BEHAVIORAL DETERMINANTS ON ACCEPTANCE OF THAI E-MARKETPLACE

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Abstract

The role of e-marketplace in Thailand is becoming increasingly important in Thai people's daily life because it is convenient and fast. As a result, online commerce has grown rapidly and simultaneously. This research was aimed to (1) investigate factors that affect the users' behavioral intentions for using e-marketplace by using the Extended Technology Acceptance Model (TAM) with customized external variables and (2) study which influencing factors are the key factors that make users use e-marketplace regularly.

An online survey questionnaire had been distributed to 416 people who were familiar with e-marketplace platforms, and the research data were analyzed with the use of the partial least square structural equation modeling (PLS-SEM). In the research findings, it was found that (1) sale promotion and game mechanic factors had significant effects on perceived usefulness, while sales promotion factor and family and friends factor had significant effects on perceived ease of use and (2) both perceived usefulness and perceived ease of use also had statistically significant effect on behavioral intentions of the users for the use of e-marketplace. In the conclusion, this paper presented the important administrative recommendations for creating satisfaction of e-marketplace users that would create higher acceptance for using e-marketplace in Thailand.

Keywords: E-marketplace, Technology Acceptance Model, Structural Equation Modeling, PLS-SEM, Thailand

Introduction

E-marketplace or electronic marketplace are known as the virtual marketplace. According to Siritida (2018), e-marketplace is the online platform that connect between sellers and consumers. People can trade goods and services, create the online communities, share data and information, and use payment services. E-marketplace has become popular because they are easy to use, convenience and providing various choices for customers to choose before buying products. E-marketplace have increased benefits for both buyers and suppliers, and they have spent lots of money to attract (Nigam et al., 2020).

In Thailand, e-commerce expected to

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reach 1.6 trillion baht at the end of 2020. The number was driven by coronavirus outbreak (International Trade Administration, 2021). Even there were only almost 15 million users who had shopped online, they had spent huge amount of money which are around 60,000 baht per year (Edgar, Dunn and Company, 2019). In today's context, most e-marketplace allow customers to compare price before purchasing (Murtaza et al., 2004). Therefore, it is the challenge for this market to understand what factors make users accept one platform over the others which this paper would focus on this point.

Research Questions

1. What are the main factors affecting behavior to use e-marketplace?

2. What is valuable information for e-marketplace providers to use for magnetizing new users?

Objectives

This study aims to achieve the following objectives:

1. To investigate factors that affect behavior's user intention for using e-marketplace by using Extended Technology Acceptance Model (TAM) with customized external variables.

2. To study which influencing factors are the key that make users use e-marketplace regularly.

Significant of Research

This research emphasized on aspects of users' sides. It is important to understand users' aspects that play key roles on users' decisions on using e-marketplace. This would help e-marketplace marketers make extraordinary strategies to gain more users.

Literature Review

In the literature review part, the researcher explained the theories, variables, and the result of related literatures which relate to e-marketplace.

Introduction of relevant variables

Technology Acceptance Model (TAM)

TAM model, it is the tailored model from TRA model for using about computer acceptance (Davis, 1985). The capable of TAM is it helps explain and predict behavior of users whether they will accept the technology or not. TAM model has separated external variables from internal beliefs which divide to perceived usefulness and perceived ease of use.

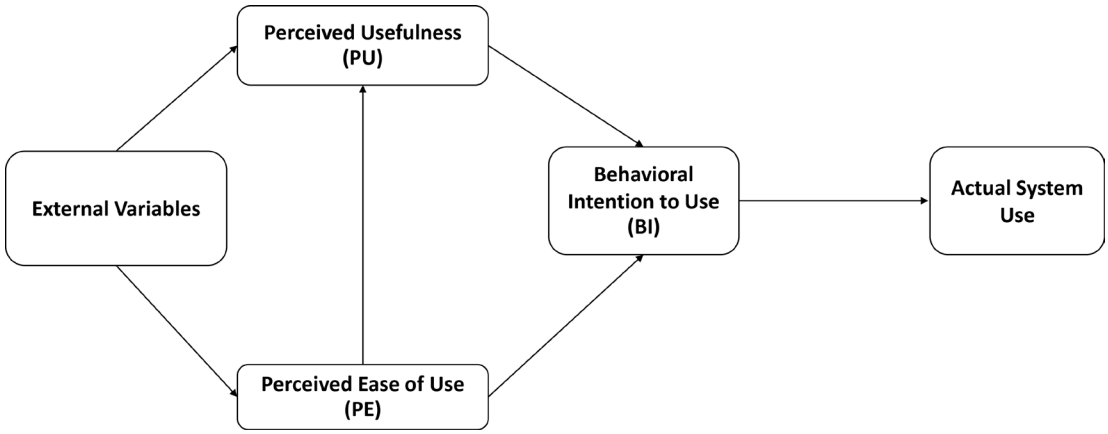

Figure 1 Extended Technology Acceptance Model (TAM)

Note: Adapted from Davis (1989)

Extended Technology Acceptance Model

In one of the experimental from Davis (1989), attitude variable was removed from the model because it could not cover total effects from perceived usefulness and perceived ease of use. Therefore, perceived usefulness and perceived ease of used were set to affect directly to behavioral intentions.

Perceived Usefulness (PU)

It is defined as degree of people's belief in the specific system whether it will increase their quality of lives (Davis, 1989).

Perceived Ease of Use (PE)

It is a degree of difficulty of the specific systems (Davis, 1989). The simplicity of the systems is one of the main factors for users whether they decide to continuously use the systems or not.

Behavioral Intention to Use (BI)

It is intention of people to utilize their acts for doing what they aim (Ajzen, 1991). The planned behavior is apart from theory of reasoned action (Ajzen & Fishbein, 1980). Intention is assumed to receive effects from related factors.

Extended Variables

According to Gefen et al. (2003), the original TAM model could not explain all effects of e-shop purchasing. Therefore, other variables must be added to the model.

Sales Promotions (PR) was known as one of the essential variables that can drive growth on e-marketplace platform (Standing & Standing, 2015). In Thai market, customers who used e-marketplace got attracted by discounts and gifts that were promoted through various media and marketing activities (Deelers & Rattanapongpun, 2018). In the paper term, promotions are the marketing strategies.

Family and friends (FF) were other variables that had been chosen to use in this paper. They could directly tell a person or demonstrate to others or they can indirectly affect by observation (Strong & Eftychia, 2006). Another research also found out that a peer

group can influence a person to follow which led to conformity between people (Solomon et al., 2002)

Gamification (GM) was defined as the mechanism for providing gaming experiences in non-related game context (Sebastian et al., 2011). In one of the recent studies, researchers found out that achievement and reward from a game in the shopping application can increase consumer's enjoyment which make they buy more goods (Lin et al., 2020), and it also as a positive impact on online platforms usage (Aparicio et al., 2021). Therefore, these variables would be used for making conceptual framework they have affected on intention to use e-marketplace.

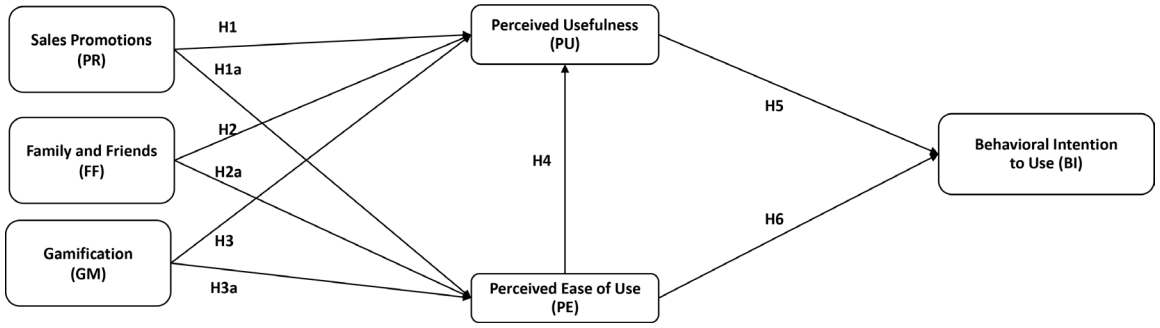

Figure 2 Conceptual Framework Adapted extended TAM model

Noted: Author's Calculation

Conceptual Framework

The conceptual framework of this paper was designed and modified from technology acceptance model which conducted from the literature review and adding extended variables.

Research Hypothesis

This research had nine hypothesizes that derived from literature review and conceptual framework.

H_1: Sales Promotions positively influences Perceived Usefulness

H_{1a}: Sales Promotions positively influences Perceived Ease of Use

H_2: Family and Friends positively influence Perceived Usefulness

H_{2a}: Family and friends positively influence Perceived Ease of Use

H_3: Gamification positively influences Perceived Usefulness

H_{3a}: Gamification positively influences Perceived Ease of Use

H_4: Perceived ease of use positively influences Perceived Usefulness

H_5: Perceived Usefulness positively influences Behavioral Intention to Use

H_6: Perceived Ease of Use positively influences Behavioral Intention to Use

Methodology

This research was mainly focus on the survey that emphasizes users of e-marketplace.

Population

This research used a quantitative method as we collect data and used Yamane method for calculating sample size. The target group was people who normally use e-marketplace in Thailand. These respondents

Sample size

The sample size calculated by using Yamane's formula with 95% confident interval. By using Yamane's formula, the number of the sample was equal to 400 persons.

Sampling Techniques

This research used exploration method for gathering information along with convenient sampling method and self-selected online surveys methods. The survey was in an anonymous form.

Data Collecting & Data Analysis

This survey questionnaire was divided into three parts which were demographics, general information, and the third part was designed to contribute to the concept of hypothesis in this research. Likert scale 1-5 method was used with the questions After that, this paper adapted Partial Least Square Structural Equational Modelling (PLS-SEM) model and computed with the composition modeling analysis software called Adanco version 2.2.1. This survey had been conducted between December 2020-January 2021.

Reliability tests

Cronbach's alpha was tested in a sample group, and it should not lower than 0.7 (Nunnally, 1978). The questionnaire had been tested two times with 30 respondents and the result were over 0.7 which mean they were acceptable.

Results

Research Analysis and Result

This research adapted various tools for analyzing data from the questionnaire survey. Demographic and general information used descriptive tools while variables and correlations used specific methods.

Descriptive analysis

There were 416 respondents that answered the questionnaire survey about the acceptance of e-marketplace in Thailand.

Demographic of Respondents

Most respondents were women as the amount was 270 persons, while men were 90 and LGBTQ were 56. Furthermore, the majority of the respondents were teenagers as their ages were around 20-30 years old. 80% of respondents had a job as government officers and private employees. 37% of respondents have income around 10,000-30,000 baht while 35% have income 30,000-50,000 baht. Only 18% have income over 50,000 baht and 11% have less than 15,000 baht.

General information of respondents about e-marketplace in Thailand

41% of respondents only enter e-marketplace 1 time per week or more while 17% of respondents entered e-marketplace every day. Shopee, Lazada, and Central Online were the top three e-marketplace that people chose which cover 98%, 76%, and 31% of

respondents, respectively. Most products that people bought from e-marketplace were fashion apparel, personal care, and consumer electronics products as they were top-three choosing categories in the survey.

Test of normality

To test normality characteristics, the researchers used skewness and kurtosis methods to measure. Skewness uses for observing the symmetry of variables. Skewness score should be -1 to 1 and kurtosis should be -2 to 2. The result indicated that all data is in the acceptable value even some were a bit over the normal rate. However, it was not too much for the calculations.

Test of internal reliability and convergent validity of the data

When the data was confirmed for SEM model. The researcher used Cronbach's alpha to test internal reliability. Average Variance Extracted (AVE), Composite Reliability (CR) and factor loadings were used for calculating convergent validity. AVE's minimum should be over 0.5 and CR value and factor loadings should be over 0.7 (Hair et al., 2017). From the result, all variables passed the criteria, which meant this survey were correlated with the validated measure. All results showed in Table 1.

Table 1 Measurement Model

Construct	AVE	CR	Cronbach's alpha
PR	0.6190	0.8661	0.7976
FF	0.6690	0.8896	0.8338
GM	0.7880	0.9488	0.9323
PU	0.5977	0.8813	0.8319
PE	0.7765	0.9124	0.8559
BI	0.7359	0.9175	0.8797

Variable correlations

Correlations between variables made researcher to understand the relationships whether they were unique or represented by other variables in the mode (Hair et al., 2017). For PLS-SEM, Heterotrait-Monotrait Ratio of Correlations (HTMT) was used and the value must not over 0.85, otherwise, it means variables are not highly correlated with other variable (Ab Hamid et al., 2017)

Hypothesis Analysis

According to table 2, sales promotion affected on both perceived usefulness and perceived ease of use. Family and friends only affect to perceived ease of ease of use. Gamification affected to perceived usefulness. Next, perceived ease of use positively affected on perceived usefulness as H_4 was supported. Perceived ease of use also positively affected on behavioral intentions as H_5 was supported. Lastly, perceived usefulness positively affected behavioral intentions as H_6 was supported.

Table 2 Analysis of the Model

Effect	Path Coefficient	t-value	Cohen's f^2	p-value (2 sided)	Result
H_1 : PR ⟶ PU	0.175	4.174	0.047	0.000	Supported
H_{1a} : PR ⟶ PE	0.400	8.113	0.193	0.000	Supported
H_2 : FF ⟶ PU	0.073	1.438	0.009	0.151	Not supported
H_{2a} : FF ⟶ PE	0.262	5.209	0.082	0.000	Supported
H_3 : GM ⟶ PU	0.187	4.764	0.066	0.000	Supported
H_{3a} : GM ⟶ PE	0.030	0.689	0.001	0.491	Not supported
H_4 : PE ⟶ PU	0.522	8.330	0.415	0.000	Supported
H_5 : PU ⟶ BI	0.452	10.844	0.227	0.000	Supported
H_6 : PE ⟶ BI	0.334	6.497	0.124	0.000	Supported

Result of Hypothesis Paths Figure 3 illustrated that 52.3% of users accept e-marketplace as the hypothesis were tested by adapting technology acceptance model with customized external variables to sales promotions, family and friends, and gamification. The path result is shown in the figure below:

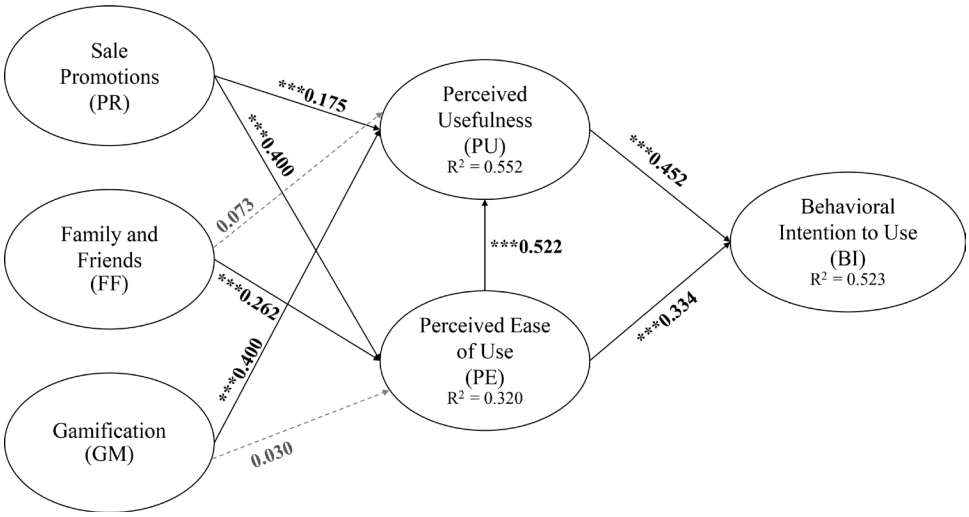

Figure 3 The Results of Structural Model

Note: Author's Calculation

R^2 for PU = 55.2%, R^2 for PE = 32.0%, R^2 for BI = 52.3%, ***p < 0.001

Author's calculation with ADANCO 2.2.1 Bootstrap

Effect on the model

By analyzing influencing 10 paths, perceived ease of use positively influences to behavioral intention path was the strongest path while the rest of influence paths have range between 0.4 to 0.1.

Discussion and Contributions

Discussion

This research developed to observe the users' intentions to use e-marketplace by adapt technology acceptance model (TAM) to determine behavior of people. Perceived usefulness and perceived ease of use were important for people to accept the e-marketplace as other success research papers had tested.

Firstly, talking about promotions, it was one the all-time effective strategy that can change people behavior as it effects on both perceived usefulness and perceived ease of use as the result showed that H_1 and H_{1a}.

Next was family and friends. From the result, family and friends had slightly influenced on usefulness but, since, the result was not in significant level, as H_2 was rejected. However, it seemed to have positively influence on ease of use as H_{2a} was supported.

Gamification was variable H_3 and H_{3a} It meant that it worked when people used functions of e-marketplace, but it required complex processes, so perceived ease of used was rejected. The result differed from what (Kamboj et al., 2020) found. They found that gamification was significant to perceived ease of use.

Theoretical Contributions

By using TAM model, it helped provide solutions to understand people's behaviors. This theory often uses for analyzing people on innovative technologies that occur to the societies the consist of two essential variables that analyze people's decisions on using technologies which are usefulness, ease of use, and external variables that can be modified. Thus, the model helps provide clear information to researcher to study and understand acceptance's condition. TAM model also opens for researchers to use choose external factors without creating new model, hence, it is easier for other researcher to understand perceptions of Thai people even they come from different countries or study in different contexts.

Managerial Contributions

This research contributed benefits to the managerial contributions. Firstly, e-marketplace platform must focus on their promotions. It was undeniable that promotions attract customers to use e-marketplace in both ways that were usefulness and ease of use. In one paper, it mentioned that success of Thai e-marketplace was sales marketing because it was easy to use and effective in term of benefits (Naovarat & Juntongjin, 2015). Furthermore, promotion events could increase perceived usefulness and it also increased purchase intention (Sundjaja et al., 2020). Moreover, in another research, flash sale event and discount in Lazada could increase perceived ease of use (Pratama et al., 2019). This meant sales promotion increase both usefulness and ease of use if they were use in the right way.

Secondly, family and friends had effects to ease of use. Marketers can leverage this strength by adopting social media to set the marketing plan. This group used social media to exchange data, chat, and search

for information and one of the papers found that social media were extremely useful for their lives (Alduaij, 2019). This went along with another paper that confirmed that family and friends were one of the main influencers who could persuade elderly to purchase product through online channel (Charoenpiriyaves, 2020). Another Thai paper also found out that social media help users to find information which increases customer's buying intentions (Naovarat & Juntongjin, 2015). However, it was surprised that family and friends were insignificant on perceived usefulness such as in the work (Charoenpiriyaves, 2020; Vongurai, 2021). Although, this paper could not confirm the significant of relationship like other paper, but most paper likely to explain that this relationship often occurs with older people while most of the respondents in this paper were young people who were familiar with technology.

Thirdly, gamification was only affected on usefulness. Gamification required complex skills from users. Therefore, it must have easy and simple interface to use. Even gamification made users loyal to platform, if it was too complicated to do, users might consider the complicated processes in exchange for the benefit of use (Schuldt & Friedemann, 2017). For example, rewarding systems can increase value equity through cash back rewards, and developing virtual community can increase interaction between users, sellers, and service providers (Widarto et al., 2019). The result of gamification in this paper differed from other paper such as Kamboj et al. (2020) because the questionnaire of others mentioned about how to access and play game while this paper focus on the value of time in exchange for prizes. Nonetheless, this paper mentioned convenience which was more accurate to perceived ease of use in this paper as they talked about how gamification fit in daily's lives.

Limitation and Suggestion

This result only test on 405 respondents, so the results might be varied if the sample size has changed. Another limitation was user interface variables had been removed from the actual test because it is unreliable when the sample size is bigger, so a new researcher can study more on this topic. Furthermore, according to Ajibade (2018), TAM model was suggested to use for conceptualizing the individual perception, so, this paper could be used for analyzing users' behaviors but not for addressing the use of business technology as there are available tutorials to study how to use. Further studies are required to explore more variables and elements that affect people who adapt to use e-marketplace among nationwide. They should be examined to unveil more reliable findings to understand the adaptation of e-marketplace that grow up every second and might become the main channel in the future.

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