

Adopting Technology Acceptance Model to Explore E-shopping Use Intention of Retail Department Store Customers

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Abstract: In recent years, the popularity of advance technologies and the network have significantly switched shopping in real stores to the new trend of e-shopping; thus, shopping online has been strongly enhanced. It is noted that there has existed a battleground between online stores and traditional retail stores with physical features and important marketing power in the market. Due to the fact that many current retail stores are trying to take advantage of online marketing and shopping to customers, this study aims to utilize the factors included in the technology acceptance model (trust, flow experience, perceived usefulness, and perceived ease of use) to understand consumer awareness and willingness to use hypermarket e-shopping sites. The research tool in this study was survey questionnaire which was developed based on related literature on retail stores and consumers' e-shopping willingness. Taipei citizens were identified as the main research sample. Out of 330 issued questionnaires, 314 valid responses were obtained with the effective response rate of 95.15%. Then, structural equation modeling (SEM) method was utilized to analyze the data and examine the causal relationships. The results show that consumers' trust on e-shopping websites exerts significantly positive effect on perceived usefulness and perceived ease of use. In addition, consumers' flow experience significantly influences perceived usefulness of the e-shopping websites and e-shopping use intention. However, the perceived ease of use of e-shopping of retail department stores' consumers has no significant impact on perceived usefulness and e-shopping use intention while perceived usefulness strongly exerts a positive effect on consumers' e-shopping use intention and their consumption willingness.

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Introduction

Due to the advent of the Internet, along with the rapid progress of science and technologies, the development of human daily life is considered inseparable with the electronic products. Hence, it is observed that high-tech products have become a critical part of human daily life characteristics. In this era, the convenience of electronic technology products is also reflected in the new trend of e-shopping and the sharply increasing demands and use for online shopping. The great benefits of e-shopping is that people can conduct and enjoy purchase anywhere and anytime using convenient electronic products such as notebook (NB) instead of looking for the fixed-place personal computer (PC). Currently, the convenience of e-shopping is strongly combined with the higher realm of mobile phone usage.

According to the statistical report of the Department of Commerce of the Institute for Information Industry

on domestic B2C e-commerce, the scale of Taiwan e-commerce market is growing sharply year by year. Specifically, the market growth of domestic e-commerce in the 2009-2010 periods is 25% and increase dramatically to 27% in the 2011-2012 periods. The above data are sufficient to prove that the domestic e-commerce market growth is in its prosperous development.

In addition, the survey also states the number of domestic regular Internet users is 1,073 million people and the Internet networking application has reached up to 47%, which can be seen as unlimited business opportunities brought about by the Internet. With numerous benefits such as unlimited interactivity and access from the Internet irrespective of time and space and low cost, Internet shopping behavior has become important medium between market transactions and the operators of various industries. Therefore, in addition to the physical store, more and more business

operators (e.g. department store industry, apparel industry, food and beverage industry) have attempted to set up a network platform to provide consumers with more customer values and enhance their browsing shopping behavior. In addition, according to the report of Economic Times on July 20, 2010 that the world's first the second largest international retail chains are Carrefour and Yahoo. Carrefour through effectively utilizing online shopping platform has announced to expand the rate of online shopping consumer groups. In addition, Yahoo with the online shopping plans has launched the Yahoo portal, which is considered the great important platform marketing in the hypermarket industry network.

Based on the phenomenon that hypermarket consumers have strongly switched from physical stores to online shopping and exerted considerable awareness and willingness toward online shopping, this study suggests that online shopping on discount stores and people's lives are tight inseparable; hence, exploring e-shopping use intention of retail department store customers is regarded as the focus of this research.

Literature

The main purpose of this study is to investigate e-shopping use intention of retail department stores using the technology acceptance model as the theoretical basis in addition to the utilization of relevant literature on Flow Experience and trust dimensions.

2.1 Technology Acceptance Model

The Technology Acceptance Model (Technology Acceptance Model, TAM) has been considered as an important research topic in the past 20 years (Chuttur, 2009). According to the TAM model, the user's personal background variables also affect an important factor in information system use behavior (Gefen et al.,

2003). Being proposed by Davis (1985) in the dissertation, the conceptual Technology Acceptance Model points out that the actual system use is determined by user's motivation to use the system; hence, this model is utilized to predict user's extrinsic motivation and key motivator factors such as system features, capabilities, and functionalities.

Davis (1985) points out that main motivation of the users to use the system are "perceived usefulness", "perceived ease of use", and "attitude toward using". Among those, "attitude toward using" is the most important factor affecting whether consumers will use the system. In other words, attitude toward using is considered to have direct impact on perceived usefulness and perceived ease of use. Davis et al. (1989) then add "behavioral intention to use" as a new variable and point out that behavioral intention to use directly impacts perceived usefulness without going through attitude toward using. Following the proposed structure in Figure 1, the operational definitions of the variables are described as below (Davis et al, 1989; Fishbein and Ajzen, 1975; Venkatesh and Davis, 1996):

- (1) Perceived Usefulness: users' cognition that the use of a particular system would enhance job performance.
- (2) Perceived Ease of Use: users' cognition on the ease of learning to use a particular system.
- (3) Attitude Toward the Use: users' engagement in positive or negative feelings.
- (4) Behavioral Intention to Use: users' willingness to engage in behavior intention.
- (5) External Variables: the factors that affect users' perceived usefulness and perceived ease, such as users' personal characteristics, the characteristics of information systems and environmental characteristics.
- (6) Actual System Use: users directly carry out the use of a system.

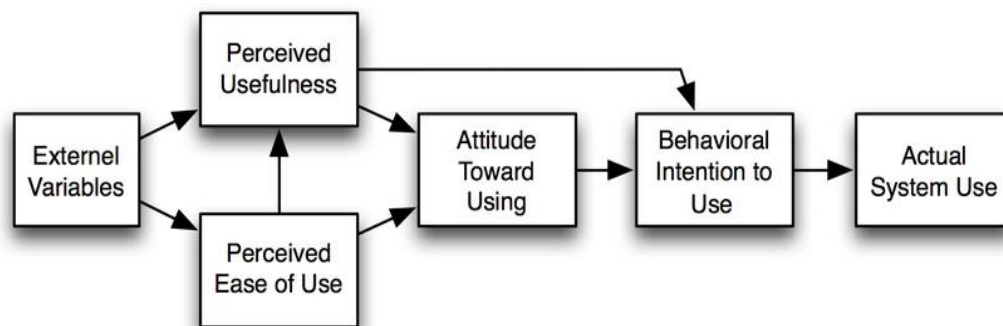


Figure 1. First Modified Version of Technology Acceptance Model (TAM)

Note. From "User acceptance of computer technology : a comparison of two theoretical models," by Davis, F. D., Bagozzi, R. P. & Warshaw, P. R.(1989). *Management Science*, 35 (8), 982-1003.

Davis et al. (1989) through the use of the first-generation Technology Acceptance Model to test use intention finds that the impact of perceived usefulness on behavioral intention is very obvious while the impact of perceived ease of use on behavioral intention is less obvious. The main contribution of this research is that perceived

usefulness and perceived ease of use do not exert direct impacts on behavioral intention through attitude toward using. Hence, the factor of attitude toward using can be directly deleted. As a result, the modified technology acceptance model is established as shown in Figure 2.

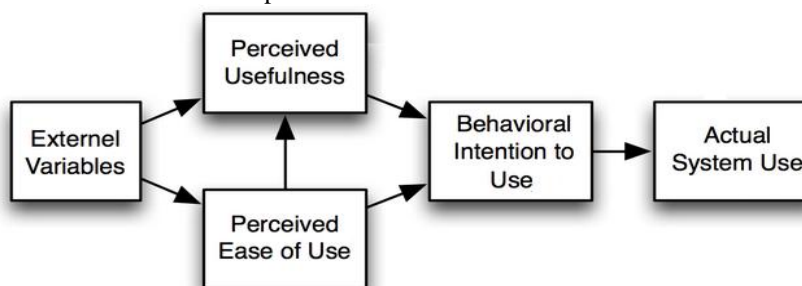


Figure 2. Final Version of Technology Acceptance Model (TAM)

Note. From "A model of the antecedents of perceived ease of use: Development and test," by Venkatesh, V. & Davis, F. D. (1996). *Decision Science*, 27(3), 451-481.

In the extant literature, the Technology acceptance model has been widely used to explore consumer willingness to use. Hence, this study adopts this model as the basis to explore consumers' e-shopping use intention. Pen and Chen (2011) define the e-shopping as the type of shopping developed by the utilization of the Internet, through which consumers can choose products and determine the required products in front of computer monitors. The innovative e-shopping not only provides the most convenient and the most state-of-the-art sales to consumers.

Based on the above theory, this study puts forward the following hypotheses.

H5: The higher level of consumers' perceived ease of use toward e-shopping websites lead to the higher perceived usefulness of e-shopping.

H8: The higher level of consumers' perceived ease of use toward e-shopping websites lead to the higher e-shopping use intention.

H9: The higher level of consumers' perceived usefulness toward e-shopping websites lead to the higher e-shopping use intention.

2.2 Flow Experience

The Flow Theory suggested by the psychologist Mihaly Csikszentmihalyi in 1975 has been widely utilized in extant literature due to its benefits in helping firms understand the meaning and motivations of people' activities with a focus on common experience and is not related to personal perceptions and ideas. Csikzentmihalyi (1977) further points out that the activities are always involved in the loss of self-perception; hence, specific goals and clear feedback reactions are important for creating positive feelings toward the produces once people attempt to complete a particular activity. Koufaris (2002) through

the emotional and cognitive aspects divides flow experience into three areas of intrinsic enjoyment, perceived control and concentration/ attention focus. Recent studies on flow experience have been widely used in the field of Information Technology industry and the use of computers and other related areas. As such, scholars have suggested that flow experience has a possible impact on online consumption experience (Hoffman and Novak, 1996; Novak et al., 2000).

There has been a wide range of studies examine the impact of flow experience on e-shopping using the combination of immersion experience and the Technology Acceptance Model (TAM). The findings in extant literature show that immersive experience has a significantly positive effect on consumers' attitudes and behavioral intentions toward e-shopping. Hence, this study with the main purpose of investigating the effect of flow experience on e-shopping use intention also employs the Technology Acceptance Model.

Based on the above literature, the following hypotheses are proposed.

H2: The higher level of consumers' flow experience toward e-shopping websites lead to higher perceived ease of use of e-shopping.

H4: The higher level of consumers' flow experience toward e-shopping websites lead to higher e-shopping use intention.

H6: The higher level of consumers' flow experience toward e-shopping websites lead to higher perceived usefulness of e-shopping.

2.3 Trust

The concept of trust has been systematically examined from a psychological point of view since the research of Deutsch (1958). Wang and Emurian (2005) point out that although trust and its determinant factors

have been explored by a wide range of studies, the connotations of trust can be briefly referred to as credibility, reliability, and honesty.

In response to consumer needs, firms are willing to take initiatives and investments in transactions in order to enhance trust in consumer behavior and facilitate transactions success (Tan and Thoen, 2001). In the context of e-shopping, the consumers have switched from consumption patterns of direct contacts with the physical stores and the purchase process in the retail department stores to the situations that they cannot touch the purchased products and all transactions are proceeded through electronic media. Hence, consumers' feelings and trust toward the e-shopping websites are perceived extremely important indicators to the success of the online transactions. Jarvenpaa et al. (2000) have pointed out that trust is a critical factor for consumers to take actual purchase and maintain repurchase intention toward the same store. On examining consumers who are willing to conduct online shopping, Faqih (2011) also proposes that trust, perceived usefulness, and perceived ease of use have direct and positive impacts on consumer e-shopping use intention. Therefore, this study aims to employ the technology acceptance model (TAM) to validate and explore the impact of trust on use willingness of retail department stores' consumers.

Accordingly, the following hypotheses are proposed.

H1: The higher level of consumers' trust toward e-shopping websites lead to the higher perceived usefulness of e-shopping.

H3: The higher level of consumers' trust toward e-shopping websites lead to the higher e-shopping use intention.

H7: The higher level of consumers' trust toward e-shopping websites lead to the higher perceived ease of use of e-shopping.

Research Methodology

3.1 Sample Collection

According to the survey statistics by the Taiwan Network Information Center 2011, the Taipei City is the place possessing the highest internet usage rate of 82.4%. Therefore, Taipei citizens were selected as the research subjects. Out of 300 distributed questionnaires, 314 valid responses were obtained after deleting those non-valid ones, indicating a response rate of 95.15%. Based on collected data, this study aims to explore the relationships between consumers' e-shopping use intention and retail department stores' current situation of e-shopping operation.

3.2 Data Processing

Based on the TAM theory proposed by Davis (1989), this study found perceived usefulness and perceived ease of use exerted direct impact on behavior intention; however, attitude expressed no affect. Hence, this study deleted the impact of attitude toward behavior intention and directly explored the impact of perceived usefulness and perceived ease of use on behavior intention. The Figure 3 presents the research framework in which this study aims to examine the relationships between external variables (i.e. trust, flow experience) and the difference among perceived usefulness, perceived ease of use, and consumer e-shopping use intention to realize the cognitive levels and e-shopping use intention of retail department stores' consumers.

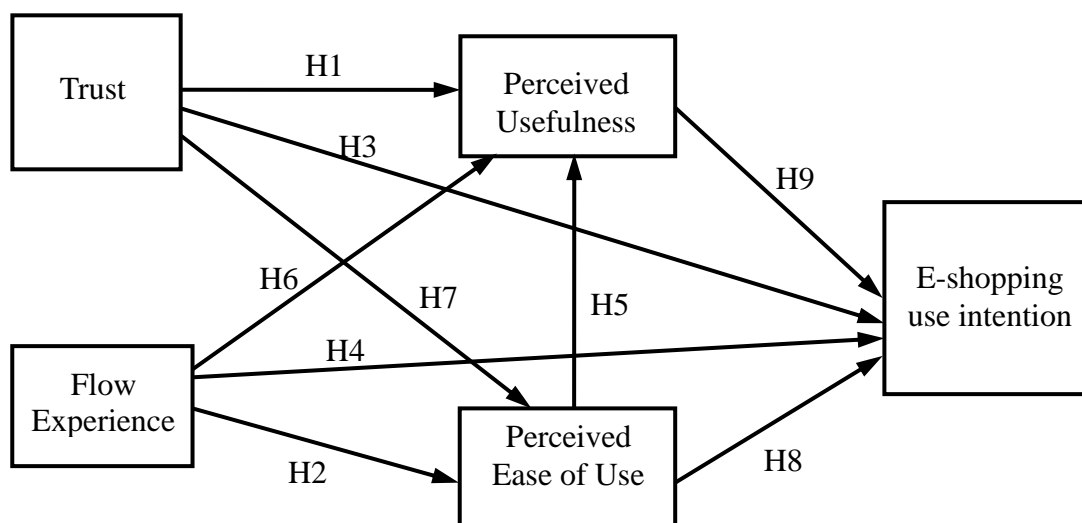


Figure 3. Research Framework

Data Analysis and Results

4.1 Data Analysis

There were fairly adequate rates regarding gender. Specifically, out of 314 respondents, 47.2% were male and 52.8% were female. The age range of respondents centralized from 31 to 40 years old with an average rate of 39.3%. A majority of the participants were undergraduates (49%). Concerning marital status, single and married participants had similar rate of 45.5% and 54.5%, respectively. 41.2% of respondents reported that their household income is less than 30000NT. In terms of internet usage, most of respondents (96.8%) confirmed their use. It was noted that while 88.2% respondents used internet for over

four years, 40.1% reported that their average time of using internet is less than 10 hours. In the past, there were 86.6% used to internet for shopping. Especially, 73.5% of the respondents had experienced 10 times e-shopping in the previous year.

4.2 Structural Model

This study utilized Structural Equation Modeling (SEM) to examine the relationships among trust, flow experience, perceived usefulness, perceived ease of use, and the use intention of e-shopping. Table 1 indicates the good model fit of the research model to the collected data.

Table 1. Model Goodness-of-Fit

Index Types	Fit Indices	Limiting value	Measurement model	Covariance structure model
Absolute fit measures	χ^2 (Chi-square)	A low and no significant value is better	340.276***	406.286***
	χ^2/df	< 5	2.396** (d.f. = 142)	2.861** (d.f. = 142)
Goodness-of-fit measures	Goodness-of-fit Index (GFI)	≥ 0.8	0.873	0.872
	Adjusted Goodness of Fit Index (AGFI)	≥ 0.8	0.831	0.828
	Root mean square error of approximation (RMSEA)	≤ 0.1	0.073	0.077
Comparative fit measures	Non-normed fit index (NNFI)	≥ 0.9	0.906	0.917
	Comparative fit index (CFI)	≥ 0.9	0.922	0.931
Parsimonious fit measures	Parsimonious Normed Fit Index (PNFI)	≥ 0.5	0.726	0.747
	Parsimonious Goodness-of-Fit Index (PGFI)	≥ 0.5	0.653	0.651

Note: * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$

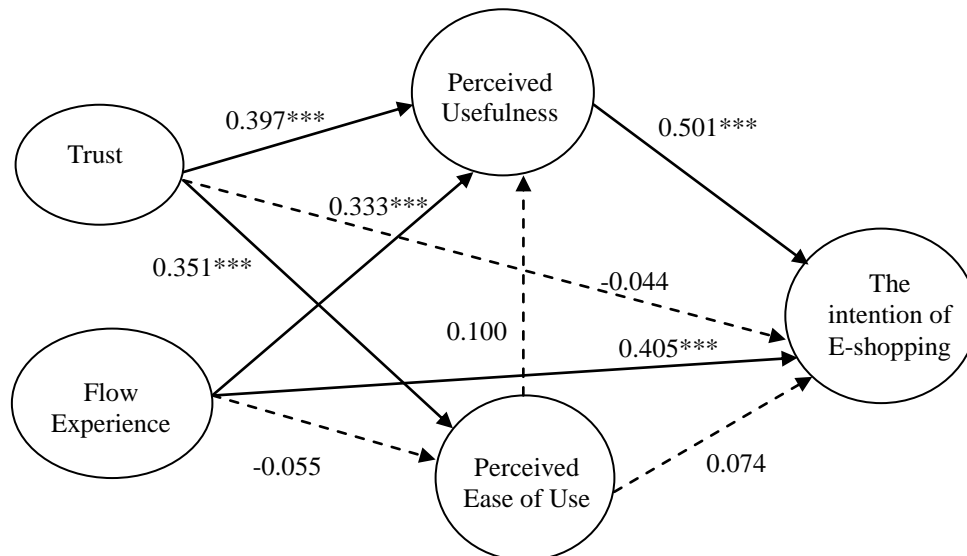


Figure 4. Path Coefficients

Note₁ : — Significant path; - - - Not significant path

Note₂ : * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$

Figure 4 and Table 2 show that trust has a significant impact on perceived usefulness and perceived ease of use of the e-shopping of retail department stores' consumers. Flow experience has a positively stimulating effect on perceived usefulness

and perceived usefulness in turn exerts a significant impact on e-shopping use intention of retail department stores' consumers. Out of nine hypotheses of the research model, five hypotheses are supported and four hypotheses are not supported.

Table 2. Path Coefficients and Hypotheses Testing

Hypothesis	Paths		Hypothesis Coefficient	Coefficient	Results	
H ₁	Trust	→	Perceived Usefulness	+	0.397	Supported
H ₂	Flow Experience	→	Perceived Ease of Use	-	-0.055	Not supported
H ₃	Trust	→	The Intention of E-shopping	-	-0.044	Not supported
H ₄	Flow Experience	→	The Intention of E-shopping	+	0.405***	Supported
H ₅	Perceived Ease of Use	→	Perceived Usefulness	+	0.100	Not supported
H ₆	Flow Experience	→	Perceived Usefulness	+	0.333***	Supported
H ₇	Trust	→	Perceived Ease of Use	+	0.351***	Supported
H ₈	Perceived Ease of Use	→	The Intention of E-shopping	+	0.074	Not supported
H ₉	Perceived Usefulness	→	The Intention of E-shopping	+	0.501***	Supported

Note: * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$

Conclusions and Implications

Based on TAM theory, this study examines the e-shopping use intention of retail department stores' consumers as marketing strategy. The results show that flow experience of retail department stores' consumers does not affect perceived ease of use on learning how to use e-shopping. However, flow experience positively affects perceived usefulness of e-shopping and consumers' e-shopping use intention. In addition, trust of retail department stores' consumers has significant impact on perceived usefulness and perceived ease of use but exerts no influence on consumers' e-shopping use intention. Moreover, the perceived ease of use of e-shopping of retail department stores' consumers has no effect on perceived usefulness as well as does not positively affect consumers' e-shopping use intention. Finally, the perceived usefulness of e-shopping of retail department stores' consumers has significantly positive impact on consumers' e-shopping use intention.

Proceeding consumer behavior on shopping websites is perceived as one of the effective ways to stimulate the use of e-shopping. However, the use of e-shopping toward retail department stores' consumers is still in the initial stage. Therefore, this study aims to explore the issues of cognition and e-shopping use intention of retail department stores' consumers.

This study provides several useful implications to retail department store owners. Firstly, since trust of retail department store's consumers has a significant impact on perceived usefulness and perceived ease of use, brand image and reputation of retail department store owners are critical to consumers. Trust makes consumers feel easy, helpful, and comfortable when using the websites. However, this study finds that the perceived ease of use of e-shopping of retail department store's consumers will not affect perceived

usefulness. This result is different from previous research, implying there is no direct relationship between ease of learning on how to operate the websites and the helpfulness for the shopping websites themselves. Moreover, trust of retail department store's consumers is proven to have no direct impact on consumer e-shopping use intention. Hence, it can be assumed that consumers' trust toward retail department store owners is built up through consumers' experience of actual services. Therefore, in the future, if retail department store owners switch to online shopping stores, the launched shopping platform would bring more confidence to consumers and enhance their willingness for shopping online.

This study finds that the perceived ease of use of e-shopping of retail department stores' consumers will not positively affect consumer e-shopping use intention. This can be explained that e-shopping is currently becoming popular consumer behavior and it is fairly easy to learn how to use the websites. However, since retail department stores have run for several years, it is not easy to decrease the tendency of shopping on real stores. On contrast, the perceived usefulness of e-shopping of retail department stores' consumers has positively significant impact on consumer e-shopping use intention. This finding usefully recommends retail department store owners to effectively design website interface in order to help consumers easily finish e-shopping process and payment (e.g. providing information and type of payment). Finally, flow experience of retail department stores' consumers is found to have no influence on perceived ease of use of learning how to use e-shopping. The possible reason is that since shopping in real retail department stores is obviously a part of daily life, it would not significantly affect publics on ease to use the websites. Nevertheless, it is noted that flow experience of retail department stores' consumers

positively affects consumer e-shopping use intention and perceived usefulness of e-shopping. These findings imply that website designs and the user interfaces of e-shopping websites exert strong direct impacts on consumer use willingness; hence, it is essential for retail department store owners to better construct product information and provide more trading methods to consumers.

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