

# Studying the e-Bookstore Continuance Based on the Fitness and Satisfaction Evaluation

Ming-Chien Hung<sup>a</sup>, Fu-Mei Weng<sup>b</sup>, Ting-Chu Hsieh<sup>c</sup>, Miao-Ju Chang<sup>a</sup>

<sup>a</sup>Department of Information Management, Nanhua University, No.55, Sec. 1, Nanhau Rd., Dalin Township, Chiayi County 62248, Taiwan(R.O.C.)

*Email of corresponding author: chemyhmc {at} gmail.com*

<sup>b</sup>Department of Information Management, Wufen University, 117, Sec 2, Chiankuo Rd, Minhsiung, Chiayi County 62153, Taiwan(R.O.C.)

<sup>c</sup>Department of Applied Digital Media, Wufen University, 117, Sec 2, Chiankuo Rd, Minhsiung, Chiayi County 62153, Taiwan(R.O.C.)

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**ABSTRACT**— *With the swift progress of the mobile technology, the use of mobile devices, such as tablet PCs, ebook reader and mobile phones for electronic reading, has become an important part of everyday life. This study aims to examine the factors of accessing e-bookstore on users' satisfaction and continuous use. Task-Technology Fit model is used as a framework in this study. An on-line survey was conducted with the e-bookstore experienced readers. Perceptions toward e-bookstore technology were examined by survey questions. The path analysis was used to examine the relationship between factors affecting e-bookstore use. The results show that the e-bookstore service and individual characters affect satisfaction and intention to use positively. The surprising one shows that the task character has negative effect on the intention of e-bookstore service. The e-bookstore diffusion strategy was discussed. The finding provides acknowledged for e-bookstore owners to improve the e-bookstore usage.*

**Keywords**--- Continuance, e-Bookstore, Satisfaction, Task-Technology Fit

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## 1. INTRODUCTION

Since the technology of cloud computing rapid developed, people are no longer satisfied by traditional means of web content. Instead, vibrant images, music, and a dynamic way of accessing texts and images are now requested. The e-books are bound to become the new trend in reading in the future. An e-bookstore provides e-books on-line by using cloud computing technology. Customers use e-reader to read the e-books on-line. E-books can be read on various portable mobile devices, such as mobile phones, PDAs, tablet PCs and e-book readers or e-reader.

At the time of Amazon launching Kindle in 2007, digital reading and the e-books industry has been growing soon. However, the cost of e-books reader is still high and the contents of e-books are limited on literature or leisure subjects. The customers of e-books and e-readers are then narrowed on the group who with average-high income and education. The factors influence the customer segment now might affect the future user as well. In this study, the factors affecting e-books use are examined to provide a specific profile for e-books industry to focus on.

The Take Technology Fit (TTF) model argues that individuals will adopt a technology based on the fit between the technology characteristics and task requirements (Goodhue and Thompson, 1995). In other word, although users perceive a technology, they do not adopt it if they acknowledge that this technology is unfit with their tasks and cannot meet their interest. It is possible that these users may be utilitarian, and their adoption is not only determined by their perception and attitudes toward the technology but also by a good task technology fit. The e-bookstore provides a technology for individuals to search for their interest. The three constructs in TTF model are adopted in this study to examine the fit between e-bookstore and individual's reading requirement. The outcomes of e-bookstore use are examined by individual's satisfaction and the continuance usage. This present study is refined using TTF model by adding the construct of both on e-bookstore use.

## 2. LITERATURE REVIEW

The IT industry makes a great move to an attractive service – the cloud computing. 'Cloud' presents that users are able to access applications from anywhere on demand. The cloud computing technology then is takes as a service rather than the computers. Cloud computing provides an IT delivery model, enable real-time and any time delivery of products and services over the Internet. It has been suggested as a learning tool in community college.

One of the technologies is the emergence e-bookstore use. The e-books technology offers a new way for people to read. The e-books and e-reader have changed the delivery of books for both recreational and learning reading. Firstly the sales of adult e-books increased by 49.4% from 2011 to 2012 in the United States reported by the Association of American Publishers (2013). In Australia, the whole sale of e-books also has increased by more than 100% from 2008 to 2009 (Cox, 2010). Taiwanese government also announced a project to develop and urge the digital content industry. The project was named '2008 two trillion and twin star' which contains both international vision and development expectation of digital content industry. There is a change in terms of daily reading behavior.

The e-books reader secondly provides the technology to read the e-books. The most recent wave of e-books reader began with the Sony Reader in 2006 and Amazon's Kindle in 2007. Apple's iPad was launched as an e-reader in 2010 followed. Reading devices are getting prevalent. According to the 2010 Pew Internet and American Life survey, five percent of Americans own e-reader. Those who own e-reader have high income, about \$75000 annually, and high education degree, college degree. It presents that e-book readers are still a luxury item to many (Foasberg, 2011). Unlike e-journals that are now prevalent to researchers for academic information seeking, e-books are still an emerging technology with some barriers such as preference of paper books for long-form reading (McClanahan et al., 2010). The price of e-reader and the content of e-books might affect the continued intention to use it. As the e-books provide multimedia mode to read and more content than print book, the factors affect the continued intention to use it and users' satisfaction are interested and examined in this study. We then propose that continued use of e-books will depend on how individuals perceive the 'fit' of this new medium to the task that he/she undertakes.

### **2.1 TTF**

People use appropriate technologies in different ways to perform a task. The e-books technology is a way to achieve individuals' information need and meet their interest. The way how individual utilize e-books technology is as important as the fit with the task. Goodhue and Thompson(1995) proposed the TTF model to understand and make more effective use of information technology. It is an established theoretical framework to enable the investigation on the 'fit'-related issues and the performance. Prior studies have integrated TTF with other theories on the knowledge management system usage(Kuo and Lee, 2011). Other study has also suggested that both TTF and usage together better describe the effect of IT on individual task performance than does usage alone (D'Ambra and Wilson, 2004). In addition, TTF relationships can enlighten the links between tasks and technology fit. For example, a study examined the learning effect of a web courses tool on higher education setting. The result showed that the technology increased user utilization (Ngai et al., 2007).

### **2.2 Satisfaction and continuance use**

Once individuals use e-books, they might be satisfaction and would love to use again. The satisfaction of e-books and the continuance usage are the two evaluations on the outcome of this study. A study examined a comprehensive evaluation of user satisfaction and usability concerns related to top five e-books readers (Richardson Jr and Mahmood, 2012). Regardless the finding on the priority of the top five e-readers, the construct of satisfaction was used as a key issue for e-books usage. Customer satisfaction is also emphasized to influence the continued use (Yang et al., 2012). Using e-books to achieving the task individual pursues is examined in this study. Three factors of task characteristics, technology characteristics, and task-technology fit in TTF model are applied to examine the continued use of e-books. The outcomes of TTF which are performance and utilization, are ignored and replaced by satisfaction of e-books and continued intention in this study.

## **3. METHODOLOGY**

### **3.1 Research model and hypotheses**

A number of advantages have been widely claimed to be associated with e-books, such as convenience and portability, and potential advantages such as remote access, multimedia resources, portable resources, and convenient reading time, such as the period of traffic time. A study also investigated the effects of perceived convenience, compatibility and media richness on users' attitudes toward dedicated e-books readers. The results found that media richness and convenience enhanced the perceived usefulness of dedicated e-books readers (Arndt, 2012). In this multimedia content of e-books, our research argues that the media productivity and convenience are used to measure the e-books technology characteristics. There are other empirical evidences which indicate that, once individuals join to the technology, they enjoy it (Wilson, 2003).

In support of the above arguments we examine the satisfaction and continued intention with precedent construct of task, technology, and task-technology fit. The research model is shown in figure 1.

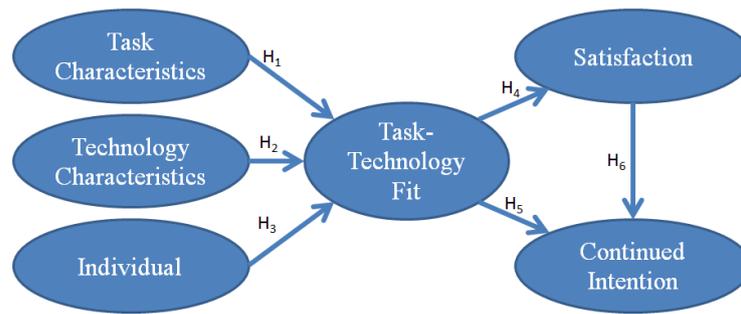


Fig. 1. Proposed research model

According to the proposed research model, there are six hypotheses in terms of this study. Three hypotheses are the relationships between task, technology, individuals and task-technology fit which are followed TTF model. The other two hypotheses are the relationships between the construct of task-technology fit and satisfaction and continued intention which are alternative from TTF model. The last one is between satisfaction and continued intention.

H<sub>1</sub>: Task characteristics have a significant effect on task-technology fit.

H<sub>2</sub>: Technology characteristics have a significant effect on task-technology fit.

H<sub>3</sub>: Individual characteristics have a significant effect on task-technology fit.

H<sub>4</sub>: Task-technology fit has a significant effect on satisfaction.

H<sub>5</sub>: Task-technology fit has a significant effect on continued intention.

H<sub>6</sub>: Satisfaction has a significant effect on continued intention

### 3.2 Measurement

The survey questionnaire was developed through three professors and researchers and was tested by 40 e-bookstore users. The pilot test was undertaken to examine the reliability and validity. The finished survey was conducted online. There were 336 participants who have experience on using e-books and e-books readers. The survey includes the sample demographics and the six constructs shown in proposal model. They are task, technology, task-technology fit, satisfaction, and continued intention.

The instruments of each construct were obtained from other experiential research and have been examined to meet the criteria of measurement.

Task is defined as actions in turning inputs to outputs to satisfy for the IT needs. The task for this study is the use of e-books to achieve personal need, such as learning and entertainment need. The two survey items are obtained from the study of Goodhue and Thompson (1995) to express the task of e-books, such as 'I frequently use e-books service to attain e-books for my interests'.

Technology is a tool which includes hardware, software, and data applying to carry out individuals' task. Its characteristics can affect usage and users perceptions of the technology. This proposition is the e-books technology which provide mobile device to read books. There are 17 survey items which includes two scales of media richness and convenience. The reliability were examined at the studies of Berry, Seiders et al. (2002) and Goodhue and Thompson (1995), such as 'The online bookstore made it easy for me to conclude my purchase', and 'I was able to get the benefits of the service with minimal effort'.

Individuals- The evaluation of e-books usage may vary depending on the abilities of an individual. Individuals who are more experienced in e-books usage affect the satisfaction and the continued intention. Such as 'The cloud bookstores provide vary collection and useful for my learning and recreation'.

Task-technology fit (TTF) is the correspondence between task requirements, individual experience, and the functionality of the e-books service. The scale is adopted from Goodhue and Thompson (1995) and D'Ambra and Wilson (2004). The items include such as, 'I can find e-books related to my hobbies and interests on the e-books service', 'The e-books service gives me access to e-books that I cannot find elsewhere', and 'By using the e-books I can avoid going to real bookstores'.

Satisfaction- Analysis results showed that user satisfaction was an important factor affecting mobile device continued intention (Kim, 2010). A study examined the expectation-confirmation model and explained that continued IT usage behavior and the results support satisfaction have significant effect on IT usage (Brown et al., 2012). The four scales are followed the study of Bhattacharjee (2001). This scale leveled respondents' satisfaction with five-point scales. It is

attached between four semantic differential adjective pairs: "very dissatisfied/very satisfied," "very displeased/very pleased," "very frustrated/very contented," and "absolutely terrible/absolutely delighted."

Continued intention-A study evaluated e-books readers' interest and preference for digital content. The results also presented that users' experience of e-books affects their continued intention (Shin, 2011). The expectation confirmation also affects the continued intention. The items are followed the study of Bhattacharjee (2001). They include 'I intend to continue using e-books rather than discontinue its use' and 'My intentions are to continue using e-books than use any alternative means'.

#### 4. RESULTS AND DISCUSSION

There were 336 participants returned and 16 ones were invalid and dropped. The 320 useful data were examined on the reliability and validity. On estimating the convergent and discriminant validity of the data, three criteria are applied. First, the eigen-value is greater than 1. Second, items with factor loadings of less than 0.5 among all factors are to be deleted. Last, items with factor loadings of greater than 0.5 and appearing for more than one factor are also to be deleted. Fourteen items were deleted in this data. The rest ones were shown in table 1.

Table 1 Results of reliability and validity test

Construct	Item#	Factor loading	CR	AVE	Cronbach's $\alpha$
Task (BA)	BA1	0.953	0.930	0.870	0.853
	BA2	0.911			
Technology (CA)	CA1	0.681	0.896	0.464	0.868
	CA3	0.682			
	CA4	0.615			
	CA8	0.676			
	CA12	0.640			
	CA13	0.623			
	CA14	0.734			
	CA15	0.774			
	CA16	0.712			
	CA17	0.660			
Individuals (DA)	DA1	0.835	0.932	0.774	0.903
	DA2	0.914			
	DA3	0.871			
	DA4	0.898			
TTF(EA)	EA2	0.578	0.860	0.512	0.794
	EA3	0.791			
	EA6	0.704			
	EA7	0.764			
	EA10	0.842			
	EA12	0.569			
Satisfaction(FA)	FA1	0.910	0.933	0.776	0.894
	FA2	0.840			
	FA3	0.924			
	FA4	0.839			
Continued intention (GA)	GA1	0.817	0.811	0.524	0.718
	GA2	0.830			
	GA4	0.626			
	GA5	0.590			

Three criteria were used to assess convergent validity. First, factor loadings of all standardized items should be higher than 0.7. Second, the composite reliability (CR) should be higher than 0.6. Third, the average variance extracted (AVE) should be higher than 0.5. For discriminant validity, the square root of AVE of each construct should be higher than the correlation coefficients between the particular construct and any other construct. Table 2 shows the values and all fit the requirement. Although the AVE value of the construct of technology characteristics is little less than 0.5 (0.464), the CR value is 0.896 (greater than the criteria of 0.6). It also presents an acceptance of the convergent. Table 1 shows the values.

After having established the reliability and validity of the data collected, Partial Least Squares (PLS) modeling was used to estimate the structural model. The R2 for dependent latent variables were used to assess predictiveness of the model.

The R2 of satisfaction (0.570) and continued intention(0.523) of this data are greater than 0.50. It represented a good model. The six hypotheses in this study are found significantly.

The figures on the line represent the path coefficients ( $\beta$ ), which identify the degree of effects between variables. The t-value is denoted in parenthesis. If t-value is greater than 1.96, it presents the significance level of 0.05. As shown in figure 2, these two constructs, technology characteristics and individual characteristics, have positively relationship with TTF. The coefficients are 0.542 and 0.148 respectively. Conversely, the construct of task characteristics is negatively associated with TTF ( $\beta = -0.263$ , t-value>1.96).It presents that the lower degree of task characteristics has higher degree of TTF. Due to the cost of e-readers and the content of e-books, people are still used to read through paper book. In addition, the professional books are still on paper-form and the e-books more related to literature and recreational contents. Thus the relationship is negative between these two constructs. It implies that the e-books industry may invest on the professional work and individual learning work. The technology of e-books may increase the demand once the cost of e-readers downs.

The construct of TTF also has positively effects on satisfaction ( $\beta = 0.755$ , t-value>1.96) and continuance ( $\beta = 0.539$ , t-value>1.96). The one between satisfaction and continued intention is also positive ( $\beta = 0.224$ , t-value>1.96).

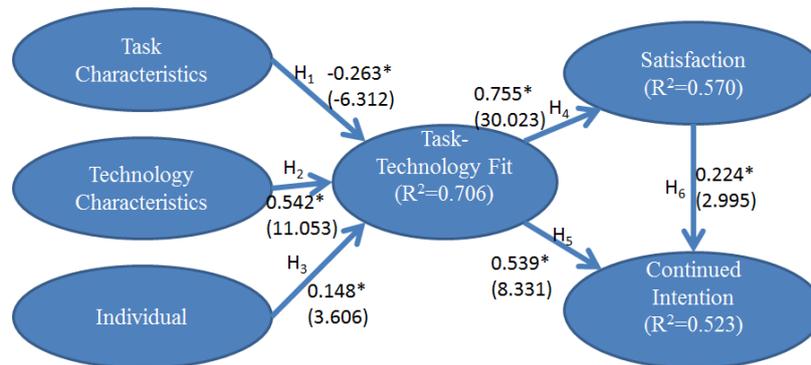


Fig. 2. PLS analysis of research model

Rapid growth of tablet PC, smart phones or other mobile device presents the products and services are demanding heavily. The launch news of mobile devices spread widely. Many magazines and the media network news make consumers more excited to expect a new technology. E-books industries, such as content providers, hardware manufacturers, keep launching of products and services to promote the sales.

E-books service provides many functions for individuals to meet their interest and manage their online bookshelf. The higher the level of services they use, the degree of their satisfaction is higher. Although consumers can not currently found the e-books for work or study on the cloud bookstores, the majority of users are still holding an expectation to use.

According to the results, the e-Books industry can invest and focus on the followings. Enhancing both hardware and software of e-books and reducing the price of them can boost the industry. As the white collars are the majority on e-books market, meeting their job needs and providing professional training will catch the e-books market. In addition, customer segments demand vary contents of e-books. White collars, students, researcher, and specialist ask for specific domain of content. Consequently, e-books manufactures can adopt an external function which consumers can obtain by their own interest to prevent from losing the potential market.

## 5. CONCLUSIONS

A certain technical level with regard to e-books readers with electronic paper displays and wireless internet functions, not only is technical support important, but understanding the content that consumers' expectation is also an important factor. The e-bookstore service brings people a convenient way to read. During the traffic time or little segment time, it provides not only convenient but also multimedia content for reading. However, the cost is still high and the contents are limited on literature or leisure subjects.

The fit between e-books service features and customers' interest is examined in this study in terms of satisfaction and continued intention. This study adopts the TTF outlook as it is an influential model to analyze adoption and use behavior of an information technology. In this study TTF is partially used to develop and validate a multidimensional TTF construct in e-books context. Three antecedent constructs are adopted from TTF. They are task characteristics, technology characteristics, and task-technology fit. The outcomes of e-books usage are evaluated by satisfaction and continued intention. They are adopted from expectation-confirmation model which emphasizes the satisfaction has significant effect on continuance. In this study, these two constructs are used to examine if the e-books services meet customers' interest and satisfaction and the relationships between each of them.

The on-line survey was conducted and participants were selected if they have experience on using e-books service. Total of 320 useful data was analyzed. The coefficients of hypothesis are all significant. The only negative relationship is between the construct of task characteristics and task-technology fit. The lower the task characteristics is, the higher task-technology fit is. Most people are still used to print books which can make bookmarks and easy to move forward and backward. In addition, the professional books are still on paper-form and the e-books more related to literature and recreational contents. The e-books industry then may capitalize on the content of e-books of professional work and personalized learning work.

According to the results, the TTF model delivers an improved understanding on the fit between e-bookstore service and individual interest. Moreover, low price of e-readers could attract more potential readers. In addition, the multidimensional content could also add customers who with vary professionals. The e-bookstore industry may advance the content and service to customers.

## 6. ACKNOWLEDGMENTS

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