Employee's Acceptance of Intranet Implementation- Case Study of the Comprehensive travel agency in Taiwan

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Abstract

With increasingly advanced information technology, it's very common that organizations introduce new information technology (IT) to enhance their benefit. This study use Unified Theory of Acceptance and Use of Technology (UTAUT) Model as a foundation to establish a research on the intention that the employee of travel agency according to the how much they will accept the new technology. Data collected from 480 respondents in Taiwan were tested against the research model using the structural equation modeling (SEM) approach. The results provide further insights into travel agency management strategies.

Keywords: unified theory of acceptance and use of technology, structural equation modeling

1.Introduction

In the era of consuming retrenchment with necessity of keeping pace with technological development for latest information, computers and network is indispensable. However economic setback this time causes depressed consuming market. In response to the trend of the times, only developing computers with best cost due to combination of handy functions and operation system can enterprises make low-priced computers to outshine others. Super portable computer "Eee PC" born under the current situation in 2007 does definitely strengthen the market and work out its value of practicality to let more people who did not use computer, such as children and elders, start to use it or let more people have his/her second computer. It has exactly enough functions, thin and light, priced only at more than ten thousand dollars. In 2007 October, ASUS Eee PC, first presented, has lead fashion of super portable computers. It is possessed of powerful capabilities, for example, broadband, high functions, brief operation of functions, suitability to daily life use, portability, small and delicate appearance, favorable price, long-lasting batteries and internet surfing at any time. Its design gets off the beaten track of normal laptops and becomes consumers' favor, creating a market for small laptops in this depressed era.

For this reason, this study is conducted to discuss internal thoughts about variables, such as values and attitudes, through psychological dimension when people use Eee PC to do mobile learning, and to interpret integrated travel agency staffs' will to use Eee PC to do mobile learning through attitudinal dimension of Unified Theory of Acceptance & Use of Technology (UTAUT). These two issues is the main motivation of this study.

According to research background and motivation described above, this study is based on Unified Theory of Acceptance & Use of Technology (UTAUT), discussing models of integrated travel agency staffs' will to use Eee PC to do mobile learning's Behavior Intention and difference among them. The goals of this study are hence determined as below:

1. Discuss factors that affect integrated travel agency staffs' will to use Eee PC to do mobile learning's Behavior Intention.
2. Further establish models of integrated travel agency staffs' will to use Eee PC to do mobile learning's Behavior Intention.

2. Literature Review

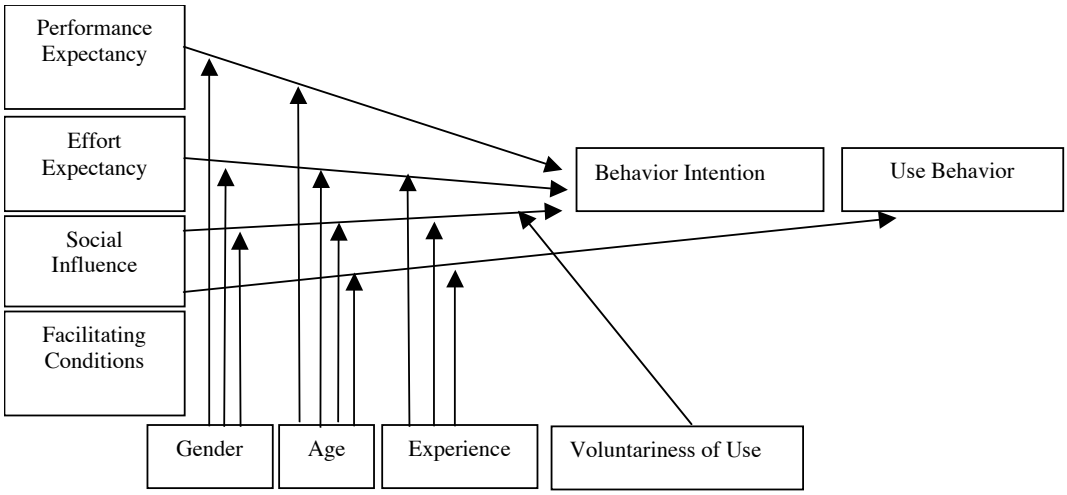
2.1 Eee PC

On October 16th in 2007, low-priced laptop was first promoted to the market. Its 920-gram and beautiful appearance with simplified and complete functions of software and hardware brought about a great shopping rush. After available in the market for two months, Eee PC rapidly became the most wanted present for Americans voted by the American technology media_CNet_and the e-shop <Amazon>. At the end of 2007, the total order quantity was up to more than 350 thousands, far higher than that corporations had estimated, and reached 1.3 millions in the first season of this year. The main reason of success is that Eee PC extends the market to the users such as elders and children, who have never been targeted by every software supplier, and those such as normal office workers, who do not need a computer with plenty functions. According to estimation by Topology Research Institute, an organization for market survey, the market of low-priced computer is expected to enter the period of mature development and the order quantity is going to reach 680 million computers, even more than one billion computers, in 2008, potentially bringing great amount of income of more than one hundred billion US dollars in total till 2010. Market Intelligence & Consulting Institute (MIC) proposes that par computers will lead to popularize laptops which therefore become the prior choice, instead of desk-top computers, for personal computer.

2.2 Unified Theory of Acceptance & Use of Technology (UTAUT)

Venkatesh et al. (2003) reviewed eight major models and conducted comparative empirical research, then resulting in four core concepts that affect users' behavior intention and use behaviors. They are, in definition, (a) performance expectancy, standing for how highly this system the users believe can promote work efficiency, (b) effort expectancy, standing for how easily to operate this system, (c) social influence, standing for how much users perceive that the man important to him/her suggests him/her to use the system, and (d) facilitating conditions, standing for how well users think existing related basic devices in the organization are sufficient enough to support this new system use. Each of these four core conceptions includes relevant ideas from various models. Theory of Reasoned Action (TRA) is mentioned for the sake of providing a foundation to interpret external variables' effects on behavioral beliefs. (Davis et al., 1989) In another word, TRA is the core concept; however in practice, it should involve different external variables to suit different issue features and further do discussion about these variables' effects. (Venkatesh, 2000; Venkatesh and Davis, 2000;Venkatesh and Morris, 2000) UTAUT is exactly the new framework that collects and integrates varied variables from eight models proposed by researchers°]see Figure 1°^.

Figure 1 Unified Theory of Acceptance & Use of Technology (UTAUT)
References_GVenkatesh et al., (2003)



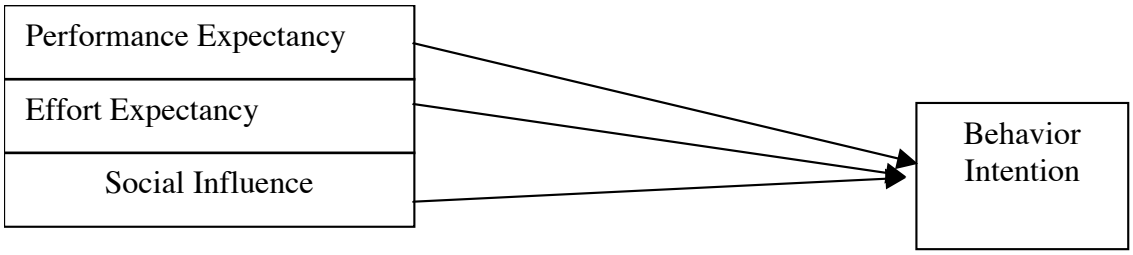
3.BMethodology

3.1 Research Model

This study is based on Unified Theory of Acceptance & Use of Technology (UTAUT) developed by Venkatesh et al

(2003), mainly discussing direct behavior expecting depending on results, whether performance expectancy, effort expectancy, social influence affect integrated travel agency staffs' will and behavior to use Eee PC for mobile learning's Behavior Intention_]see Figure 3_.

Figure 3 Model



3.2 Hypotheses

Venkatesh et al. (2003) suggests that performance expectancy has significant influence on users' will to use information technology while integrating models of information technology acceptance and use. In addition, researchers also imply that recognizing its easiness to use would affect the will to use(e.g., Thompson et al. 1991; Davis et al. 1989). Moreover, studying TRA and TAM models, Davis et al. (1989) found that subjective principles (social effects) have no significant influence on the will but he thinks the information technology does. Therefore, he proposed that it is necessary to discuss social effects' influence on the will to use. According to reference described above, this study develops hypotheses as below.

H1°GConfirmation while integrated travel agency staffs' using Eee PC for mobile learning's performance expectancy has a positive effect on behavior intention.

H2°GConfirmation while integrated travel agency staffs' using Eee PC for mobile learning's effort expectancy has a positive effect on behavior intention.

H3°GConfirmation while integrated travel agency staffs' using Eee PC for mobile learning's social influence has a positive effect on behavior intention.

3.3 Variables and Operational Definition

This study is centered on Unified Theory of Acceptance & Use of Technology (UTAUT), referring to aspects proposed by Venkatesh et al. (2003) for designing a questionnaire suitable for this study.

3.4 Sampling

In this study, stratified sampling is used unrandomly. The subjects are from integrated travel agencies in Great Taipei area and sampled based on proportion of employee. The questionnaire is issued to integrated travel agencies in Great Taipei area from 1st December 2008 to 31st January 2009 538 responses are retrieved, among which 58 responses are invalid and 480 responses are valid. The valid response rate is 89.22%.

To verify the constructed model, this study applies Structural Equation Model (SEM) to test the hypothesis by reliability and validity analysis and LISREL analysis.

4.Data analysis and tools

4.1 Descriptive Analysis

Among all the valid responses for this study, female is the majority. Subjects are most at the age between 26 and 30, between 21 and 25 the second, revealing that staff are most young. Highest education of staff served in integrated travel agencies is most bachelor degree; they are most from sales department; their total years of work experience is most 26 years.

4.2 Reliability and Validity Analysis

At the first stage, confirmatory factor analysis, the model is verified that in judgment of model's internal quality, reliability index of each observable variable is acceptable at 0.50 or more and therefore this study deletes those items of which reliability index of each observable variable in five latent variables is below 0.50. Those deleted items are X04, X08 and X12. Afterwards, these five latent variables are verified through confirmatory factor analysis and the results are as below(see Table 2°BTable3°BTable4 and Table5).

Table 2 CFA for performance expectancy

variables	MLE estimation		Composite reliability	Average variance extracted
	factor loadings	Measurement errors		
X01	0.84***	0.15	0.915	0.783
X02	0.97***	0.04		
X03	0.84***	0.15		
GFI=1.000,NFI=1.000,CFI=1.000,RMSR=0.000 ***p<0.001				

Table 3 CFA for effort expectancy

variables	MLE estimation		Composite reliability	Average variance extracted
	factor loadings	Measurement errors		
X05	0.85***	0.2	0.915	0.783
X06	0.94***	0.07		
X07	0.86***	0.15		
GFI=1.000,NFI=1.000,CFI=1.000,RMSR=0.000 ***p<0.001				

Table 4 CFA for social influence

variables	MLE estimation		Composite reliability	Average variance extracted
	factor loadings	Measurement errors		
X09	0.96***	0.05	0.902	0.926
X10	0.95***	0.06		
X11	0.67***	0.37		
GFI=1.000,NFI=1.000,CFI=1.000,RMSR=0.000 ***p<0.001				

Table 5 CFA for behavior intention

variables	MLE estimation		Composite reliability	Average variance extracted
	Factor loadings	Measurement errors		
X13	0.92***	0.10	0.956	0.878
X14	0.96***	0.05		
X15	0.94***	0.08		
GFI=1.000,NFI=1.000,CFI=1.000,RMSR=0.000 ***p<0.001				

Table 4 to table 7 are the evaluation model of the four core concepts, with GFI valued 1.000, NFI valued 1.000, CFI valued 1.000, all acceptable, and RMSR valued 0.000. Every factor loading is significant; composite reliability lies between 0.785 and 0.956, higher than 0.7; average variance extracted lies between 0.590 and 0.926, higher than 0.5. Consequently, evaluation of the four core concepts has convergent validity.

4.3 Path Analysis

The first stage of analysis on reliability and validity has been concluded above that this study deletes those items of which reliability index of each observable variable in five latent variables is below 0.50 so that all CFA reaches the acceptable value. Those deleted items are X04, X08 and X12. This section begins with the second stage, analyzing Structural Equation Model (SEM) and verifying every hypothesis in this study. This study is conducted through

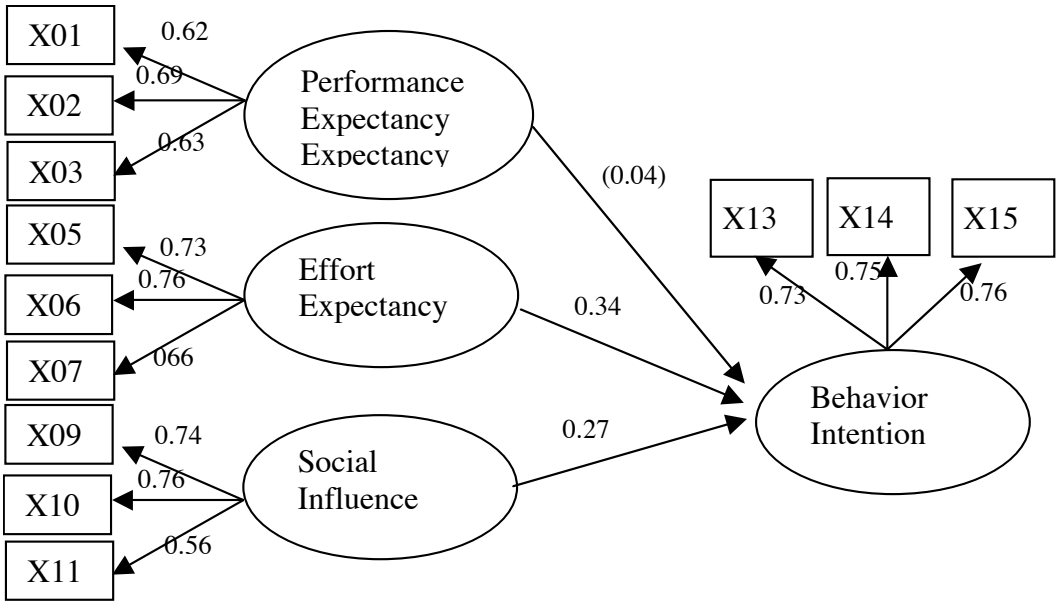
structural equation model to figure out overall relationship among models further to examine relationship among concepts proposed by UTAUT. This structural equation model analysis is combined with factor analysis and path analysis introduced in traditional statistics and further includes simultaneous equations of econometrics to work out relationship among a series of dependent variables at the same time, suitable for cause and effect of the whole model in this study. According to results of confirmatory factor analysis, path structural analysis has been carried out based on UTAUT and the outcome is as shown in table 6. Every index reaches ideal value, revealing good fitness in the structural model. It means there is good fitness between samples in this study and UTAUT model. This is an ideal model that research is capable of explaining cause and effect of latent variables such as performance expectancy, effort expectancy, social influence and the will to use.

Table 6 Overall model indices for the research model

	x^2	df	x^2 / df	GFI	AGFI	RMR	NFI	NNFI	CFI	RMSEA
Measurement model	98.95	48	2.061	0.97	0.95	0.021	0.99	0.99	0.99	0.047
Note_GGFI=goodness of fit index_FAGFI=GFI adjusted for degrees of freedom_F RMR=root mean square residual°FNFI=normed-fit index_FNNFI=non-normed-fit index°FCFI=Bentler's fit index°FRMSEA= root mean square error of approximation_C										

In this study, cause and effect among concepts is verified by structural equation model and impact value among concepts is estimated depending on standardized coefficient. The result is shows in figure 4, revealing that all the impact relationship among variables, except path relationship between performance expectancy and behavior intention, exists significantly. The one of these three variables that affects the will to use most is effort expectancy with path coefficient valued 0.34, and social influence the second with path coefficient valued 0.27.

Figure 4 path analysis of the research model



(All the standardized path coefficients of variables reach significant level as p<0.001. The parenthesized path coefficients are those do not reach significant level.)

Concerning R2 analysis, R-square value of behavior intention is 0.33, revealing that the explanatory power of concepts involved in this study's model to variation of the will to use is 33%(seen as table 7).

Table 7 UTAUT structural model path coefficient

constructs	hypotheses	standardized solution	t-value	R-square
Behavior Intention	0.31			
Performance Expectancy	H1	(0.04)	(0.76)	
Effort Expectancy	H2	0.34	6.16***	
Social Influence	H3	0.27	5.23***	

Note°G*** t value°÷3.29°Ap<0.001°F** t value°÷2.58°Ap<0.01°F* t value°÷1.96 ;p<0.1

Both effort expectancy and social influence have significant positive influence on behavior intention. The path coefficient of effort expectancy versus behavior intention is 0.34*** (p=0.000) and that of social influence versus behavior intention is 0.27*** (p=0.000), both positively influential. Hypotheses H2 and H3 cannot be denied.

5.Discussion and Conclusion

This study uses SEM to do confirmatory factor analysis and path analysis on selected models and their concept variables. According to the results, it informs that both effort expectancy and social influence have significant effects on behavior intention; that means how staff of integrated travel agencies feel hard as using Eee PC to do mobile learning and operating Eee PC has effects on how they accept doing mobile learning with Eee PC. Therefore, this study concludes that integrated travel agencies have to introduce system interface and operation aimed at various characteristics of the staff before bringing in new system. They have to do their best to make staff feel easy to do mobile learning, operate Eee PC and surf the Internet. The better staff feel doing mobile learning with Eee PC, the higher their will to use is.

What's more, social influence is also important when staff accept Eee PC and has significant positive effects on the will to use, revealing that how staff's peers, supervisors or friends feel and approve Eee PC using has effects on their will to use. As a result, this study suggests that integrated travel agencies have to do simple follow-up on staff's behaviors of using Eee PC and associate with mass media or digital learning suppliers to strengthen promotion of mobile learning via Eee PC for more potential staff. Once disagreement or negative attitude toward the new system is found, personal communication should be done to avoid spreading negative attitude toward the new system, further improving thoroughly their will to use Eee PC.

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