior in response to social pressure. TPB was applied to study the intentions of consumers shopping online [32]. The results demonstrated that subjective norms were associated with online consumers' intention of shopping online. Another paper also showed a positive relationship between subjective norms and purchasing intention [33]. Hence, we suggest:

H4. Subjective norms positively influence the intention of becoming a paying member.

TPB suggests that individuals' behavioral intention is positively associated with PBC and the cognitive function of individuals' control abilities will directly influence their behaviors [13]. After adjusting TPB as the research framework to explain the behaviors of consumers engaged in online shopping, some researchers recognized the positive relationship between PBC and user intention in online shopping [34]. Thus, we hypothesize:

H5. PBC positively influences the intention of becoming a paying member.

PBC refers to perceptions of difficulty in presenting the behavior of interest. Therefore, in addition to behavioral intention, PBC can be used directly to predict behavioral achievement [13]. Moreover, PBC is often used as a substitute for a measurement of paying behavior control. In addition, consumers' PBC affects their shopping behavior [34]. For the above reasons, we assume:

H6. PBC positively influences real paying behavior.

Individuals are likely to engage in real behavior, if they are willing to do so [13]. In the case of adopting Internet banking, a study revealed that behavioral intention positively affected the behavior of selecting Internet banking services [35]. Similar results can be found in another study [15]. Moreover, online users engaged in high-level SNS use have the intention of significantly predicting behavior [36]. Decomposed TPB was applied to online purchasing, and the results showed that the intention to purchase significantly influenced online purchasing behavior [34]. Consequently, we assume:

H7. The intention of becoming a paying member positively influences real paying behavior.

A broad range of behavioral applications has been widely investigated for the moderating effect of usage experience [37,38]. Experienced members were more involved in Linux user groups because of the greater degree of identification among these users [39]. With increased usage experience and direct social interactions, experienced users may build long term and stable relationships with other members in a virtual community. Therefore, users with a high level of system experience may develop a strong sense of loyalty and belonging in their virtual group [40]. A growing appreciation of membership and a thorough understanding of the values associated with membership will sustain satisfying relationships among tenured users and other members. In other words, SNS provides a platform for the user to interact with others and allows them to build a long-term and steady relationship easily and also brings them a sense of satisfaction, especially among experienced users. The concept is similar to the relationship between brand loyalty and repeat purchasing behaviors [41]. Therefore, online users with a longer membership are expected to be more likely to pay for online services. Consequently, we assume:

H8a. The relationship between paying intention and real paying behavior is stronger for users at a higher members experience level than users at a lower member experience level.

It was suggested that financial resources such as income significantly affect online expenditures [7]. In the TPB model, individuals' intended behavior was affected not only by attitudes and SN, but also by external conditions such as opportunities and resources (e.g., money, time, skills, and the cooperation of others [13]. Lacking these conditions, individuals might not be able to engage in certain behaviors despite their behavioral intention. Therefore, financial resources can be an important external factor to drive online users toward paying behavior for subscribing to web services. Using work status, that is, having a job or not, to represent strong or weak financial resources, we propose that

Table 1
Descriptive statistics of respondents' characteristics.

Variables	Category	Frequency (n = 577)	Percentage (%)
Gender	Male	222	38.5
	Female	355	61.5
Age	<15	30	5.2
	16–20	96	16.6
	21–25	109	18.9
	26–30	135	23.4
	31–35	88	15.3
	36–40	69	12.0
	41–45	27	4.7
	>45	23	4.0
Education	Elementary	9	1.6
	Junior High	30	5.2
	Senior High	153	26.5
	Junior College	105	18.2
	Undergraduate	239	41.4
Membership status	Graduate	41	7.1
	Regular	451	78.2
Degree of SNS experience	VIP (paying member)	126	21.8
	1 week–1 month	172	29.8
	1–3 months	135	23.4
	3–6 months	74	12.8
	6 months–1 year	88	15.3
	1–2 years	96	16.6
Usage frequency of SNS website	> 2 years	12	2.1
	At least once per day	339	58.8
	Once every 2–3 days	147	25.5
	Once per week	45	7.8
	Once every 2–3 weeks	22	3.8
Duration per visit	Seldom	24	4.2
	< 3 min	9	1.6
	3–10 min	64	11.1
	10–30 min	138	23.9
	30–60 min	121	21.0
	> one hour	245	42.5
Average hours of surfing the Internet per day	< one hour	37	6.4
	1–5 h	338	58.6
	5–10 h	136	23.6
	> 10 h	66	11.4
Job status	Yes	228	40.9
	No	329	59.1

H8b. *The relationship between paying intention and real paying behavior are stronger for online users with strong financial resources than those with weak financial resources.*

3.3. Data collection

This study has collaborated with a highly regarded and popular commercial SNS in Taiwan which provided the research samples (name withheld for reasons of confidentiality). It allowed users to post diaries or articles on its map based on their locations, and others would respond to the postings generating an online social network. It was one of the top SNSs in Taiwan when the survey was administered. A link to the questionnaire was posted on its website for approximately one month to invite its users to participate in the survey. This web service initiated the subscription model to charge users fees with extended services two months after the survey. By tracking the respondents for five months, we match on member records to determine whether the respondents are paying members. Collecting the data concerning the respondents' behavior within a given time frame was completed in the course of a prior study [21]. Out of 826 samples collected, 776 were valid, resulting in an effective rate of 94%.

According to the survey item for the degree of SNS experience, 199 respondents used the SNS less than one week. They may not have been familiar with the site's services and were therefore deleted, resulting in 577 samples for further analysis. As seen in Table 1, most of

the respondents were female (61.5), from the ages of 21–30 years old (42.3%), and having a college degree (41.4%). The descriptive statistics results were also consistent with other studies [42,43] in which SNS users were dominated by young, female, upper-middle class college undergraduates. With respect to users' online behavior, 46.8% of the respondents used the services for more than three months; 58.8% of the respondents visited the site at least once per day; 42.5% of the respondents spent more than 1 h on the site per visit; more than 93% of the samples surfed the Internet at least one hour per day; and 40.9% of the samples had full time jobs. Finally, about one-fifth (21.8%) of the respondents were paying members.

Before testing the relationship between paying intention and actual paying behavior, this paper examines the differences of paying intention measure between regular and paying members. The average measures of paying intention from paying and regular members were 3.85 and 3.05, respectively. The *t*-value of testing the mean differences of these two types of members is 9.85 (at the 0.001 significance level), indicating that users with higher paying intention have a higher propensity to pay for their VIP membership dues.

3.4. Measurement development

Table 2 provides the definitions of the constructs in the present study. Where available, these constructs were measured using questions adapted and revised from prior studies to enhance validity [45].

Table 2
Operational definition of constructs.

Construct	Definition
• Perceived Website Quality	Online users' interactions with an SNS: the extent to which a website facilitates efficient and effective manipulation of, and interaction with, the website, dividing Website SQ into five sub-constructs: Website Efficiency, System Stability, Privacy, Website Design, Interaction Fairness [26,27]
• Website Satisfaction	Online users' evaluation after they manipulate and give their response concerning their experience with the services provided by the website [27,28]
• Website Loyalty	Users' attitude and willingness to continue to recognize the website as a high priority choice to visit [27]
• Subjective Norms (SN)	An individual's perception of social normative pressure, or relevant beliefs of others, that he or she should or should not perform such behavior [13,44]
• Perceived Behavioral Control (PBC)	The perception of online users of the ease or difficulty of a particular behavior and its link to control beliefs, which refers to beliefs about the presence of factors that may facilitate or impede performance of the behavior [12,14]
• Paying intention	Recognition of online users' intention to pay for SNS services [26,27]

Table 3
Measurement items.

Construct/Items	Standardized loadings
Website Satisfaction (WSA)	
WSA1	In general I (am/was) happy with the service experience on this website. 0.82
WSA2	In general, I was pleased with the quality of the service this website provided in view of the amount I paid (money, time and effort). 0.84
WSA3	I believe choosing this website to find desired information was successful. 0.83
WSA4	I (am/was) satisfied with the services this website provided. 0.86
Website Loyalty (WLO)	
WLO1	I say positive things about this website to others. 0.86
WLO2	I encourage friends and others to visit this website. 0.88
WLO3	I recommend this website to anyone who seeks my advice. 0.88
WLO4	I consider this website to be my first choice among similar kinds of websites. 0.87
WLO5	I intend to increase the frequency of browsing this website in the future. 0.83
Subjective Norms (SN)	
SN1	Most people who are important to me are paying members of this website. 0.82
SN2	Most people who are important to me think I should become a paying (VIP) member of this website. 0.91
SN3	People whose advice is important to me are paying (VIP) members of this website. 0.87
SN4	People whose advice is important to me think I should become a paying (VIP) member of this website. 0.91
SN5	Many online users who are similar to me are paying (VIP) members of this website. 0.85
SN6	I am expected to be a paying (VIP) member of this website. 0.84
Perceived Behavioral Control (PBC)	
PBC1	It is possible for me to be a paying (VIP) member of this website. 0.94
PBC2	I have the resources (time and money) and the ability to be a paying (VIP) member of this website. 0.96
PBC3	Becoming a paying (VIP) member of this website is entirely within my control. 0.86
Intention to Become a Paying Member (IBPM)	
IBPM1	I intend to become a paying (VIP) member or continue as a paying (VIP) member of this website. 0.94
IBPM2	I am considering becoming a paying (VIP) member or continuing as a paying (VIP) member of this website. 0.95
IBPM3	I plan to be a paying (VIP) member or to extend my VIP membership of this website. 0.95
IBPM4	I recommend friends to become paying (VIP) members of this website. 0.80
Perceived Website Quality/System efficiency (SE)	
SE1	This website makes it easy to find what I need. 0.76
SE2	I don't get lost on this website. 0.81
SE3	This website contains a site map with links to everything on the site. 0.82
Perceived Website Quality/System Available (SA)	
SA1	This website never crashes. 0.85
SA2	When I use this website there is very little waiting time between my actions and the website's responses even during peak hours. 0.82
SA3	The services this website provides are never interrupted when the system is undergoing maintenance. 0.75
Perceived Website Quality/Privacy (PR)	
PR1	This website doesn't give my information away to other companies. 0.85
PR2	My privacy is protected on this website. 0.86
PR3	I trust the website administrators to not misuse my personal information. 0.89
Perceived Website Quality/Website Design (WD)	
WD1	The design of this website is innovative. 0.76
WD2	This website continually upgrades its services. 0.83
WD3	This website provides me with important contents. 0.80
Perceived Website Quality/Interaction Fairness (IF)	
IF1	This website made it easy for me to voice my complaint. 0.83
IF2	I was given a reasonable explanation as to why the original problem occurred on this website. 0.89
IF3	This website seemed very concerned about my problem. 0.88

All of the loadings are significant at $p < 0.01$.

All items were measured using five-point Likert scales anchored from “strongly disagree” to “strongly agree”. Prior to distributing the survey, a focus group interview was conducted, and the comments from the participants provided a basis for questionnaire revisions. The items of the questionnaire are listed in Table 3; all of them have

standardized loadings ranging from 0.75 to 0.96. The standardized loadings represent the correlation between each item and the corresponding construct. A higher value represents a stronger relationship between the item and its corresponding construct, and a value larger than 0.7 is considered acceptable [46].

Table 4
Correlation matrix and AVE scores.

Latent variable	CR	AVE	1	2	3	4	5	6	7
1. Perceived Website Quality	0.87	.64	0.80						
2. Website Satisfaction	0.90	.70	0.68	0.84					
3. Website Loyalty	0.94	.75	0.62	0.75	0.86				
4. Subjective Norms	0.95	.75	0.33	0.34	0.34	0.87			
5. PBC	0.94	.85	0.27	0.32	0.32	0.36	0.92		
6. Intention to become paying members	0.95	.84	0.39	0.41	0.44	0.66	0.63	0.91	
7. Real Paying Behavior	1.00	1.0	0.04	0.07	0.11	0.22	0.30	0.34	1.00

Note: The numbers on the diagonal represent the square root of the average variance of the extracted scores.

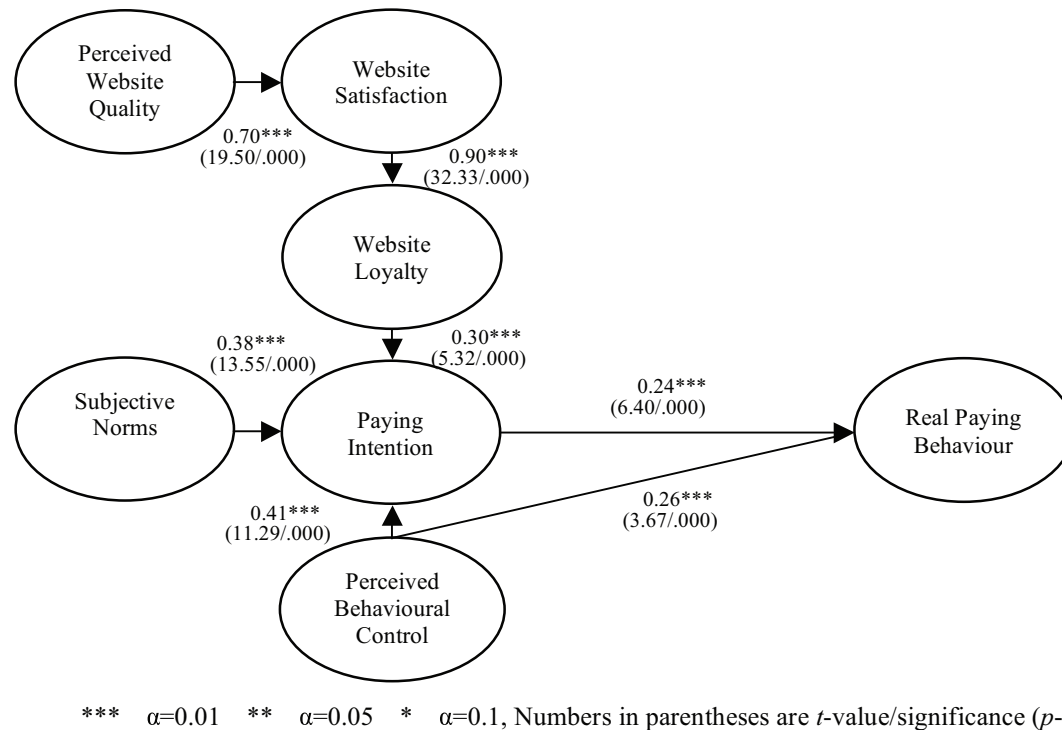


Fig. 2. PLS results of the research model.

4. Data analysis and empirical evidence

4.1. Data analysis methods

The study used Partial Least Squares (PLS) to test the causal effects of the research model. PLS is a multivariate data analysis technique based on the hypothesis of a linear relationship to construct the relationships of the entire research structure. It includes a measurement model and a structure model [47]. The measurement model tests the relationship between observed and latent variables, and the structure model explores the causal effects of latent variables. The study applied SmartPLS 2.0 to analyze the measurement model and the structure model.

4.2. Measurement model

The study followed a two-stage analytical procedure [48] in which the first stage was designed to assess the constructs' relationship for discriminant and convergent validity to make sure the latent constructs could be measured correctly and effectively. The structural relationships were examined according to the hypotheses of the study at the second stage.

Table 4 lists the results in which Composite Reliability (CR) ranged from 0.9 to 1 and Average Variance Extracted (AVE) ranged from 0.64 to 1. Composite Reliability represents the ratio of a scale's estimated

true score variance relative to its total variance, while AVE can be interpreted as a measure of reliability for the latent variable component score. These values all exceeded the recommended score of 0.7 and 0.5 for CR and AVE [49], respectively, indicating the study has reliability and convergent validity. For the discriminant validity, the square root of AVE for a given construct was compared with the correlations between the construct and another construct [50]. The square root of AVE, the numbers on the diagonal, was greater than the off-diagonal elements in the corresponding rows and columns, demonstrating an adequate discriminant validity for the study.

4.3. Structural model

At the second stage, the proposed model was tested by PLS, and the results are shown in Fig. 2. Partial least squares (PLS) regression is a technique that reduces the predictors and dependents to principal components and performs a least squares regression on these components, instead of on the original data. The coefficients are used with the predictors to calculate the fitted value of the response variables. In PLS regression, standardized coefficients identify the importance of each predictor in the model and correspond to the standardized dependent variables and standardized independent variables. As shown in Fig. 2, an independent variable is designed to link to (point at) a dependent variable of construct by an arrow. Some constructs are predictors or independent variables in a regression model, but

Table 5

Comparison of corresponding path coefficients for the relationship between intention and real paying behavior.

Hypothesis	Demographic and users' behavioral variables		Coefficient for intention to real behavior (<i>t</i> -value)	Coefficient difference (<i>t</i> -value)	Results
H8a	Member experience level	High	0.412*** (6.072)	0.151** (1.859)	More than six months > Less than three months
H8b	Financial resources	Low	0.261*** (5.875)	0.155** (2.060)	Strong > Weak
		Weak	0.159*** (2.674)		
		Strong	0.314*** (6.890)		

***: $\alpha = 0.01$; **: $\alpha = 0.05$; *: $\alpha = 0.1$.

tested as dependent variables in another model. For example, website loyalty is a dependent variable predicted by website satisfaction, and a predictor of paying intention. The research hypotheses based on these complicated relationships among the constructs are, therefore, modeled as structural equations and solved by PLS. The coefficients in PLS, similar to those in linear regressions, are used with the predictors to calculate the fitted value of the dependent variables. For the relations with single predictor, website satisfaction is a more fitted predictor with a coefficient of 0.9 than perceived website quality with a coefficient of 0.7. None of the three predictors of paying intention, website loyalty, subjective norms, and perceived behavioral control, showed significant difference from others in predicting paying intention. As the parameter estimates of real paying behavior, perceived behavioral control and paying intention have almost the same coefficients (0.26 vs. 0.24). However, perceived behavioral control is a slightly more significant predictor than paying intention when adding the effect of perceived behavioral on real paying behavior mediated by paying intention. In general, a higher *t*-value indicates a stronger relationship between predictors and dependent variables. All of the causal relationships of the constructs in the model have positive *t*-values with confidence levels higher than 99% indicating significantly positive relationships.

4.4. Moderating the effects of users' behavioral factors

To test the moderating effects of the demographic and user's behavioral variables on the relationship between intention and paying behavior, a multi-group analytical procedure [51] was used to compare the corresponding path coefficients in the structural models. The financial resource variable clearly generated two groups while user experience requires further categorization. To generate two groups for this variable, observations around the median value were removed and the remaining observations were used to generate groups [47]. The median value (between 288th and 289th), close to the next group of 3–6 months, falls in the group of users with 1–3 months of member experience. In order to have balanced sample sizes, two tests were conducted. First, removing the groups of 1–3 months and 3–6 months generated two levels, a low level of member experience (less than 1 month) consisting of 172 samples and a high level of member experience (more than 6 months) with 196 samples. Second, removing the groups of 3–6 months generated two levels, a low level of member experience (less than 3 months) with 307 samples and a high level of member experience with 196 samples. Both of the tests for the moderating effect showed similar effects and only the second set of results was presented. According to the numbers shown in Table 5, the *t*-values of the coefficient differences are 1.895 and 2.060 for member experience level and financial resources, respectively. Both of the moderating effects of user experience and financial resources are significant at a 95% confidence level. Users with a tenure of more than six months ($\beta = 0.412$) and strong financial resources ($\beta = 0.314$) are more likely to pay for a subscription than those with a tenure of less than three months ($\beta = 0.261$) and weak financial resources ($\beta = 0.159$), respectively.

Table 6

Summary of hypotheses testing results.

Hypothesis	Relationship	Causal effects	Results
H1	PWQ->WSA	Moderating effects Higher > Lower experience level Strong > Weak	Supported
H2	WSA->WLO		Supported
H3	WLO->IBPM		Supported
H4	SN->IBPM		Supported
H5	PBC->IBPM		Supported
H6	PBC->RPB		Supported
H7	IBPM->RPB		Supported
H8a	IBPM->RPB	Higher > Lower experience level Strong > Weak	Supported
H8b	IBPM->RPB		Supported

Notes: PWQ: perceived website quality; WSA: website satisfaction; WLO: website loyalty; IBPM: intention to become a paying member; SN: subjective norms, PBC: perceived behavioral control; RPB: real paying behavior.

To avoid a statistical bias caused by the uneven sample sizes, samples of weak financial resources (329 samples) and low member experience level (307 samples) were drawn randomly to generate roughly the same number of observations as samples having strong financial resources (228 samples) and high member experience level (196 samples), respectively. The moderating effect of this factor was re-tested and the results remained unchanged. In addition, all of the tests were re-run when the non-paying samples were randomly selected to match the number of paying members. No significant differences were found to alter the results. Furthermore, the study also examined the moderating effects of other demographic and users' behavioral factors, such as age, gender, education, usage frequency of the SNS website, and duration on the SNS per visit. Using a similar approach as applied by member experience level to divide age, education, and usage frequency into two groups, the *t*-values of the coefficient difference are -0.741 , 1.082 , -0.816 , and -0.024 for age, gender, education, and usage frequency, respectively. All of their moderating effects on the relationship between intention and real behavior were insignificant.

4.5. Results

Table 6 lists the summarized results for testing the hypotheses of both the structural model and the moderating effects of the research. The results for H1 were consistent with a prior study in which website SQ directly affected online users' satisfaction with the web services [52]. Once users become members of an SNS, they expect to receive perceived benefits such as website SQ from the websites [53]. If online users perceive these benefits, they will express higher website satisfaction with the SNS. Consequently, online users will increase their loyalty to the SNS [52]. For H3, this study verified the positive effect of website loyalty in terms of the intention of becoming a paying member. This is the same result as that reached by Srinivasan et al. [30]. H4 was confirmed, indicating that users who are highly respected can influence others to strengthen their intention of becoming a paying member. The same conclusions regarding this hypothesis were reached by other studies [32,33]. PBC has positive effects on both the intention of becoming a paying member and

real behavior, as indicated by the results of H5 and H6, which were also established by a previous study [34]. Finally, intentions lead to real paying behavior at H7, a finding that is equivalent to those of other studies [34,36].

The other two factors, member experience level and financial resources, showed significant moderating effects on the relationship between paying intention and paying behavior. Since paying behaviors might be affected by a “free” mentality [8,54], users with stronger financial resources have more control over their economic status, and therefore are more likely to pay for a subscription. This also verifies the suggestion that individuals’ behavioral intentions are not only affected by attitudes and subjective norms; they also need external conditions and self-efficacy such as sufficient financial resources to increase their likelihood of taking action [13]. When users have a longer tenure on the site, they tend to be more willing to pay for a subscription. The finding that higher social involvement strengthened the relationship between shoppers’ commitment and loyalty was similar to that in a previous study [55].

5. Research findings and managerial implications

Many previous studies applied the TPB model to analyze online consumers’ or users’ behavioral intention [33,35], but few focused on their actual behavior. This study collected the membership status of a popular social network site, and successfully applied a decomposed TPB model to predict user behavior. We extended current theory related to online user behavior by empirically testing the link between the intention and the likelihood of paying for a subscription. We also tested two moderating factors, user experience level and financial resources, to determine the relationship between intention and actual behavior.

Popular SNSs such as Facebook and Twitter are free to users and funded by advertising. Many SNSs take a similar approach of offering free services, hoping to receive enough visits to attract advertising. However, this is a difficult approach and many online services using it are unable to make a profit. A revenue model other than advertising is attractive to many web services, especially those at an early stage when they are struggling to sustain a stable flow of revenue. The strong connection between intention and paying behavior in this study indicates that this model is feasible. If users are satisfied by the service quality provided by the website, they tend to develop a bond of loyalty with the service that often leads to the intention to pay followed by the actual paying behavior. We did not examine loyalty, which may reinforce satisfaction over repeated visits, a research issue which is out of the scope of this study [56].

The importance of subjective norms toward paying intention implies that word of mouth (WOM) on the web has great impact on consumer purchasing behavior [57]. WOM referral can even be calculated for its monetary value, providing a financial incentive which the website can stimulate WOM [58]. An SNS should maintain and perhaps continuously improve its platform for online interaction among users.

Two factors, users’ length of tenure on the site and financial status, have significant results for their moderating tests. However, another study had a totally opposite finding for the factor of experience [59]. A higher experience level shows a stronger link between intention and behavior in this study, and a weaker relationship in that study. The contextual difference might be the cause of the difference. This paper studied the behavior of online purchasing while the other focused on the use of mobile internet. The results of this research suggest that the more time users spend visiting a site, the more likely they are to pay for a subscription. With limited resources, SNS providers should focus more on existing members because they are more willing to pay for a subscription than new users. The other moderating factor, financial resources, tested significantly, indicating that SNS operators should promote their subscription package mainly to those users with better

financial resources. Work status (having or not having a full-time job) was used in this study to distinguish the users with better financial resources from those having fewer resources. The results imply that student users, mostly full-time in this survey area, are not the target paying users. When establishing the main topic of an SNS, operators might want to select non-full-time-students as their primary users if they expect to implement a subscription model.

6. Limitations and future research

Several limitations of this study indicate that further studies are necessary. First, although it is appropriate to conduct a survey on a single website that is evidently a representative of SNS, considering the objectives of this study, an extensive survey on multiple web services implementing a subscription model should provide more convincing results. Second, this study focused on the paying behavior for only the subscription model without considering the two other revenue models for SNS, advertising and transaction models [1]. Various types of combinations such as advertising and the subscription model, advertising and the transaction model, and so on, provide research opportunities for scholars to identify the uniqueness of each combination and their corresponding users’ behavior. Understanding the factors influencing users’ decisions with different business models will be very beneficial to web service operators. Third, although this study successfully collected data to determine the status of paying respondents, hypothesized as the transformation from paying intention to behavior, the time lag between answering the questionnaires and paying behavior by the samples presented a possible bias, bringing up the question of whether other factors might have intervened during this period. A further study focusing directly on the relationship between intention and actual behavior and continuously monitoring the users’ behavior [21] could provide a better understanding regarding this issue.

Three issues remain unclear and require further study. First, users’ online experience on a website moderates positively their behavior from intention to real behavior, and negatively from their intention to behavior toward using the mobile internet [59]. At first glance, the former studied the SNS that had been an information system available to most users for a long time, and the latter focused on the mobile internet that might still be relatively new to many users. However, it will be interesting to fully understand how users transform their behavior between these two scenarios. Second, when users are moving from traditional devices such as a desktop computer or laptop to mobile devices such as a smartphone or iPad to access the internet, their behavior toward online services might not be identical and further studies are required to clarify this issue. Third, although website satisfaction was modeled and tested as a significant factor influencing website loyalty in this study, loyalty may reinforce satisfaction [56]. We did not explore this issue because it is out of the scope of our research. A further research avenue will be to investigate the potential endogenous relationship between the aforementioned two constructs.

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