Acceptance of Taiwanese International Tourism Night market Websites

Rouh-Yun Yu, Chun-Der Chen, Hui-Chung Lo, Da-Chian Hu

***Abstract*—** International tourism Night market is the most popular scenic spot in Taiwan. It reflects the Taiwanese history, society, and contributes significantly to the Taiwan economy. To ensure the long-term business success, the technology-based website interactions are expected to be a key criterion. However, with the unique physical structure of night market and the various motives of visiting, the design of the website is challenging. This study attempts to study and compare the acceptance of the currently existing night market website, and in the meantime, fit an extended technology acceptance model (TAM) that integrates theory of planed behavior to investigate what determines users' acceptance of night market websites. The proposed model was empirically tested using the structural equation modeling technique. The implications for practitioners and suggestions for future research are also addressed

***Keywords*—**night market tourism website, reuse intention, Technology Acceptance Model, Theory of Planned Behavior.

I. INTRODUCTION

Taiwanese night markets are street markets operating at night, generally tend to have more leisurely strolling, shopping and eating areas than regular day markets. The night market reflects the Taiwanese history, society, and economics; it provides a true experience of modern Taiwan night life [1]. For international tourist, novel-seeking, exercising and experiencing local culture and customs are the major motives to visit tourist night markets; for local visitors, the variety of products and the cheap price are the main attraction [2]. According to the Tourism Bureau's statistical data in 2011, the total number of foreign tourist to Taiwan is about 3.63 million, and half of this number (1.78 million) is from China, contributing 11 billion US$ to Taiwan's financial economy. Among all the scenic spots Shihlin international tourism night market is definitely the top one with 74.06% of the international tourists having visited, night market is becoming the essential part of the nightlife and a taken-for-granted place for most international and Chinese tourists to visit and consume. To collect the tourism information, 55% international tourist use internet. As such, many international tourism night market websites were then created, gathering all necessary night market food-and-beverage or clothing information and facilitating the interactions for websites users. Though with the potential and importance of night market tourism related website applications, however, there has been very little if any research concerned with the website usage of the night market context in Taiwan.

Fueling by the wide spread uses of the Internet and the application concept of "SOLOMO" (social, location and mobile), technology-based website interactions are expected to become a key criterion for long-term business success. However gains from websites can be obstustructed by users' unwillingness to accept and use the available system. What causes people to accept or reject a night market websites is an important question to ask. On the other hand, loyal and returning customers are vital for online firms that offer content-based services, since these companies obtain a substantial part of their revenues from advertisers and partners [3]. To develop diagnostic tools to explain websites acceptance and to facilitate design change, it is essential to explore more insights into who are the potential websites user and why. Among all the models explaining IT usage, the technology acceptance model (TAM) has been the most commonly employed because of its robust and consistently good predictive record. According to TAM, behavior intension is a function of attitude, and perceived usefulness. Attitude is determined jointly by perceived usefulness and perceived ease of use. Finally, ease of use is a direct determinant of perceived usefulness. However, Social and control factors are not included in TAM and these variables are also key determinants of behavior in the Theory of Planned Behavior (TPB) [4], where subjective norm and perceived behavioral control are modelled as determinants of behavioral intention. Because of their predictive utility in IT usage research and because of their wide-spread application in social psychology, subjective norm and perceived behavior control are added to TAM to provide a more complete set of the important determinants of website usage.

In light of the preceding discussion, through empirical data collection and analyses, the objective of this research is an attempt to: (1) propose and verify a TAM specific to the usage

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of Night market tourism application website, (2) identify the factors that determine consumers' acceptance of websites, and (3) find the differences in factors influencing the acceptance among the four currently existing Taiwanese night market application websites. Based on the results, suggestions may be made to facilitate the design improvements of the night market websites.

The remainder of this paper is organized as follows. The current literature is reviewed and hypotheses are derived in Section 2. Research design is summarized in section 3. In Section 4, the results of data analyses are presented. Finally, conclusions are drawn and suggestions for future research are presented in the last section.

II. LITERATURE REVIEW AND RESEARCH HYPOTHESES

Factors influencing consumers' adoption of technology can vary, depending on the technology, target consumers, and context [5], therefore many competing models were created, each with a different set of acceptance determinants. Venkatesh [6] reviewed and compared the similarities and differences of eight prominent social and psychology information technology acceptance models and created a unified UTAUT model. In this research, we decided to use the combined TAM and TPB model [7] since it incorporates the intrinsic and extrinsic motives of using the system.

Literature concerning the application of technology acceptance has been vast. To name a few: [5] explored instant messaging using TAM and flow theory; [8] applied TAM on e-shopping; [9] integrated innovation diffusion theory to TAM to determine mobile commerce acceptance. [10] investigated the student populace's acceptance of the blog technology through the Unified UTAUT model. [11] studied the role of perceived risk and user's experience level in determining consumers' adoption level of internet activity. [12] provided a better understanding of communication behavior in Interactive Whiteboard Technology using system characteristics and TAM as a support. [13] investigated and compared economic and psychological factors on customers' loyalty through the case of logistics information services.

In this section, research model and hypotheses will be developed.

A. Technology acceptance model (TAM)

Introduced by [14], TAM is based on theory of reasoned action (TRA) [4], and suggests that behavioral intention to use an information system is dependent on perceived usefulness (PU) and ease of use (PEU). Perceived usefulness is defined here as the degree to which prospective user's believes that using the website would enhance his night market visit performance and ease of use refers to the degree to the prospective user expects the website to be free of effort. A website perceived to be easier to use than another is more likely to be accepted by users. Self-efficacy, defined as 〝judgment of how well one can execute courses of action required to deal with prospective situations〞 is believed to be similar to perceived ease of use. Both PU and PEU are expected to influence an individual's attitude toward using the system, which in turn, together with perceived usefulness are hypothesized to explain the variance in intention to use the system. Attitude is defined as an individual's positive or negative feelings toward using the website. TAM also suggests a causal relationship between ease of use and perceived usefulness. Usefulness is believed to have a significant greater correlation with usage behavior than did ease of use. Both [15] and]14] found that attitudes do not fully mediate the effect of perceived usefulness and perceived ease of use on behavior. Therefore, following [16], a path explaining the direct effect of perceived usefulness to websites usage intention was added as shown in fig.1. While an objective measurement of the extent to which an individual engages in a behavior would be ideal, it is not always easy or practical to obtain it. Luckily, both theoretical and empirical support exists for the strong correlation between intention to engage in a behavior and the actual behavior. Based on these arguments, the followings are consequently hypothesized:

H1: *Ease of use has a positive effect on the attitude toward websites of night market.*

H2: *Usefulness has a positive effect on the attitude toward websites of night market.*

H3: *Usefulness has a positive effect on the user's intention to use websites.*

H4: *Attitude toward the website has a positive effect on the user's intention to use websites.*

B. Theory of planned behavior (TPB)

The TPB were also developed based on the theory of reasoned action [4], which argues that both behavioral control and subjective norm affect behavioral intention, which in turn affects the actual behavior. Subjective norm (SN) refers to users' perception of whether most of other important people perceive they should use the website. Many internet users choose to use one of the websites only because their friends are the users of this website and are recommending them to use it [5]. Actually TAM2 proposed by [6] extend TAM by including subjective norm. Perceived behavioral control (PBC) describes users' perception if they have the necessary resources, capability, and a sense of control in successfully using the website. Although websites application is a relatively ease-to-use technology, users still need to have the basic internet skills to extract the necessary information. Therefore we put forward the following hypotheses.

H5: s*ubjective norm has a positive effect on user's intention to use websites.*

H6: *perceived behavior control has a positive effect on user's intention to use websites.*

The hypothesized model and research hypotheses are shown in Figure 1.

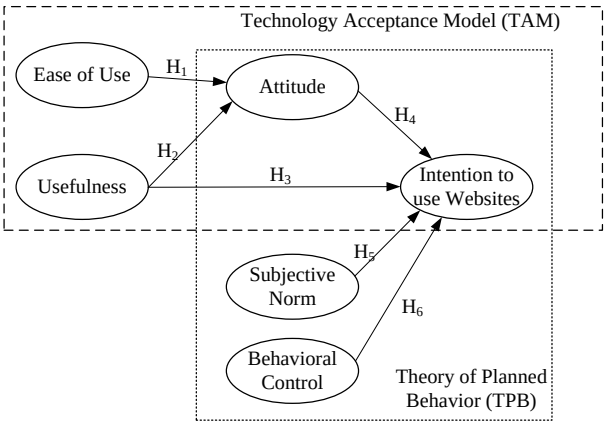

Fig. 1 Conceptual Model and Research Hypotheses

III. Methodology and Research Design

A. Sample and Design of Survey

Shinlin international tourism night market websites is chosen to be the target night market because of its popularity and it is the largest night market in Taipei city. Participants in this study are mostly undergraduate and MBA students from Ming-Chuan University, self administered questionnaires were distributed in computer classes. The selection of subjects is because most electronic service users are university students, and Ming-Chuan University is located in the neighborhood of Shihlin night market, students there are believed to have a better judgement about the websites. A questionnaire was also posted on internet, colleagues and friends were invited to fill out the questionnaires. Four well-known night market websites: Taipei Gourmet network (http://food.taipei.emmm.tw), Night Market Intelligence (http://www.i-city.com.tw/markets /view/), Taiwan Night Market (http://tw10006.tw. tranews.com/) Happy Street Strolling (http://www.walkgoler.cc/), were identified as our research websites. In the beginning, participants were assigned to one of the above websites according to a randomization scheme. To ensure the website was scanned thoroughly, each participant was asked to carry out the following five missions which incorporated the general motives of visiting night market: "Find out the location of Prince Potato", "Find out the location of Tokyo Fashion Clothes" , "Find the map of Shihlin night market", "Suggest three gourmets of the Shihlin night market" ,"Suggest a famous tourism spot in the neighborhood of Shihlin night market" from the assigned website. Questionnaire can then be filled out according to his perception of the website. The survey yielded a total of 394 completed questionnaires. Since 34 questionnaires were invalid, and 350 responses were obtained and valid, including 67% females and 33% males. A majority (86%) of the subjects was between the ages of 18 and 30, 92% of the subjects have some college education. Moreover, 86.94% of the respondents said they had recommended the Shilin market to their friends, however only 37.8% have the experience of visiting the night market websites.

B. Measures

The research derived measures for key construct by using multiple-item perceptual scales that were validated instruments from prior studies and adapted them to the context of the present study. All constructs were measured with multiple items using 7-point Likert sales ranging from 1=strongly disagree to 7=strongly agree. Perceived usefulness and ease of use was adapted from [17]; attitude toward website was from [18]; intention to use night market website was from [19]; subjective norm and perceived behavior control was from [7]. The preliminary instrument was pilot tested and reviewed by faculty and doctoral students for clarity, and the questionnaire items were modified following a pretest of the survey instrument.

IV. Data Analyses and Results

A. Convergent Validity and Discriminant Validity

Table1. Standardized factor loading and Cronbach's α

Item	Measure	load-ing	α
PU1	Would enhance my effectiveness	0.94	0.965
PU2	Would make it easier	0.94	
PU3	Would increase my productivity	0.94	
PU4	To be useful in my visit	0.91	
PEU1	Learning to operate is easy for me	0.92	0.949
PEU2	Interaction is clear and understandable	0.93	
PEU3	It is easy to become skillful at using …	0.93	
PEU4	Do not require a lot of my mental effort	0.85	
ATD1	Using website will be good	0.93	0.961
ATD2	I'll like to use website	0.94	
ATD3	Using website will be interesting	0.93	
ATD4	Using website will bring profit	0.92	
ATD5	I feel positive about using website	0.84	
SN1	Some elderly influence me think that I should use the website	0.88	0.959
SN2	People who influence me would think that I should use the website	0.98	
SN3	People who are important to me would think that I should use the website	0.97	
PBC1	It is not troublesome to use	0.82	0.905
PBC2	I have available time to use	0.81	
PBC3	I have the resources、knowledge and the ability to	0.78	
RUI1	I intend to use the website in the future	0.95	0.972
RUI2	I'd like to increase the freq. of visiting	0.96	
RUI3	This website will be my top choice	0.96	

We conducted the data analysis in two parts - scale validation and hypothesis testing. Scale validation proceeded in two phases: convergent validity and discriminant validity analyses. Convergent validity of scale items was assessed using three criteria: (1) all item factor loading should be significant and exceed 0.5, (2) composite reliabilities (CR) for each construct

should exceed 0.80, and (3) averaged variance extracted (AVE) for each construct should exceed 0.50. In addition, internal consistency reliability is generally considered a necessary but not sufficient condition for convergent validity. Hence Cronbach's alpha was also computed for each construct, and it should be larger than 0.7. As expected in this study, from table 1. We can see that the standardized loadings for all scale items in the model are significant at $p < 0.01$ and exceed the minimum loading criterion of 0.50. Besides, as illustrated in Table 2, we can see that AVE of each construct exceeds 0.5, and composite reliabilities and Cronbach's alpha of all factors also exceed the required minimum of 0.80 and 0.7. Hence all three conditions for convergent validity are met. Meanwhile, discriminant validity means the degree to which measures of two constructs are empirically distinct [20]. Discriminant validity is shown when the square root of each construct's AVE is larger than its correlations with other constructs [21]. As shown in Table 2, we can see that the discriminant validity criterion was also met for our data.

Table 2. Correlation coefficient and reliability

construct	mean	S.D.	CR	AVE	PU	PEU	ATD	SN	PBC	RUI
PU	3.56	1.55	0.96	0.87	0.93					
PEU	4.02	1.49	0.95	0.82	0.71	0.91				
ATD	3.54	1.55	0.96	0.83	0.90	0.49	0.91			
SN	2.97	1.59	0.96	0.89	0.70	0.85	0.63	0.94		
PBC	4.02	1.47	0.84	0.65	0.72	0.74	0.71	0.52	0.81	
RUI	3.14	1.75	0.97	0.91	0.86	0.66	0.87	0.74	0.65	0.95

Notes: The main diagonal shows the square root of the AVE (averaged variance extracted).

B. Hypotheses Testing

To test the structural model, LISREL 8.80 was used. The results are presented in Figure 2. Chi-square value was 712.64 with 197 degrees of freedom. RMSEA was 0.077, GFI was 0.87, AGFI was 0.84, CFI was 0.99, NFI was 0.98. Most of these fit indices were within the threshold of the recommend values [22]. The explained variance of attitude toward using websites and behavioral intention, were 82% and 83% respectively. With regard to the specific hypotheses, we found that five paths in this model were significant, the path from perceived behavior control to reuse intension was the only that are not significant, thereby H6 being not supported.

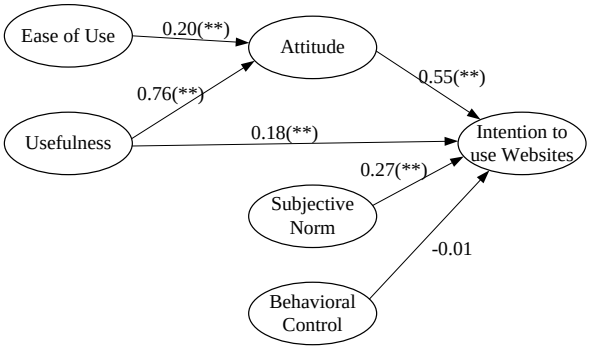

Fig. 2. Results of Structural Model

C. Comparison of acceptance among websites

The other aim of this study is to compare the acceptance of the currently existing four popular night market websites. To achieve this, multivariate analysis of variance (MANOVA) through the general linear model of IBM SPSS 20 was used to compare the mean acceptance of the four currently existing websites. Wilk's Lambda was chosen for model testing because of its robustness to the multivariate normality assumption, and found to be 0.822 with F value of 6.109, and p value < 0.001. Since significant differences in the mean acceptance exists among this websites, a unvaried F further and post hoc Tukey's HSD is performed to identified the effect of each construct of our proposed TAM model. Results were shown in table 3. We can see that "Happy Street Strolling" definitely outstand the rest three websites in terms of perceived usefulness and ease of us, attitude toward websites, and reuse intention.

Table 3. Comparisons of acceptance of websites

Website	PU	PEU	ATD	SN	RUI
1	2.94^{a}	3.54^{a}	2.82^{a}	2.68^{a}	2.53^{a}
2	3.45^{ab}	3.86^{a}	3.55^{b}	2.89^{a}	2.96^{a}
3	3.35^{b}	3.85^{a}	3.31^{b}	2.91^{a}	2.93^{a}
4	4.36^{c}	4.73^{b}	4.40^{c}	3.42^{b}	4.00^{b}
p value	<0.01	<0.01	<0.01	<0.01	<0.01

Notes:

a. For websites: 1 as Taipei Gourmet network, 2 as National Night Market Intelligence 3. as Taiwan Night Market, 4 as Happy Street Strolling

b. The superscript on the mean show the result of Post Hoc comparison. For each construct, the same letter means no significant difference exist between the two websites.

V. DISCUSSIONS

A. Conclusions and Managerial Implication

Shihlin international tourism night market, as one of the most population scenic spots for international tourists as well as for local people, has its importance in terms of both financial economy and social interaction, therefore deserves more attention. To facilitate tourists' visit so that the trip to the night market can be more efficient and enjoyable, website is definitely a valuable tool. However, the design of websites can be very

challenging. First, night market has its own unique physical structure. According to the estimation of Taipei city government, Shihlin night market has in total 1900 stores and mobile and semi-mobile food and clothing stalls scattering around. And the motives of visiting ranges from novel seeking, shopping, to experiencing of local culture. This study attempts to expand our understandings of the online night market websites by examining an extended TAM model that may have crucial implications in the success of the websites. Our findings indicate that, the perceived ease of use and usefulness both had significant effects in inducing the positive attitude toward website, and in term enhances the revisit intension. Besides these, the direct influence of "usefulness" on reuse intension is highly significant too. Among the four currently existing websites, even though "Happy Street Strolling" is by far the most satisfactory one, apparently still has space for improvement. To look into the four websites, "Happy Street Strolling" definitely has a more attractive and much clearer layout, so that extracting the needed information seems to be easy and smooth, which verifies the results of our research findings. As to the psychological factors, the subjective norm's effect to the revisit intension is significant while the perceived behavior control is not. The possible explanation of such insignificant result is that to surf through the websites and extract the necessary information indeed becomes very basic, especially for young college students. As for managerial implications to the administration of night market websites, providing outcomes that are friendly, consistent with users' expectations is the most important strategy. Complete night market contents including gourmets, clothes, sightseeing spots is essential in order to drive visitor's intention of using websites. Besides, entertainments and close interaction could also be created by applying technologies such as social communities, location-based service or augmented reality. We hope through these insights and implications, the intention of using night market websites as well as the willingness of recommending websites to other users could be enhanced. In this sense, this study generalizes the arguments and application of TAM toward a new field of tourism field such as night market visiting.

B. Limitations and Suggestions for Future Research

We acknowledge that a number of research limitations exist in our research which should be overcome in the future. First, our sample was mainly composed of college students. Comparing with the average night market visitors, our sample may be too young and more educated. Second, despite our model provides some insights for the explanation of the usage of the night market websites, some important factors that influence or moderate the relationship between our research constructs are not well understood. Future studies may benefit from articulating the possible factors such of user's previous experience of visiting night market, information quality of websites, or the entertainment prospect.

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