南華大學出版與文化事業管理研究所碩士論文

A THESIS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION GRADUATE INSTITUTE OF PUBLISHING & CULTURAL ENTERPRISE MANAGEMENT STUDIES, NAN HUA UNIVERSITY

以結構方程模型分析數位閱讀行為－以 iPad2 為例

An Analysis of the Digital Reading Employing Structural Equation Modeling - An Example of iPad2

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中　華　民　國　一　〇　一　年　六　月

南　華　大　學

出版與文化事業管理研究所

碩士學位論文

以結構方程模型分析數位閱讀行為—以 iPad2 為例

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口試日期：中華民國　101　年　5　月　20　日

準碩士推薦函

本校出版與文化事業管理研究所研究生 陳偲筑 君在本所修業2年，已經完成本所碩士班規定之修業課程及論文研究之訓練。

1、在修業課程方面： 陳偲筑 君已修滿 36 學分，其中必修科目：論文導讀與討論、出版與文化事業管理、研究方法、專題研討與論文計劃、資訊需求與消費行為研究等科目，成績及格（請查閱碩士班歷年成績）。

2、在論文研究方面： 陳偲筑 君在學期間已完成下列論文：

（1）碩士論文： 以結構方程模型分析數位閱讀行為－以 iPad2 為例

（2）期刊發表：網路書店服務品質、滿意度、服務價值與行為意向關係。「文化事業與管理研究」，第八期，2011 年 12 月。

本人認為 陳偲筑 君已完成出版與文化事業管理學系碩士班之碩士養成教育，符合訓練水準，並具備本校碩士學位考試之申請資格，特向碩士資格審查小組推薦其初稿，名稱：以結構方程模型分析數位閱讀行為，以參加碩士論文口試。

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中華民國 101 年 5 月 4 日

南華大學出版與文化事業管理研究所100學年度第2學期碩士論文

摘　要

論文題目：以結構方程模型分析數位閱讀行為－以iPad2為例

研究生：陳俛筑　　**指導教授：黃昱凱　博士**

論文摘要內容：

隨著網際網路越趨發達，許多大學校園架構無線網路設備，提供無線上網的環境。為了要讓學生有更多的學習資源，台灣某私立大學提出了100學年度入學的大一新鮮人每人贈送一台iPad2的政策，這個政策的目的是要鼓勵新生自主學習，藉此提高學習效率與競爭力。

在此政策下，本研究的目的是要了解大一新生使用iPad2進行閱讀活動的情形。我們運用科技接受模型探究使用者的知覺易用性、知覺有用性以及使用態度之間的關係。此外，我們還使用重要度-滿意度分析來了解使用者在使用 iPad2進行閱讀活動後，他們所在意的功能為何。

研究結果發現，(1)男性及女性的知覺易用性和知覺有用性都對使用態度有正向影響，且知覺易用性亦對知覺有用性有正向影響；(2)對男性和女性來說，兩者結果相似，知覺易用性對於知覺有用性有最高的路徑係數，其次為知覺有用性對使用態度，而最低的路徑係數在於知覺易用性對使用態度的路徑中；此外，女性及男性兩者在知覺易用性對知覺有用性的影響是差不多的，而知覺有用性對於使用態度的影響則是女性高於男性，但在知覺易用性對於使用態度的影響方面卻相反，是男性高於女性；(3)根據重要度-滿意度分析，落於第一象限的兩個屬性“有許多免費資源可供下載”及“有公平和明確的退貨規範” 是所有分群的受訪者都認為需要優先改進，而落於第二象限的“閱讀的流暢度”功能應該繼續保持。

關鍵字：iPad2、科技接受模型、結構方程模型、重要度-滿意度分析

Title of Thesis : An Analysis of the Digital Reading Employing Structural Equation Modeling – An Example of iPad2

Name of Institute : Graduate Institute of Publishing & Cultural Enterprise Management Studies Nan Hua University

Graduate date : June 2012 **Degree Conferred :** M.B.A.

Name of student : Yi-Zu Chen **Advisor :** Ph. D. Yu-Kai Huang

Abstract

With the internet becoming more developed, wireless network are also being built in most of the colleges and universities. In order to provide freshmen much more resources for learning, a policy of a private university in Taiwan regulated that every freshmen received an iPad2 when they entered. The purpose of the policy is to encourage freshmen to learn autonomously for improving learning effectiveness and competitiveness.

Base on the situation above, the objectives of this study is to understand the conditions of reading on iPad2. We employed technology acceptance model to explore the relationship between users' perceived ease of use, perceived usefulness and attitude toward use. In addition, we also used importance-performance analysis to comprehend the users' preferences of the function after they use iPad2 to read.

Salient results include: (1) Both males and females' perceived ease of use and perceived usefulness had positive effect on attitude toward use, and perceived ease of use also had positive effect on perceived usefulness; (2) For both males and females, the same results were acquired in that perceived ease of use had the highest path coefficient to perceived usefulness, followed by perceived usefulness to attitude toward use, and perceived usefulness had the lowest path coefficient to attitude toward use. In addition, both males and females' perceived ease of use had similar effects on usefulness, and females' perceived usefulness had more effect on attitude toward use than males. But perceived ease of use to attitude toward use is the opposite,

of which males' path coefficient was higher than females'. (3) According to importance-performance analysis, each group of respondents represent that there are many free resources available for download and there is an explicit and fair return standard need to be improved preferentially which fall in quadrant Ⅰ (concentrate here); respondents also represent that the function of fluency of reading should be maintained which fall in quadrant Ⅱ (keep up the good work).

Key words: iPad2, Technology Acceptance Model, Structure Equation Modeling, Importance-Performance Analysis

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Chapter 1 Introduction

This chapter introduces research background and motivation in the first section, research purposes in the second section, and the last section is research procedures.

1.1 Research Background and Motivation

With the internet becoming more developed, wireless network is also being built in most of the colleges and universities. In order to provide freshmen much more resources for learning, a policy of a private university in Taiwan regulated that every freshman received an iPad2 when they entered. The purpose of the policy is to encourage freshmen to learn autonomously for improving learning effectiveness and competitiveness. Through the wireless network, students who have the device (e.g., iPad2, notebook, or smart phone etc.) could learn anytime and everywhere.

According to the website reports , some students think it was a good policy because the device presented by school might help students reduce the burden of computer equipment purchasing. And some students also considered iPad2 was a good learning tool not only for the entertainment, but also combined learning resources. (Source: http://main.nhu.edu.tw/front/bin/ptdetail.phtml?Part=20111007)

Lin, Chiao-Wen (2011) mentioned that with the advance of information and communication technologies, people are more familiar with electronics that enable them to read books, such as computers, phones, and other mobile devices. Because the era of cloud computing is coming, we can download online files to read from E-books. In addition, Kindle, iPad or smart phones have been sold well worldwide, and this has forced the industry to increase the numbers of e-books to reinforce competition.

IPad introduced by Apple Inc. in 2010, and iPad2 was in 2011. Huang, Yu Lin (2010) did a study of the wave of digital reading – iPad. The findings of the study are as follow. First, iPad expanded reading population. People who do not read books in the past, or people do not touch e-books before, probably because of the curiosity about iPad, they will start to read books with iPad. In another word, iPad has expanded reading population. More and more people start to read news, magazines, books with iPad, because it is so convenient. Second, iPad enriches the reading content: including audio, video and interactive design. IPad makes reading broad and rich. Reading is no longer limited to static, text, black and white, but colorful, filled with video and even interactive. IPad enriches the content-of reading. Third, iPad brought the completion of digital reading behavior of modern people. IPad, between the small, mobile cellphones and strong and powerful computers, plays the key role of the readers' reading behavior, providing the so-called seamless reading, which offer the iPad users to read anytime, anywhere, so that the readers can access informations in different situations. IPad brought the completion of digital reading behavior of people. The study also mentioned that iPad offers modern people to build a efficient management of individual reading life. IPad can stimulate the reaeder's motivation, improve their interest. With iPad, people can experience richer and more exciting reading life.

1.2 Research Objectives

The objectives of this study is to understand the conditions of reading on iPad2, in other words, we employed technology acceptance model to explore users' perceived ease of use, perceived usefulness and attitude toward use. In addition, we also use importance-performance analysis to comprehend users' preferences of the function after they use iPad2 to read.

Base on the research background and motivation, there are three objectives for this study:

1. Use the structure equation model (SEM) to explore the relationship between the perceived ease of use, perceived usefulness and attitude toward use when the freshmen use iPad2 to read.

2. To investigate the relationship among perceived ease of use, perceived usefulness and attitude toward use between males and females.

3. Use importance-performance analysis to examine which functions are users focused.

1.3 Research Procedures

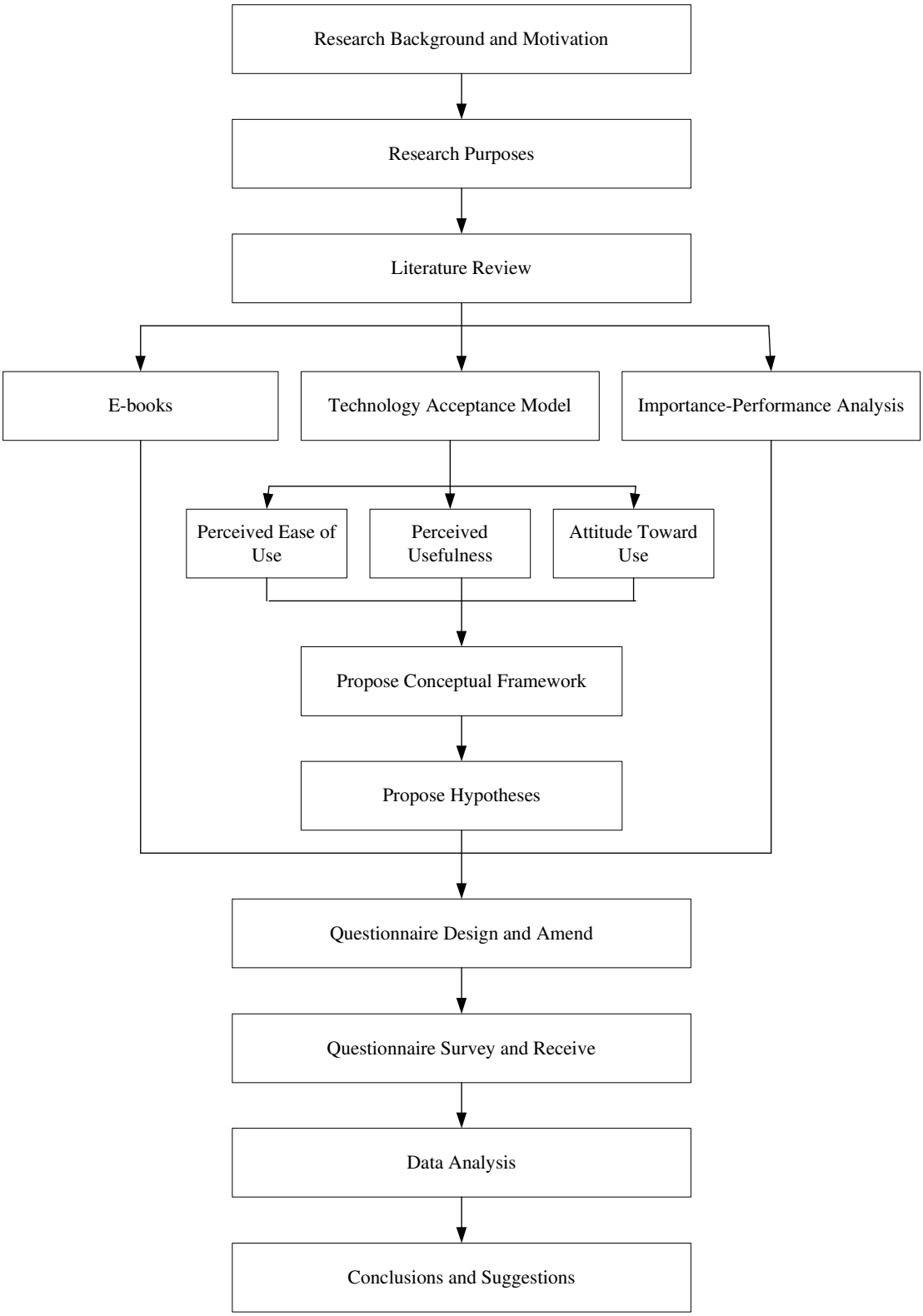


Figure 1-1 Research procedure

Chapter 2 Literature Review

This chapter will review an existing literature. The first section represents E-books, the second section demonstrates importance-performance analysis, the third section shows technology acceptance model.

2.1 E-Books

The initial idea of an e-book was defined by Bush (1945) with a random name of the device called “Memex”. Bush expressed that a memex is a device in which an individual stores all his books, records, and communications, and which is mechanized so that it may be consulted with exceeding speed and flexibility.

The market for these electronic devices boomed when big companies such as Amazon (Kindle) and Apple (iPad) decided to participate in the market.

Table 2-1 Digital Readers

Device / brand	Manufacturer	For more information
Kindle	Amazon	www.amazon.com
Sony Reader	Sony	www.sonystyle.com
iPad	Apple	www.apple.com/ipad

E-books related research are as follows:

Johannes Martinus Potgieter (2010) conducted a research focused on the recreational market segment and it analyzes four constructs, namely perceived

usefulness, relative advantage, ease of use and social factors influencing the usage and behavioral intention of people living and working in Taiwan, Republic of China. The findings of this study indicate that the influence of perceived usefulness on behavioral intention is indeed stronger for the younger generation. Furthermore the effect of relative advantage on behavioral intention is not necessarily moderated by age, since the effect is the same for both groups and the effect of perceived ease of use on behavioral intention is more or less the same across cultures. Distinguishing between the 'level of acceptance' of males and females are not too easy, because it is most likely being moderated by age, and not gender. As for the influence of Social factors on usage, it is also not that easy to distinguish between the 'level of acceptance' of foreigners in Taiwan compared to Taiwanese citizens. The market is complex and people prove to have the same preferences, irrespective of culture.

Zinn and Langdown (2011) conducted a research to investigate the use of e-books amongst academic librarians; in particular which e-books are available to academic librarians, why they choose this format, what impact e-books have on librarians' professional practice and what the usage patterns of e-books are amongst academic librarians. The results reflect a more gradual trend towards e-book adoption. There is still a preference for print or a "bit of both" – print and electronic. This is because of the high costs of e-books using the subscription model as the predominant e-book acquisition model and the lack of sufficient e-books in all subject fields. E-books are used for "browsing for information" and are selected for functionalities such as having the ability to search the document, anytime access and automatic citation. Major problems identified with e-books are: the cost of the equipment to read e-book formats; the cost of the e-books, especially if the subscription purchasing model is used; the lack of reliability of the Internet; and the lack of training in the use of e-books.

Larson (2010) considered that e-books have the potential to unveil an array of

new teaching and learning possibilities as traditional and new literacy skills are integrated in meaningful ways. Findings suggested that using digital reading devices with second-grade students promotes new literacies practices and extends connections between readers and text as engagement with and manipulation of text is made possible through electronic tools and features. The Kindle tools invited Amy and Winnie to engage with the text and put the reader in greater control than when reading printed text.

Folb, Wessel and Czechowski (2011) conducted a research to assess the use of the Health Sciences Library System (HSLS) electronic book (e-book) study and factors affecting use, of e-books by all patron groups of an academic health sciences library serving both university and health system-affiliated patrons. The results showed that respondents' willingness to use alternate formats, if convenient, suggests that libraries can selectively reduce title duplication between print and e-books and still support library user information needs, especially if publishers provide features that users want. Marketing and user education may increase use of e-book collections.

Foasberg (2011) surveyed students at one large, urban, four-year public college in order to learn whether e-book readers have become widely popular among college students. The survey asked whether the student owned e-book readers and if so, how often they used them and for what purposes. Thus far, uptake is slow; a very small proportion of students use e-readers. These students use them primarily for leisure reading and continue to rely on print for much of their reading. Students reported that price is the greatest barrier to e-reader adoption and had little interest in borrowing e-reader compatible e-books from the library.

2.2 Importance-Performance Analysis

Importance-performance analysis was introduced by Martilla and James (1977), which is used to understand the degree of customer satisfaction and judge their importance. Take advantage of the horizontal and vertical axes to produce a four-quadrant matrix that demonstrated the area needing improvement or had high performance. By using a central tendency e.g. mean, median or a rank-order measure, the attribute importance and performance scores are ordered and classified into high or low categories; then by pairing these two sets of rankings, each attribute is placed into one of the four quadrants of the importance performance grid (Crompton and Duray, 1985).

Lovelock et al. stated in 1998 that importance-performance analysis is an especially useful management tool to "direct scarce resources to areas where performance improvement is likely to have the most effect on overall customer satisfaction" (Kitcharoen K., 2004). By identifying attributes that should be emphasized or de-emphasized, IPA guides the prioritization and development of action plans to minimize mismatches between importance and performance (Graf et al., 1992; Skok et al., 2001). According to Barsky (1995), lower importance ratings are likely to play a lesser role in affecting overall perceptions, while higher importance ratings are likely to play a more critical role in determining customer satisfaction. This matrix is used to improve operational efficiencies through resource redeployment recommendations (Graf et al., 1992; Slack, 1994) and can provide guidance for strategy formulation (Burns, 1986). In our study, the elements are cases when students used iPad2 to read. Additionally, IPA has been applied to a diverse range of contexts as follows :

Yuan-Chih Huang and Dr. Chih-Hung Wu and Dr. Jovan Chia-Jung Hsu (2006) used importance-performance analysis in evaluating Taiwan medium and long

distance national highway passenger transportation service quality. The results showed that the resources used for reinforcing the air-conditioning effect, vehicle interior illumination, ticket purchase convenience should be lessened, and the resources should be applied for improvement of vehicle interior noise pollution, vehicle washroom sanitation, station waiting lounge cleanliness, ticket price structure, driver's traveling habits. This signifies that in the first quadrant wherein the customers' importance degree for the service attributes is high and the entrepreneurs' performance is also high, like emergency exit facilities, seat comfortableness, vehicle interior cleanliness, traveling route, traveling safety, traveling steadiness, embarkation and disembarkation points convenience, total 7 items, entrepreneurs should just keep on maintaining this service quality. In the third quadrant wherein customers have low importance degree for the service attributes and the entrepreneurs have low performance too, like vehicle external appearance, vehicle signs, vehicle in-house movie, reservation convenience, rest stop service, service personnel's attitude, diver's service attitude, trip timetable data service, vehicle audio visual entertainment facilities, total 9 items, entrepreneurs should delay the resources used in this and should not be overly focused on.

Kitcharoen (2004) used a modified IPA model for a sample of students and staff of ten randomly selected Thai universities to investigate the importance of service attributes for service providers' and student's evaluation of services. The key results were that students had lower mean data of all performance attributes (i.e., tangibles, reliability, responsiveness, assurance, empathy) than university staff members, while the importance attributes, students had higher mean data of some attributes (i.e., reliability, responsiveness, empathy) than staff members. These findings may be concluded that students had higher perception about the importance attributes of a service quality than staff members but lower perception about the performance attributes than staff members. Moreover, students suggested that some service attributes would be improved including reliability (e.g., attention to details of the

service delivery by staff members), responsiveness (e.g., willingness of staff members to provide services in a timely manner, ease of contact (accessible at any time) of staff members), assurance (e.g., levels of courtesy, politeness, and respect received by students), and empathy (e.g., approachability of staff members, sincere interest in solving the problems of students by staff members, staff members pay attention to individual needs of students).

Nancy and Simha (2004) used IPA to evaluate e-business strategies among small organizations. The results indicate that customer-focused motivations are most important in adopting e-business; improving profitability is least important. Moreover, the results indicate that small organizations, while recognizing the potential for more sophisticated uses, are in the early stages of implementing e-business.

Christina (2006) used IPA to analyze coral reef valuation and perceptions of the tourism industry in Akumal and Mexico. These results indicate that participants were not completely satisfied with their programs. This quadrant inferred that the dive shops could improve their performance by providing signage and a variety of equipment that is in proper working condition. It appears that clients would like to participate in smaller groups and experience longer dives. There was also an indication that the multilingual abilities of the shops' staff and guides would also improve the divers' experience.

2.3 Technology Acceptance Model

The Technology Acceptance Model (TAM) has been the most widely adopted theoretical framework to study technology acceptance. Davis introduced the model originally in 1986. For many years researchers have concentrated on identifying the conditions or factors that could facilitate technology integration into business (Legris, Ingham, Collerette, 2003). Among various efforts to understand the process of user acceptance of information technology systems, the TAM (Dives, 1989) is one of the most researched theoretical frameworks.

The goal of TAM is to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behavior across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified (Davis, 1989). The model is conceptually grounded in the Theory of Reasoned Action (TRA; Ajzen and Fishbein, 1980). It describes how user beliefs and attitudes are related to individuals' intentions to perform. Davis et al. (1989) developed the TAM to address the issue of how users come to accept and use a technology. Since Davis' (1989) introduction of the model, extensive research has been conducted to empirically support the model through validations, applications and replications across a variety of settings for information technology acceptance (Chau, 1996; Davis, 1993; Davis, Bagozzi and Warshaw, 1989; Moon and Kim, 2001; Van der Heijden, 2004; Zhang and Mao, 2008).

Two specific variables, perceived usefulness and perceived ease of use, were hypothesized to be fundamental determinants of user acceptance (Davis et al., 1989). Perceived usefulness (PU) is defined as "the prospective user's subjective probability that using a specific application system will increase his or her job performance within an organizational context", while perceived ease of use (PEU) refers to "the degree to which the prospective user expects the target system to be free of effort"

(Davis, Bagozzi and Warshaw, 1989).

Many researchers have conducted empirical studies to examine the explanatory power of the TAM, which produced relatively consistent results on the acceptance behavior of information technology end users (Igbaria, Zinatelli, Cragg, & Cavaye, 1997; Venkatesh & Davis, 2000; Horton, Buck, Waterson, & Clegg,2001). That is, TAM provided an explanation of the determinants of technology acceptance that enables explanation of user behavior across a wide scope of end-user information technologies and user populations (Davis et al.,1989).

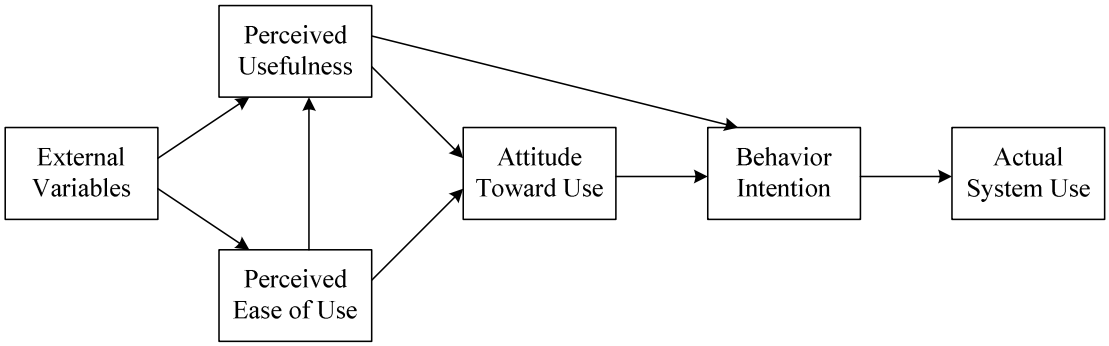


Figure 2-1 Technology acceptance model

TAM has been applied to a diverse range of contexts as follows :

Kwak and McDaniel (2011) used an extended technology acceptance model in exploring antecedents to adopting fantasy sports league websites. This research examines antecedents to consumer adoption of a popular form of online entertainment – fantasy sports leagues. Employing Davis' (1989) technology acceptance model as a theoretical framework, the study found that attitude toward the televised sport (American professional football), perceived ease of using in relation to fantasy sports websites, perceived knowledge of the sport and subjective morns all played a role in explaining participants' attitudes and behavioural intentions towards playing fantasy football.

Teo (2010) used TAM to examine pre-service teachers' attitudes to computers. Results showed that pre-service teacher viewed computers to be useful and their attitudes were significantly influenced by this perception. This study found that pre-service teachers' perceived ease of use had significant effects on perceived usefulness and attitude to computers. The significant relationship between perceived ease of use and attitude to computers is a logical one and supports current research that a positive attitude to computers is associated with perceived ease of use.

In the same year, Teo (2010) used TAM as a research framework to investigated pre-service teachers' intention to use technology. In examining the relationships among the constructs in the TAM, this study found that perceived usefulness and perceived ease of use, and attitude towards computer use were key determinants of behavioral intention. The results showed that the variance in the dependent variable, intention to use, was explained by attitude towards computer use, perceived usefulness, and perceived ease of use. That is, the technology acceptance model is suitable model to be used to explain the intention to use technology among volitional users such as the participants in this study.

Yuen and Ma (2008) used the technology acceptance model (TAM) as the core framework for analysis while additional constructs were added in order to find a better model to understand teacher acceptance of e-learning technology. A composite model including five constructs, namely, intention to use, perceived usefulness, perceived ease of use, subjective norm and computer self-efficacy, were formed and test in the study. Results showed that subjective norm and computer self-efficacy serve as the two significant perception anchors of the fundamental constructs in TAM. However, contrary to previous literature, perceived ease of use became the sole determinant to the prediction of intention to use, while perceived usefulness was non-significant to the prediction of intention to use. Altogether, subjective norm, computer self-efficacy and perceived ease of use were able to explain 68% of the

variance observed in users' intention to use the e-learning system.

Park (2009) used an analysis of the technology acceptance model in understanding university students' behavioral intention to use e-learning. The general structural model, which included e-learning self-efficacy, subjective norm, system accessibility, perceived usefulness, perceived ease of use, attitude, and behavioral intention to use e-learning, was developed based on the technology acceptance model (TAM). The result proved TAM to be a good theoretical tool to understand users' acceptance of e-learning. E-learning self-efficacy was the most important construct, followed by subjective norm in explicating the causal process in the model.

Summary

Through literature review, we find that e-book, importance-performance analysis and technology acceptance model were widely used in many researches. In our study, using iPad2 to read is a similar concept to e-book. We use importance-performance analysis to examine which elements should be emphasized or de-emphasized, and then make resource allocation recommendations. As for technology acceptance model, we want to understand the relationship between perceived ease of use and perceived usefulness, perceived usefulness and attitude toward use, perceived ease of use and attitude toward use when users' use iPad2 to read. In addition, we also explore the difference between males and females.

Chapter 3 Methodology

This chapter introduced research framework in the first section, importance-performance analysis in the second section, factor analysis in the third section, reliability in the fourth section, validity in the fifth section, structural equation modeling in the sixth section, and the last section is data collection.

3.1 Research Framework and Hypothesis

The purpose of this study discusses users' perceived ease of use and perceived usefulness on attitude toward using iPad2 to read. Attitude toward use (A) was influenced by perceived usefulness (U) and perceived ease of use (E) respectively. And perceived usefulness (U) was influence by perceived ease of use (E). According to the literatures, this research adapts revised TAM model to this research framework. The research framework is presented in Figure 3-1.

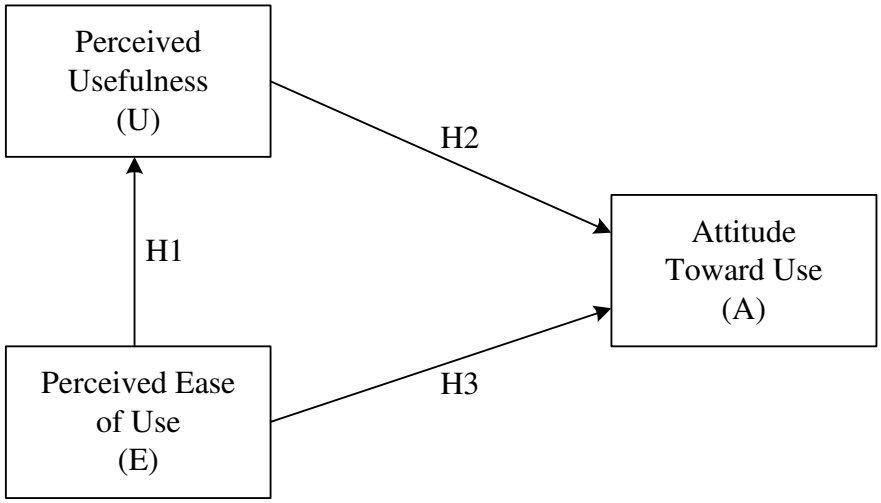


Figure 3-1 Research framework

Park (2009) used a analysis of the technology acceptance model in understanding university students' behavioral intention to use e-learning. The study presents that both perceived ease of use and perceived usefulness were found significant in affecting user attitude, and perceived ease of use also had effect on perceived usefulness.

Chin-Chung Chang (2002) used TAM to verify the exploration results of teachers' and students' attitude about digitalized teaching materials. The results showed that both perceived ease of use and perceived usefulness were found significant in affecting user attitude, and perceived ease of use also had effect on perceived usefulness.

Yu-Hua Lee (2007) used TAM to understand the major factor which influences the consumers to adopt the e-reading. The research presented that both perceived ease of use and perceived usefulness had positive effect on users' attitude.

Ming-I Kao (2006) explored the influence factors of experience economy on the digital content product with the TAM extension as an example of online comics. The results showed that both perceived ease of use and perceived usefulness had significant effect on users' attitude.

According to the studies above, the hypothesis of this study are as follow:

H 1-1: Perceived ease of use has positive affected on perceived usefulness among males.

H 1-2: Perceived ease of use has positive affected on perceived usefulness among females.

H 2-1: Perceived usefulness has positive affected on users' attitudes toward using iPad2 to red among males.

H 2-2: Perceived usefulness has positive affected on users' attitudes toward using iPad2 to red among females

H 3-1: Perceived ease of use has positive affected on users' attitudes toward using iPad2 to read among males.

H 3-2: Perceived ease of use has positive affected on users' attitudes toward using iPad2 to read among females.

3.2 Importance-Performance Analysis

Through mean idea, a survey instrument is developed to collect importance and performance ratings on each element from the sample, often using Likert or numerical scales (Skok et al., 2001).

As shown in Figure 3-2, mean performance and importance scores are used as two-dimensional grid to plot the elements on a four-quadrant separately. X-axis is the degree of performance which increased from left to right and Y-axis is the degree of importance which increased from bottom to top.

Quadrant Ⅰ (high importance / low performance) is labeled “Concentrate here”. Elements located in this quadrant represent key challenges that require immediate corrective action and should be given top priority (Graf et al., 1992).

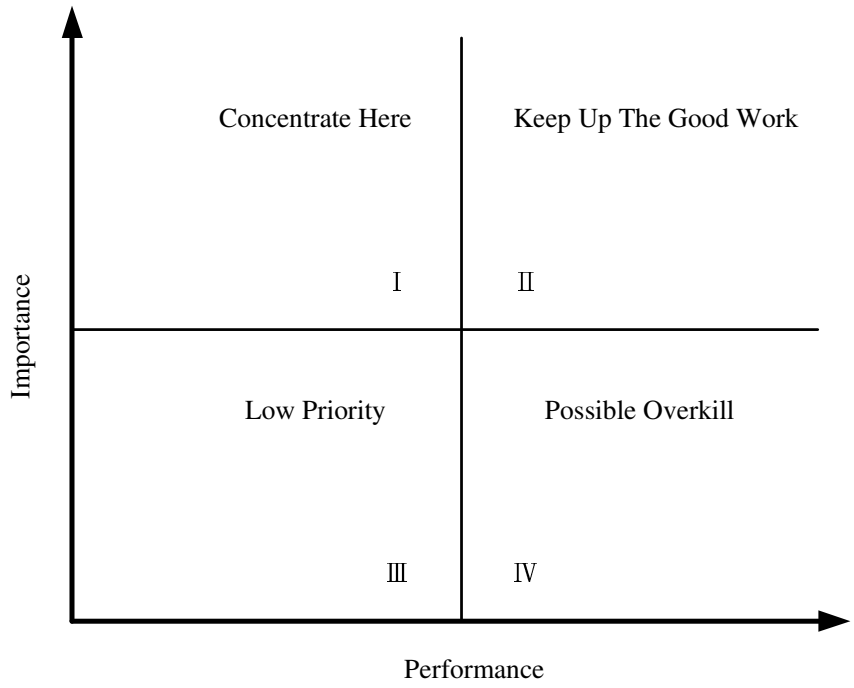


Figure 3-2 Importance-performance analysis grid

Quadrant Ⅱ (high importance / high performance) is labeled “Keep up the good work,” contains elements that are strengths to the organization, and calls for maintenance posture (Graf et al., 1992).

If elements positioned in quadrant Ⅲ (low importance / low performance) do not represent a threat to the organization (Barsky and Labagh, 1992), they may be candidates for discontinuation of resources / effort (Crompton and Duray, 1985). This quadrant is labeled “Low priority.”

Quadrant Ⅳ (low importance / high performance), labeled as “Possible overkill”, contains elements that are insignificant strengths to the organization and suggest areas from which resources could be diverted elsewhere. This matrix is used to prescribe prioritization of attributes for improvement (Slack, 1994) and can provide guidance for strategy formulation (Burns, 1986).

3.3 Factor Analysis

Factor analysis is an interdependence technique whose primary purpose is to define the underlying structure among the variables in the analysis. We introduce factor analysis as our first multivariate technique because it can play a unique role in the application of other multivariate techniques. Broadly speaking, factor analysis provides the tools for analyzing the structure of the interrelationships (correlations) among a large number of variables (e.g., test scores, test items, questionnaire responses) by defining sets of variables that are highly interrelated, known as factor. These group of variables (factors), that are by definition highly intercorrelated, are assumed to represent dimensions within the data. If we are only concerned with reducing the number of variables, then the dimensions can guide in creating new composite measures. On the other hand, if we have a conceptual basis for understanding the relationships between variables, then the dimensions may actually have meaning for what they collectively represent. In the latter case, these dimensions may correspond to concepts that cannot be adequately described by a single measure (e.g., store atmosphere is defined by many sensory components that must be measured separately but are all interrelated). We will see that factor analysis presents several ways of representing these groups of variables for use in other multivariate techniques (Hair et al., 2006).

The general purpose of factor analytic techniques is to find a way to condense (summarize) the information contained in a number of original variables into a smaller set of new, composite dimensions or variates (factors) with a minimum loss of information – that is, to search for and define the fundamental constructs or dimensions assumed to underlie the original variables. In meeting its objectives, factor analysis is keyed to four issues: specifying the unit of analysis; achieving data summarization and / or data reduction; variable selection; and using factor analysis

results with other multivariate techniques (Hair et al., 2006).

We should note at this point that factor analytic techniques can achieve their purposes from either an exploratory or confirmatory perspective. A continuing debate concerns the appropriate role for factor analysis. Many researchers consider in only exploratory, useful in searching for structure among a set of variables or as a data reduction method. In this perspective, factor analytic techniques "take what the data give you" and do not set any a priori constraints on the estimation of components or the number of components to be extracted. For many - if not most – applications, this use of factor analysis is appropriate. However, in other situations, the researcher has preconceived thoughts on the actual structure of the data, based on theoretical support or prior research. For example, the researcher may wish to test hypotheses involving issues such as which variables should be grouped together on a factor or the precise number of factors. In these instances, the researcher requires that factor analysis take a confirmatory approach – that is, assess the degree to which the data meet the expected structure (Hair et al., 2006).

3.3.1 Exploratory Factor Analysis

Exploratory factor analysis (EFA) explores the data and provides the researcher with information about how many factors are needed to best represent the data. With EFA, all measured variables are related to every factor by a factor loading estimate. Simple structure results when each measured variable loads highly on only one factor and has smaller loadings on other factors (i.e., loadings < .4) (Hair et al., 2006).

The distinctive feature of EFA is that the factors were derived from statistical results, not from theory, and so they can only be named after the factor analysis is performed. EFA can be conducted without knowing how many factors really exist or which variables belong with which constructs (Hair et al., 2006).

3.3.2 Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) is a way of testing how well measured variables represent a smaller number of constructs. CFA is similar to EFA in some respects, but philosophically it is quite different. With CFA, the researcher must specify both the number of factors that exist within a set of variables and which factor each variable will load highly on before results can be computed. The technique does not assign variables to factors. Instead, the researcher must be able to make this assignment before any results can be obtained. SEM is then applied to test the extent to which a researcher's a priori pattern of factor loadings represents the actual data. Thus, instead of allowing the statistical method to determine the number of factors and loadings as in EFA, CFA statistics tell us how well our specification of the factors matches reality (the actual data). In a sense, CFA is a tool that enables us to either confirm or reject our preconceived theory (Hair et al., 2006).

CFA is used to provide a confirmatory test of our measurement theory. SEM models often involve both a measurement theory and a structural theory. A measurement theory specifies how measured variables logically and systematically represent constructs involved in a theoretical model. In other words, measurement theory specifies a series of relationships that suggest how measured variables represent a latent construct that is not measured directly (Hair et al., 2006).

Measurement theory requires that a construct first be defined. Therefore, unlike EFA, with CFA a researcher uses measurement theory to specify a priori the number of factors as well as which variables load on those factors. This specification is often referred to as the way the conceptual constructs in a measurement model are operationalized. CFA cannot be conducted without a measurement theory. In EFA, such a theory is not needed nor is the ability to define constructs ahead of time (Hair et al., 2006).

One of the biggest advantages of CFA / SEM is its ability to assess the construct validity of a proposed measurement theory. Construct validity is the extent to which a set of measured items actually reflects the theoretical latent construct those items are designed to measure. Thus, it deals with the accuracy of measurement. Evidence of construct validity provides confidence that item measures taken from a sample represent the actual true score that exists in the population (Hair et al., 2006).

3.3.3 Factor Loadings

The size of the factor loadings is one important consideration. In the case of high convergent validity, high loadings on a factor would indicate that they converge on some common point. At a minimum, all factor loadings should be statistically significant. Because a significant loading could still be fairly weak in strength, a good rule of thumb is that standardized loading estimates should be .5 or higher, and ideally .7 or higher (Hair et al., 2006).

The rationale behind this rule can be understood in the context of an item's communality. The square of a standardized factor loading represents how much variation in an item is explained by the latent factor. Thus, a loading of .71 squared equals .5. In short, the factor is explaining half the variation in the item with the other half being error variance. As loadings fall below .7, they can still be considered significant, but more of the variance in the measure is error variance than explained variance.

3.4 Reliability

Reliability is an assessment of the degree of consistency between multiple measurements of a variable. One form of reliability is test-retest, by which consistency is measured between the responses for an individual at two points in time. The objective is to ensure that responses are not too varied across time periods so that a measurement taken at any point in time is reliable. A second and more commonly used measure of reliability is internal consistency, which applies to the consistency among the variables in a summated scale. The rationale for internal consistency is that the individual items or indicators of the scale should all be measuring the same construct and thus be highly intercorrelated (Hair et al., 2006).

Because no single item is a perfect measure of a concept, we must rely on a series of diagnostic measures to assess internal consistency.

The first measures we consider relate to each separate item, including the item-to-total correlation (the correlation of the item to the summated scale score) and the inter-item correlation (the correlation among items). Rules of thumb suggest that the item-to-total correlations exceed .50 and that the inter-item correlations exceed .30 (Hair et al., 2006).

The second type of diagnostic measure is the reliability coefficient that assesses the consistency of the entire scale, with Cronbach's alpha being the most widely used measure. The generally agreed upon lower limit for Cronbach's alpha is .70, although it may decrease to .60 in exploratory research. One issue in assessing Cronbach's alpha is its positive relationship to the number of items in the scale. Because increasing the number of items, even with the same degree of intercorrelation, will increase the reliability value, researchers must place more stringent requirements for scales with large numbers of items.

Also available are reliability measures derived from confirmatory factor analysis. Included in these measures are the composite reliability and the average variance extracted, both discussed in greater detail in the next section.

Each of the major statistical programs now has reliability assessment modules or programs, such that the researcher is provided with a complete analysis of both item-specific and overall reliability measures. Any summated scale should be analyzed for reliability to ensure its appropriateness before proceeding to an assessment of its validity (Hair et al., 2006).

Reliability is also an indicator of convergent validity. Considerable debate centers around which of several alternative reliability estimates is best. Coefficient alpha remains a commonly applied estimate although it may understate reliability. Different reliability coefficients do not produce dramatically different results, but a slightly different construct reliability (CR) value is often used in conjunction with SEM models. It is easily computed from the squared sum of factor loadings (λ_i) for each construct and the sum of the error variance terms for a construct (δ_i) as:

$$CR = \frac{(\sum_{i=1}^{n} \lambda_i)^2}{(\sum_{i=1}^{n} \lambda_i)^2 + (\sum_{i=1}^{n} \delta_i)}$$

The rule of thumb for either reliability estimate is that .7 or higher suggests good reliability. Reliability between .6 and .7 may be acceptable provided that other indicators of a model's construct validity are good. High construct reliability indicates that internal consistency exists, meaning that the measures all consistently represent the same latent construct (Hair et al., 2006).

3.5 Validity

Having ensured that a scale (1) conforms to its conceptual definition, (2) is unidimensional, and (3) meets the necessary levels of reliability, the researcher must make one final assessment: scale validity. Validity is the extent to which a scale or set of measures accurately represents the concept of interest. We already described one form of validity – content or face validity – in the discussion of conceptual definitions. Other form of validity are measured empirically by the correlation between theoretically defined sets of variables. The three most widely accepted forms of validity are convergent, discriminant, and nomological validity.

Convergent validity assesses the degree to which two measures of the same concept are correlated. Here the researcher may look for alternative measures of a concept and then correlate them with the summated scale. High correlations here indicate that the scale is measuring its intended concept.

Discriminant validity is the degree to which two conceptually similar concepts are distinct. The empirical test is again the correlation among measures, but this time the summated scale is correlated with a similar, but conceptually distinct measure. Now the correlation should be low, demonstrating that the summated scale is sufficiently different from the other similar concept.

Finally, nomological validity refers to the degree that the summated scale makes accurate predictions of other concepts in a theoretically based model. The researcher must identify theoretically supported relationships from prior research or accepted principles and then assess whether the scale has corresponding relationships. In summary, convergent validity confirms that the scale is correlated with other known measures of the concept; discriminant validity ensures that the scale is sufficiently different from other similar concepts to be distinct; and nomological validity

determines whether the scale demonstrates the relationships shown to exist based on theory or prior research.

A number of differing methods are available for assessing validity, ranging from the multitrait, multimethod (MTMM) matrices to structural equation-based approaches. Although beyond the scope of this text, numerous available sources address both the range of methods available and the issues involved in the specific techniques (Hair et al., 2006).

3.6 Structural Equation Modeling

The primary aim of SEM is to explain the pattern of a series of inter-related dependence relationships simultaneously between a set of latent (unobserved) constructs, each measured by one or more manifest (observed) variables.

Structural equation modeling (SEM), often referred to simply as LISREL (the name of one of the more popular software packages), is a technique that allows separate relationships for each of a set of dependent variables. In its simplest sense, structural equation modeling provides the appropriate and most efficient estimation technique for a series of separate multiple regression equations estimated simultaneously. It is characterized by two basic components: (1) the structural model, and (2) the measurement model. The structural model is the path model, which relates independent to dependent variables. In such situations, theory, prior experience, or other guidelines enable the researcher to distinguish which independent variables predict each dependent variable. Models discussed previously that accommodate multiple dependent variables – multivariate analysis of variance and canonical correlation – are not applicable in this situation because they allow only a single relationship between dependent and independent variables (Reisinger and Turner, 1999).

The measurement model enables the researcher to use several variables (indicators) for a single independent or dependent variable. For example, the dependent variable might be a concept represented by a summated scale, such as self-esteem. In a confirmatory factor analysis the researcher can assess the contribution of each scale item as well as incorporate how well the scale measures the concept (reliability). The scales are then integrated into the estimation of the relationships between dependent and independent variables in the structural model. This procedure is similar to performing a factor analysis of the scale items and using

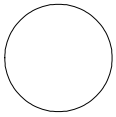
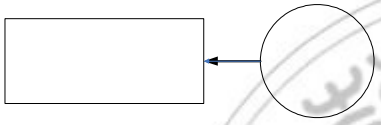
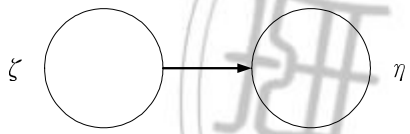
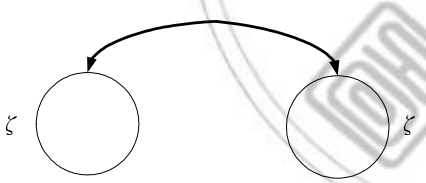
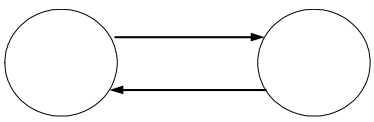
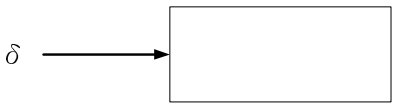
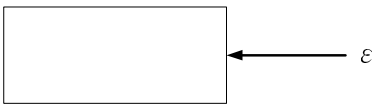
the factor scores in the regression (Reisinger and Turner, 1999).

The general Lisrel model has many submodels as special cases. Firstly, the geometric symbols and mathematical notations are presented below, followed by a presentation of the different submodels.

Table 3-1 Variables explanation of SEM

Symbol	**Meaning**
x	measured independent variable
y	measured dependent variable
ξ	latent exogenous construct explained by x -variables
η	latent endogenous construct explained by y -variables
δ	error for x -variable
ε	error for y -variable
λ	correlation between measured variables and all latent constructs
γ	correlation between latent constructs ξ (exogenous) and η (endogenous)
Φ	correlation between exogenous latent constructs
β	correlations between endogenous latent constructs

Table 3-2 Meaning of the path diagram

Symbol	Representation
	●Latent construct (can be ξ or η)
	●Observed measured variable (can be *x* or *y*)
	●Regression path from the latent construct to measured variable (from cause to effect: variable at base of arrow "causes" variable at head of arrow)
	● Causal impact of an exogenous latent construct ξ on an endogenous latent construct η
	●Unanalyzed association between two latent exogenous constructs ξ (undirected relationships shown as a curved, two-headed arrow connecting two variables)
	● Reciprocal causation between latent constructs
	● Measurement error associated with the observed variable of the exogenous construct
	● Measurement error associated with the observed variable of the endogenous construct

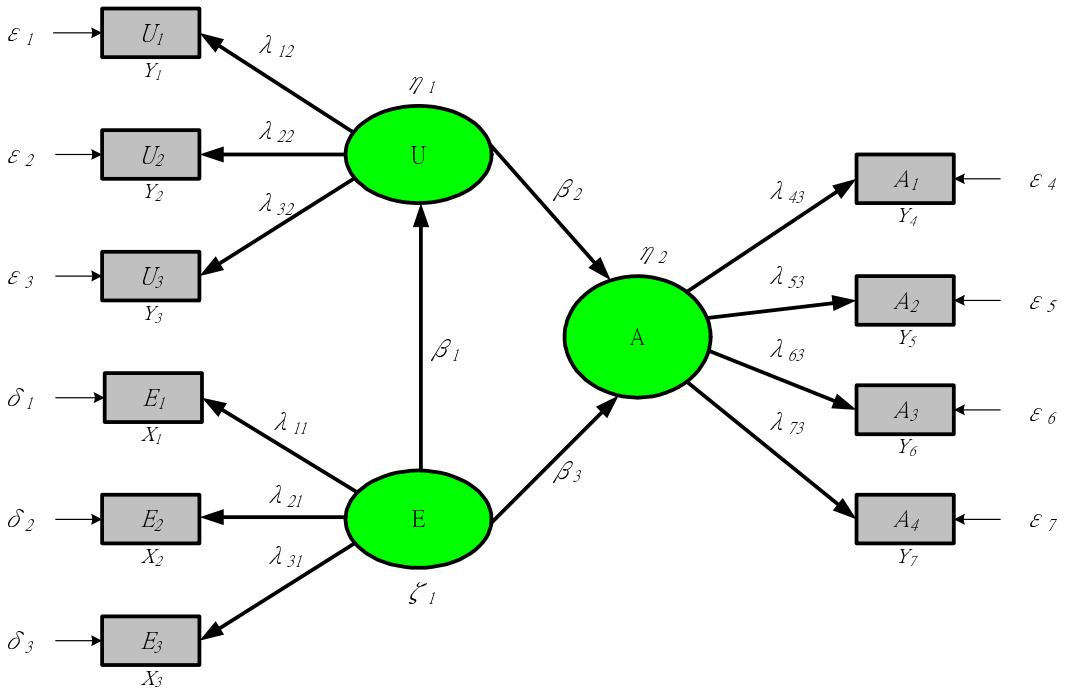


Figure 3-3 Path diagram of a hypothetical model - Submodel

Submodel, showed in Figure 3-3, is the Lisrel model which is designed to measure observed variables. The model has only x, ξ, and δ-error variables. There are no y- and η-variables (see prior abbreviations). This type of model is presented in this paper as an example. The data used measure only the correlation between the constructs and not cause and effect.

In a path diagram all causal relationships between constructs and their indicators are graphically presented with arrows. They form a visual presentation of the hypotheses and the measurement scheme. A curved line indicates a correlation / covariance between constructs, e.g. between perceptions and satisfaction (see Figure 3-3).

The constructs fall into two categories: exogenous and endogenous. Exogenous constructs are independent variables and are not caused / predicted by any other

variable in a model (there are no straight arrows pointing to these constructs, e.g. perception in Full Lisrel); endogenous constructs are predicted by other constructs and relationships contained in the model (there are arrows pointing to these constructs, e.g. satisfaction in Full Lisrel).

There are three types of goodness-of-fit measurement: (1) absolute fit measures (assess the overall model fit, both structural and measurement together, with no adjustment for overfitting); (2) incremental fit measures (compare the proposed model to a comparison model); and (3) parsimonious fit measures (adjust the measures of fit to compare models with different numbers of coefficients and determine the fit achieved by each coefficient).

Table 3-3 Goodness-of-fit index of model

Goodness-of Fit Measurement	**Threshold value**
Chi-square Statistic (x^2)	P<0.05
Normed Chi-square (x^2 / *df*)	P<5.00
Root Mean Square Residual (RMR)	P<0.05
Goodness of Fit (GFI)	P>0.9
Adjusted Goodness of Fit AGFI	P>0.9
Root Mean Square Error of Approximation (RMSEA)	P<0.08
Normal Fit Index (NFI)	P>0.9
Non-normal Fit Index (NNFI)	P>0.9
Relative Fit Index (RFI)	P>0.9
Comparative Fit Index (CFI)	P>0.9

In order to achieve a better understanding of the acceptability of the proposed model multiple measures should be applied (Hair et al., 1995). The absolute fit

measures provide information on the extent to which the model as a whole provides an acceptable fit to the data.

Figure 3-4 provides a schematic overview of the stages and some of the activities involved in testing a SEM model. It begins with choosing the variables that will be measured. It concludes with assessing the overall structural model fit. It should be emphasized that theory plays a key role in each step of the process. The goal of a SEM is to provide a test of a theory. Thus, without theory, a true SEM test cannot be conducted.

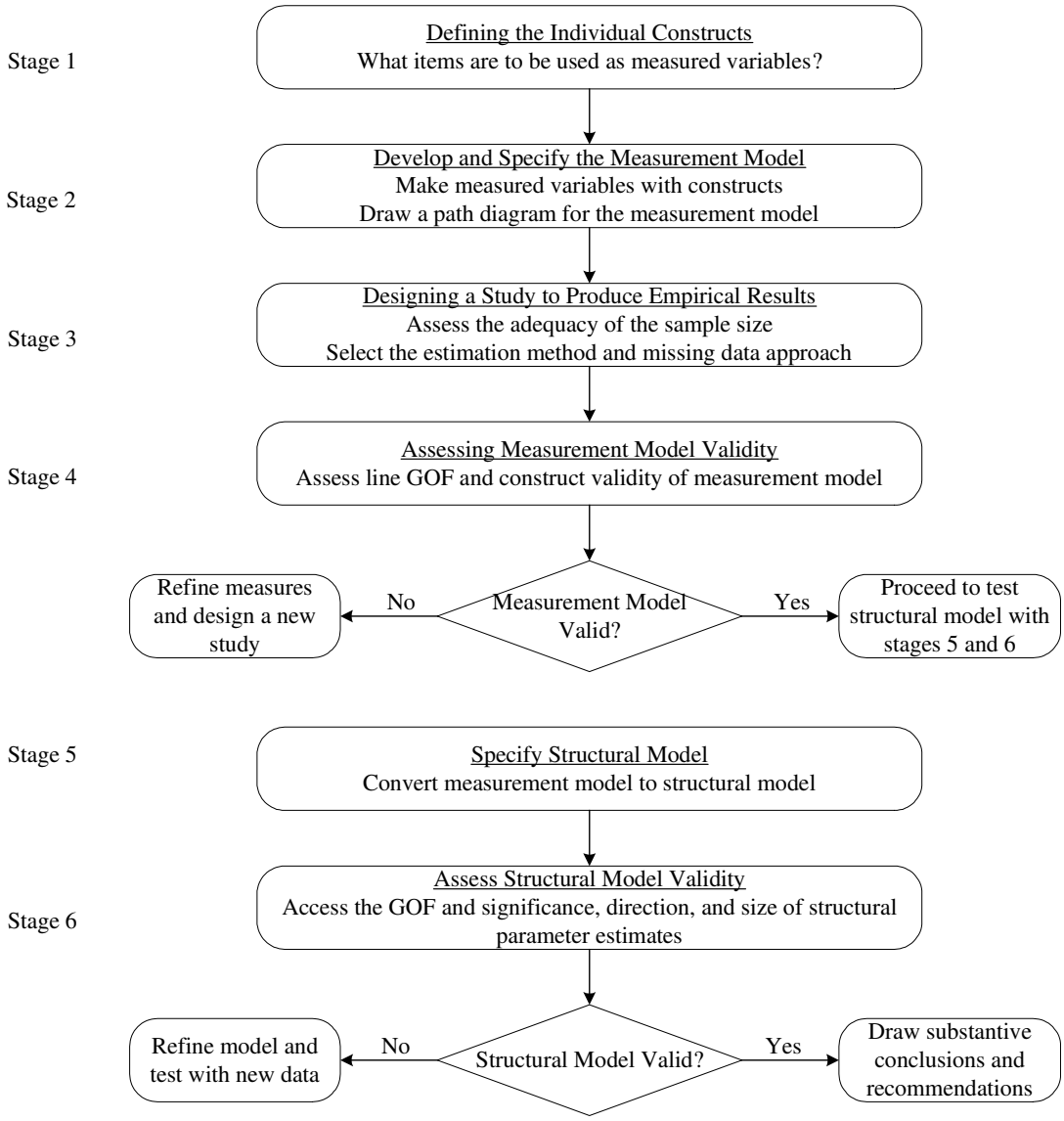


Figure 3-4 Six-stage process for SEM

Source: Joseph F. Hair et al., 2006

Chapter 4 Findings and Results

This chapter describes data collection in the first section, followed by data analysis from the valid questionnaires. The second section represents descriptive analysis, the third section demonstrates importance-performance analysis, the fourth section shows one-way ANOVA, the fifth section represents independent sample t-test, the sixth section demonstrates exploratory factor analysis, the seventh section shows confirmatory factor analysis, and the last section represents structural equation modeling.

4.1 Data Collection

This study is based on survey data collected using a questionnaire that was designed to understand the normal habits of reading and the situation or their sensation of reading on iPad2. The target sample in this study is the university students who entered in the first semester of 2011 academic year. There are five colleges (i.e., management, humanities, social sciences, the arts, and technology) in this private university, and we use convenience sampling to choose approximately fifty to eighty students from each.

Survey period

The survey was conducted for a period of about three weeks, from November 7 to November 25, 2011.

Sample

The sample is the freshmen who entered a private university in Taiwan in the first semester of 2011 academic year.

Procedure

1. Searched for the curriculum of freshmen.
2. Chose one or two departments from each college, and contacted the teachers by e-mail in order to occupy fifteen to twenty minutes of class to let students complete the questionnaires.
3. Researcher provided a brief description before students completed the questionnaires, and whole in the field during questionnaire time. If there were any doubts during questionnaire time, it could be answered immediately.
4. The questionnaires were then fully recovered after they were completed.

317 questionnaires were completed and returned, excluding invalid questionnaires, representing a response rate of 95.27%.

4.2 Descriptive Analysis

Preliminary analysis was conducted in this section to provide information about the demography and the results of relevant research questions.

4.2.1 Description of Demography

In the end, 302 questionnaires were collected, and the demographics of the sample are provided in Table 4-1. Of all the collected questionnaires, 54% (163) were completed by males and 46% (139) were completed by females. All the departments in the university were classified into five colleges, including College of Management (22.8%), College of Humanities (21.8%), College of Social Sciences (16.6%), College of Art (18.9%), and College of Technology (19.9%). Of the respondents, 74.8% (226) had pocket money under $6,000 per month and 25.2% (76) had pocket money greater than $6,000. Moreover, their domiciles are at southern Taiwan (50.7%) mostly, followed by those at central (21.5%) and northern Taiwan (20.9%), at eastern Taiwan (4.6%) and other areas (1.6%), and few at Islands (0.7%).

Table 4-1 Profiles of the sample (N=302)

Experience		Sample(n)	Percentage(%)	Rank
Gender				
	Male	163	54	[1]
	Female	139	46	[2]
College				
	Management	69	22.8	[1]
	Humanities	66	21.8	[2]
	Social Sciences	50	16.6	[5]
	Arts	57	18.9	[4]
	Technology	60	19.9	[3]
Pocket Money Per Month (NTD)				
	3,000 and under	95	31.4	[2]
	3,001-6,000	131	43.4	[1]
	6,001-10,000	57	18.9	[3]
	10,001-15,000	12	4.0	[4]
	15,001 and over	7	2.3	[5]
Domicile				
	Northern	63	20.9	[2]
	Central	65	21.5	[3]
	Southern	153	50.7	[1]
	Eastern	14	4.6	[4]
	Islands	2	0.7	[6]
	Others	5	1.6	[5]

4.2.2 Measurement Results

There are 5 items regarding the experience of internet using and reading habits, including hours of internet using per day, experience in internet shopping, frequency of books purchasing, amount spent for books purchasing, and frequency of reading. The frequency table shows the number of times, percentage, and ranking they occur. Of the respondents, first, in the item of hours of internet using, the top four are very close. 53 (17.5%) samples are four to five hours per day mostly, 51 (16.9%) samples are more than six hours per day secondly, 49 (16.2%) samples are five to six hours per day thirdly, 48 (15.9%) samples are two to three hours per day and three to four hours per day fourthly, 23 (7.6%) samples are less than one hour per day the last; in the item in experience of internet shopping, 147(48.7%) samples are less than one year mostly, 51 (16.9%) samples are one to two years secondly, 38 (12.6%) samples are two to three years thirdly, 32 (10.6%) samples are more than six years fourthly, 14 (4.6%) samples are four to five years the last; in the item of frequency of books purchasing, 83 (27.5%) samples are more than one year mostly, 71 (23.5%) samples are one year secondly, 58 (19.2%) samples are six months to one year thirdly, 49 (16.2%) samples are four to six months fourthly, 41 (13.6%) samples are two to three months the last; in the item of amount spent for books purchasing each time, most spent 251 to 500 dollars (n=123, 40.7%) and less than 250 dollars (n=102, 33.8%), followed by those who spent 501 to 1000 dollars (n=58, 19.2%), more than 1501 dollars (n=11, 3.6%), and 1001 to 1500 dollars (n=8, 2.6%); in the item of frequency of reading, reading only when required ranked number one (n=109, 36.1%), followed by weekly (n=77, 25.5%), almost every day (n=52, 17.2%), and every month (n=46, 15.2%), and at last place is almost no reading (n=18, 6.0%). The results are shown in Appendix B (Table b-1).

We also recoded the five items (i.e., hours of internet using per day, experience in internet shopping, frequency of books purchasing, amount spent for books purchasing, and frequency of reading) into different variables (e.g., high and low) separately. In the item of hours of internet use per day, more than five hours were classified into high group (n=100, 33.1%), and less than five (included) hours were classified into low group (n=202, 66.9%); in the item of experience in internet shopping, more than four years were classified into high group (n=46, 15.2%), and less than four (included) years were classified into low group (n=256, 84.8%); in the item of frequency of books purchasing, less than six months were classified into high group (n=161, 53.3%), and more than seven months were classified into low group (n=141, 46.7%); in the item of amount spent for books purchasing each time, more than 1001 dollars were classified into high group (n=19, 6.3%),and less than 1000

Table 4-2 Recoded frequency table of the experience of internet using and reading habits

Experience		Number (n)	Percentage
Hours of internet use per day	High	100	33.1
	Low	202	66.9
	Total	302	100.0
Experience in internet shopping	High	46	15.2
	Low	256	84.8
	Total	302	100.0
Frequency of books purchasing	High	161	53.3
	Low	141	46.7
	Total	302	100.0
Amount spent for books purchasing each time	High	19	6.3
	Low	283	93.7
	Total	302	100.0
Frequency of reading	High	129	42.7
	Low	173	57.3
	Total	302	100.0

dollars were classified into low group (n=283, 93.7%); in the item of frequency of reading, less than one week were classified into high group (n=129, 42.7%),and more than one month were classified into low group (n=173, 57.3%). See Table 4-2.

Table 4-3 Recoded frequency table of situation of using iPad2 to read in the future

Experience		Number (n)	Percentage
Possibility of using iPad2 to read next year	High	171	56.6
	Low	131	43.4
	Total	302	100.0
Downloading free E-zines	High	134	44.4
	Low	168	55.6
	Total	302	100.0
Downloading free E-books	High	136	45.0
	Low	166	55.0
	Total	302	100.0
Pay for E-zines	High	48	15.9
	Low	254	84.1
	Total	302	100.0
Pay for E-books	High	38	12.6
	Low	264	87.4
	Total	302	100.0

There are 5 items regarding the situation of using iPad2 to read in the future (i.e., the possibility of reading on iPad2 next year, downloading free E-zines through App application of iPad2, downloading free E-books through App application of iPad2, paying for E-zines through App application of iPad2, and paying for E-books through App application of iPad2). A high probability was regarded as high group, and a low probability was regarded as low group. In the item of reading on iPad2, 56% (171) were in the high group, and 57.3% (173) were in the low group; in the item of downloading free E-zines from App application, 44.4% (134) were in the high group, and 55.6% were in the low group; in the item of downloading free E-books from App application, 45.0% (136) were in the high group, and 55.0% (166) were in the low

group; in the item of paying for E-zines from App application, 15.9% (48) were in the high group, and 84.1% (254) were in the low group; in the item of paying for E-books from App application, 12.6% (38) were in the high group, and 87.4% (264) were in the low group. The results are shown in Table 4-3.

There are four items regarding experience of reading on iPad2. In the item of the most activities conducted on iPad2, internet browsing (n=113, 37.4%) dominated the item, followed by playing games (n=106, 35.1%), sending and receiving E-mail (n=4, 1.3%), and then online shopping (n=3, 1.0%); in the item of location, mostly at in school (n=185, 61.3%), and lastly are at others (n=5, 1.7%); in the item of point in time, mostly are during commute (n=102, 33.8%), and lastly are when watching TV (n=5, 1.7%); in the item of reading tool, mostly are apple tablet (n=114, 37.7%), and lastly are E-book reader (n=4, 1.3%). See Appendix B (Table b-2).

We also used multiple response analysis to analyze the experience of reading on iPad2. We measured the proportion with percentage of case. In the item of most activities on iPad2, mostly are internet browsing (n=248, 82.1%), followed by playing games (n=238, 78.8%), online shopping (n=57, 18.9%), and lastly are the others (n=38, 12.6%); in the item of the categories of printed books, mostly are light novel (n=152, 50.3%), followed by comic books (n=148, 49.0%), religious numerology (n=25, 8.3%), and lastly parent-child education and children's books (n=18, 6.0%); in the item of the categories of books to read on iPad2, mostly are light novel (n=149, 49.3%), followed by comic books (n=128, 42.4%), religious numerology (n=21, 7.0%), and lastly parent-child education and children's books (n=10, 3.3%); in the item of location, mostly are at school (n=247, 81.8%), and lastly the others (n=27, 8.9%); in the item of point in time, mostly are during commute (n=165, 54.6%), and lastly when watching TV (n=31, 10.3%); in the item of reading tool, mostly are apple tablet (n=205, 67.9%), and lastly E-book reader (n=21, 7.0%). For further details of frequency tables, see Appendix B (Table b-3 to Table b-8).

4.3 Importance-Performance Analysis

Table 4-4 shows the mean importance and performance (satisfaction) rating of the eleven elements, by which students evaluated the function when they use iPad2 to read. The overall mean importance rating (5.805) is higher than the satisfaction rating (4.635). It requires corrective action to improve users' satisfaction. Students evaluated the function when they were reading had the highest mean of the indicated importance of battery life (m=6.079, std.=1.371), followed by the importance of free resource available for download (m=6.023, std.=1.406), the importance of explicit and fair return standard(m=5.927, std.=1.412), the importance of comfort felt when reading through the screen (m=5.921, std.=1.374), the importance of fluency of reading (m=5.871, std.=1.359), the importance of many resource of books and magazines available for download (m=5.861, std.=1.458), the importance of application compatibility related to reading (m=5.768, std.=1.419), the importance of reading-related design (m=5.768, std.=1.349), the importance of screen size (m=5.709, std.=1.461), the importance of weight (m=5.543, std.=1.541), and the importance of diversified reading experience (m=5.384, std.=1.548), respectively. However, when students were asked to evaluate the performance of reading with iPad2, the results showed that the mean of screen size was the highest (m=5.046, std.=1.448), followed by fluency of reading (m=4.848, std.=1.425), comfort felt when reading through the screen (m=4.808, std.=1.434), weight (m=4.732, std.=1.515), reading-related design (m=4.675, std.=1.374), diversified reading experience (m=4.636, std.=1.357), application compatibility related to reading (m=4.589, std.=1.443), battery life (m=4.500,std.=1.640), explicit and fair return standard (m=4.467, std.=1.471), many free resource available for download(m=4.351, std.=1.647), and many resource of books and magazines available for download (m=4.334, std.=1.625) respectively.

Table 4-4 Mean importance and satisfaction of the elements for all respondents

	Elements	Mean Imp.	Std. Error	Mean Sat.	Std. Error	Quadrant
1	Weight	5.543	1.541	4.732	1.515	Ⅳ
2	Screen size	5.709	1.461	5.046	1.448	Ⅳ
3	Battery life	6.079	1.371	4.500	1.640	Ⅰ
4	Comfort felt when reading through the screen	5.921	1.374	4.808	1.434	Ⅱ
5	Application compatibility related to reading	5.768	1.419	4.589	1.443	Ⅲ
6	Fluency of reading	5.871	1.359	4.848	1.425	Ⅱ
7	Diversified reading experience	5.384	1.548	4.636	1.357	Ⅳ
8	Reading-related design	5.768	1.349	4.675	1.374	Ⅳ
9	There are many resource of books and magazines available for download	5.861	1.458	4.334	1.625	Ⅰ
10	There are many free resource available for download	6.023	1.406	4.351	1.647	Ⅰ
11	There is an explicit and fair return standard	5.927	1.412	4.467	1.471	Ⅰ
	Overall	5.805		4.635		

The horizontal and the vertical axes in Figure 4-1 represent the results of students' evaluation on the function when they used iPad2 to read. For our sample, the results demonstrated that most of the elements fall in quadrants Ⅰ (i.e., elements 3, 9, 10, and 11) and Ⅳ (i.e., 1, 2, 7, and 8), followed by quadrants Ⅱ (i.e., elements 4, and6), and there is only one element in the quadrants Ⅲ (i.e., element 5).

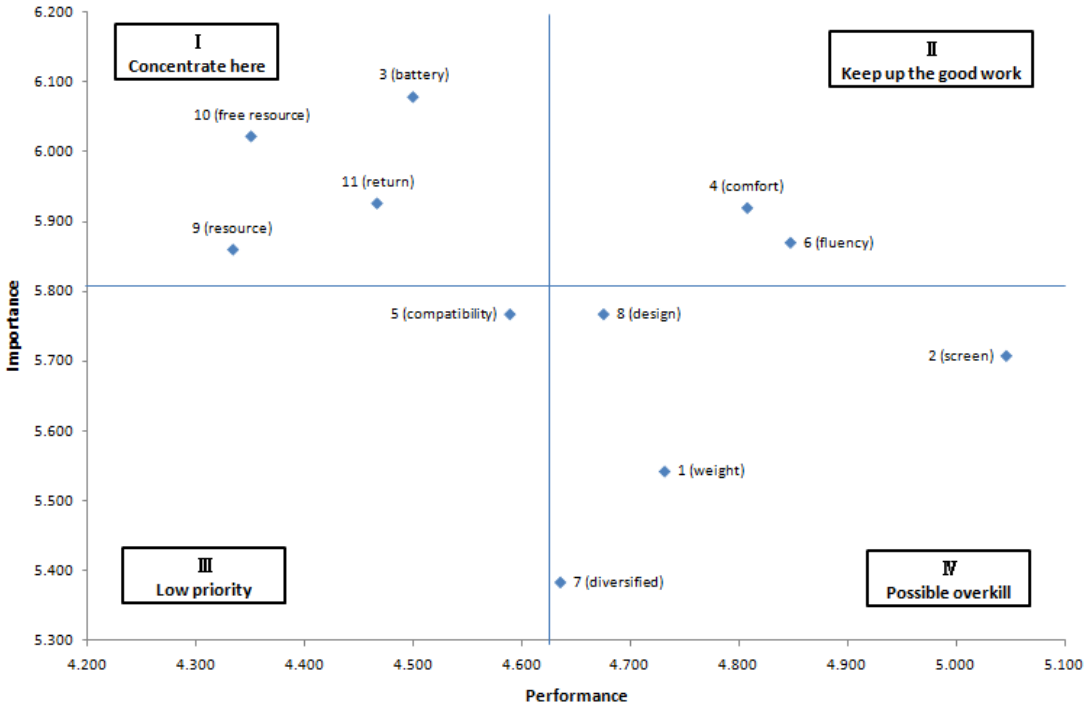


Figure 4-1 Mean data plotting in the importance-performance analysis grid for all respondents

We also use the importance-performance analysis to measure the gender, the possibility of downloading free E-zines, the possibility of paying for E-zines, and the reading frequency separately. Table 4-5 shows the elements which fell in quadrant Ⅰ (high importance / low performance). For the group of gender, males considered that there are three elements which should be improved preferentially, i.e., battery life,

there are many free resource available for download and there is an explicit and fair return standard; females considered that there are three elements which should be improved preferentially, i.e., there are many resource of books and magazines available for download, there are many free resource available for download and there is an explicit and fair return standard. For the group of downloading free E-zine, respondents with both greater and low possibility to download free E-zine and then read on iPad2 considered that there are four elements which should be improved preferentially, i.e., battery life, there are many resource of books and magazines available for download, there are many free resource available for download and there is an explicit and fair return standard. For the group of paying for E-zine, respondents with greater possibility to pay for E-zine and then read on iPad2 considered that there are four elements which should be improved preferentially, i.e., battery life, comfort felt when reading through screen, there are many free resource available for download and there is an explicit and fair return standard; respondents with low possibility to pay for E-zine and then read on iPad2 considered that there are four elements which should be improved preferentially, i.e., battery life, there are many resource of books and magazines available for download, there are many free resource available for download and there is an explicit and fair return standard. For the group of frequency of reading, respondents who read both regularly and seldom considered that there are four elements which should be improved preferentially, i.e., battery life, there are many resource of books and magazines available for download, there are many free resource available for download and there is an explicit and fair return standard.

Table 4-5 Each group of elements in quadrant Ⅰ

	Gender		Download free E-zine		Pay for E-zine		Frequency of reading	
	Male	Female	Likely	Unlikely	Likely	Unlikely	Regularly	Seldom
1								
2								
3	●		●	●	●	●	●	●
4					●			
5								
6								
7								
8								
9		●	●	●		●	●	●
10	●	●	●	●	●	●	●	●
11	●	●	●	●	●	●	●	●

Table 4-6 shows the elements that fell in the area of high importance and high performance (i.e., quadrant Ⅱ), which is labeled “Keep up the good work”. For the group of gender, males considered that there are two elements which should be maintained, i.e., comfort felt when reading through screen and fluency of reading; females considered that there are three elements which should be maintained, i.e., battery life, comfort felt when reading through screen and fluency of reading. For the group of downloading free E-zine, respondents with both greater and lower possibility to download free E-zine and then read on iPad2 considered that there are two elements which should be maintained, i.e., comfort felt when reading through screen and fluency of reading. For the group of paying for E-zine, respondents with greater possibility to pay for E-zine and then read on iPad2 considered that there are two

elements which should be maintained, i.e., fluency of reading and there are many resource of books and magazines available for download; respondents with lower possibility to pay for E-zine and then read on iPad2 considered that there are two elements which should be maintained, i.e., comfort felt when reading through screen and fluency of reading. For the group of frequency of reading, respondents who read both regularly and seldom considered that there are two elements which should be maintained, i.e., comfort felt when reading through screen and fluency of reading.

For further details of importance-performance analyzed tables and figures, see Appendix C (Table c-1 to Table c-8 and Figure c-1 to Figure c-8).

Table 4-6 Each group of elements in quadrant Ⅱ

	Gender		Download free E-zine		Pay for E-zine		Frequency of reading	
	Male	Female	Likely	Unlikely	Likely	Unlikely	Regularly	Seldom
1								
2								
3		●						
4	●	●	●	●		●	●	●
5								
6	●	●	●	●	●	●	●	●
7								
8								
9					●			
10								
11								

4.4 x^2 test Analysis

After recoding the five items (i.e., hours of internet using per day, experience in

Table 4-7 x^2 test between normal habits and gender

		Gender		p-value
		Male	Female	
Hours of internet using per day	High	53	47	0.902
		32.5%	33.8%	
	Low	110	92	
		67.5%	66.2%	
Experience in internet shopping	High	20	26	0.148
		12.3%	18.7%	
	Low	143	113	
		87.7%	81.3%	
Frequency of books purchasing	High	86	75	0.908
		52.8%	54.0%	
	Low	77	64	
		47.2%	46.0%	
Amount spent for books purchasing	High	14	5	0.096
		8.6%	3.6%	
	Low	149	134	
		91.4%	96.4%	
Frequency of reading	High	64	65	0.201
		39.3%	46.8%	
	Low	99	74	
		60.7%	53.2%	

* p-value < 0.05

internet shopping, frequency of books purchasing, amount spent for books purchasing, and frequency of reading) into different variables (e.g., high and low), we use x^2 test to analyze with demography separately.

Table 4-7 shows the contingency table and Pearson's Chi-square value (p-value). It can be drawn from analysis of x^2 test that p-values are all less than 0.05, which unveils no significant differences between the recoded five items and gender. In order words, males and females are similar at the experience of internet using and reading habits part.

Table 4-8 shows the contingency table and Pearson's Chi-square value (p-value). As the table indicates, there are two items unveiling that the recoded five items are different among colleges. College and hours of internet using per day has a p-value of 0.007 (< 0.05), and experience in internet shopping with p-value of 0.027 (< 0.05). In order words, students in different colleges have different hours of internet using per day. First, students in College of Management spend many hours on internet with a 27.5% share, and spend hours on internet less with 72.5%; students in College of Humanities spend many hours on internet with a 24.2% share, and spend hours on internet less with 75.8%; students in College of Technology spend many hours on internet with a 28.3% share, and spend hours on internet less with 71.1%. Second, students of each college has significant different experience in internet shopping, e.g., students in College of Management with much experience of 7.2%, and with less experience of 92.8%; students in College of Humanities with much experience of 15.2%, and with less experience of 84.8%; students in College of Social Sciences with much experience of 20.0% , and with less experience of 80.0%; students in College of Arts with much experience of 26.3%, with less experience of 73.7%; students in College of Technology with much experience of 10.0%, with less experience of 90.0%.

Table 4-8 x^2 test between normal habits and college

		College					p-value
		Man.	Hum.	Soc.	Arts	Tec.	
Hours of internet using per day	High	19 27.5%	16 24.2%	27 54.0%	21 36.8%	17 28.3%	0.007*
	Low	50 72.5%	50 75.8%	23 46.0%	36 63.2%	43 71.7%	
Experience in internet shopping	High	5 7.2%	10 15.2%	10 20.0%	15 26.3%	6 10.0%	0.027*
	Low	64 92.8%	56 84.8%	40 80.0%	42 73.7%	54 90.0%	
Frequency of books purchasing	High	29 42.0%	36 54.5%	28 56.0%	37 64.9%	31 51.7%	0.143
	Low	40 58.0%	30 45.5%	22 44.0%	20 35.1%	29 48.3%	
Amount spent for books purchasing	High	2 2.9%	6 9.1%	1 2.0%	4 7.0%	6 10.0%	0.264
	Low	67 97.1%	60 90.9%	49 98.0%	53 93.0%	54 90.0%	
Frequency of reading	High	24 34.8%	34 51.5%	28 56.0%	21 36.8%	22 36.7%	0.057
	Low	45 65.2%	32 48.5%	22 44.0%	36 63.2%	38 63.3%	

* p-value < 0.05

Table 4-9 x^2 test between normal habits and pocket money

		Pocket money		p-value
		More	Less	
Hours of internet using per day	High	29	71	0.324
		38.2%	31.4%	
	Low	47	155	
		61.8%	68.6%	
Experience in internet shopping	High	22	24	0.000*
		28.9%	10.6%	
	Low	54	202	
		71.1%	89.4%	
Frequency of books purchasing	High	48	113	0.062
		63.2%	50.0%	
	Low	28	113	
		36.8%	50.0%	
Amount spent for books purchasing	High	6	13	0.585
		7.9%	5.8%	
	Low	70	213	
		92.1%	92.1%	
Frequency of reading	High	39	90	0.083
		51.3%	39.8%	
	Low	37	136	
		48.7%	60.2%	

* p-value < 0.05

Table 4-9 shows the contingency table and Pearson's Chi-square value (p-value). As the table indicates, there is only one item unveiling that the recoded five items are different among pocket money per month. Pocket money and experience in internet shopping with p-value of 0.000 (< 0.05). In order words, students with different amounts of pocket money per month have different experience in internet shopping, e.g., students with much pocket money per month have much experience in internet shopping with a 28.9% share, and have experience in internet shopping less with 71.1%; students with less pocket money per month have much experience in internet shopping with a 10.6% share, and have experience in internet shopping less with 89.4%.

Table 4-10 shows the contingency table and Pearson's Chi-square value (p-value). As the table indicates, there are two items unveiling that the recoded five items are different among domicile. Domicile and hours of internet using per day has a p-value of 0.035 (< 0.05), and frequency of reading with p-value of 0.022 (< 0.05). In order words, students in different domiciles have different hours of internet using per day, also the frequency of reading. First, students who live in southern Taiwan spend many hours on internet with a 25.5% share, and spend hours on internet less with 74.5%. Second, students who live in central Taiwan reading regularly with a 33.8% share, and seldom reading with 66.2%; students live in other parts reading regularly with a 33.3% share, and seldom reading with 66.7%.

Table 4-10 x^2 test between normal habits and college

		Domicile				p-value
		North	Center	South	Others	
Hours of internet using per day	High	25	26	39	10	0.035*
		39.7%	40.0%	25.5%	47.6%	
	Low	38	39	114	11	
		60.3%	60.0%	74.5%	52.4%	
Experience in internet shopping	High	11	8	23	4	0.822
		17.5%	12.3%	15.0%	19.0%	
	Low	52	57	130	17	
		82.5%	87.7%	85.0%	81.0%	
Frequency of books purchasing	High	34	34	81	12	0.982
		54.0%	52.3%	52.9%	57.1%	
	Low	29	31	72	9	
		46.0%	47.7%	47.1%	42.9%	
Amount spent for books purchasing	High	4	4	9	2	0.936
		6.3%	6.2%	5.9%	9.5%	
	Low	59	61	144	19	
		93.7%	93.8%	94.1%	90.5%	
Frequency of reading	High	37	22	63	7	0.022*
		58.7%	33.8%	41.2%	33.3%	
	Low	26	43	90	14	
		41.3%	66.2%	58.8%	66.7%	

* p-value < 0.05

4.5 Independent Samples T-Test

In case of gender difference, different sources of E-zine (i.e., downloading free E-zines and paying for E-zines), and different frequency of reading, and independent samples t-test has been used to examine whether there are significant differences among the four items.

Table 4-11 shows the analysis of Independent-Samples T-test that unveils three significant differences between male and female. They are importance of many resources for downloading ($F=23.998$, $t=-2.819$, $p<0.001$), importance of many free resources for downloading ($F=16.229$, $t=-2.605$, $p<0.05$), and importance of fair return standard ($F=10.594$, $t=-2.349$, $p<0.05$). The results also showed that all males' importance mean of the elements were lower than females' mean (i.e., negative mean difference). Only one element had significant difference between high possibility and low possibility in the item of downloading free E-zines, that is the importance of free resource available for download ($F=0.819$, $t=2.315$, $p<0.05$). The results also showed that all high possibility's importance mean of the elements were higher than low possibility (i.e., positive mean difference). In the item of paying for E-zines, there are no significant differences between high possibility and low possibility, and all the mean differences are negative (i.e., high possibility's importance mean of the elements were lower than low possibility) besides the seventh element (i.e., the importance of diversified reading experience). In the item of reading frequency, there are no significant differences between high frequency and low frequency, and all the mean differences are negative (i.e., high frequency's importance mean of the elements were higher than low frequency) besides the first element (i.e., the importance of weight).

Table 4-11 Independent-samples t-test of importance on each groups

	Male vs. Female		**(Free E-zines) Likely vs. Unlikely**		**(Pay for E-zines) Likely vs. Unlikely**		**Regularly vs. Seldom**	
	t-value	M.D.	t-value	M.D.	t-value	M.D.	t-value	M.D.
1	-.957	-.167	.919	.164	-.463	-.125	-.155	-.028
2	-.200	-.033	.637	.108	-.845	-.223	.923	.157
3	-.838	-.133	1.810	.286	-.967	-.243	.657	.105
4	-.935	-.147	1.576	.250	-.250	-.054	1.038	.166
5	-.927	-.150	1.066	.175	-1.207	-.269	.647	.107
6	-1.371	-.213	.963	.152	-.555	-.119	1.342	.212
7	-1.863	-.328	.787	.141	.159	.039	.634	.114
8	-.960	-.150	1.468	.229	-.679	-.170	.940	.148
9	-2.819*	-.458	1.885	.317	-.790	-.181	1.032	.175
10	-2.605*	-.410	2.315*	.374	-1.020	-.226	.497	.081
11	-2.349*	-.375	1.625	.265	-1.171	-.260	.609	.100

* denotes a significant value ($p<0.05$)

M.D.: Mean of high group minus mean of low group

Only one element had significant difference between male and female, that is the satisfaction of battery life ($F=2.955$, $t=-2.304$, $p<0.05$). The results also showed that all males' satisfaction mean of the elements were lower than females (i.e., negative mean difference) except the items of weight and screen size. The analysis of independent samples t-test unveils two significant differences between high possibility and low possibility in the item of downloading free E-zines, they are satisfaction of reading comfort ($F=0.152$, $t=2.008$, $p<0.05$), and satisfaction of reading-related design ($F=0.068$, $t=2.594$, $p<0.05$). The results also showed that all high possibility's satisfaction mean of the elements were higher than low possibility

(i.e., positive mean difference). The item of paying for E-zines unveils four significant differences between high possibility and low possibility. They are satisfaction of weight ($F=2.295$, $t=-2.208$, $p<0.001$), satisfaction of screen size ($F=6.109$, $t=-2.184$, $p<0.05$), satisfaction of battery life ($F=0.071$, $t=-2.915$, $p<0.05$), and satisfaction of reading comfort ($F=3.189$, $t=-2.636$, $p<0.05$). The results also showed that all high possibility's satisfaction mean of the elements were lower than low possibility (i.e., negative mean difference) except the ninth element (i.e., .the satisfaction of many resource for download). In the item of reading frequency, there are no significant differences between high frequency and low frequency. The results also showed that greater than half of the mean differences are positive (i.e., high frequency's satisfaction mean of the elements were higher than low frequency) except the first (i.e., satisfaction of weight), the .third (i.e., satisfaction of battery life), the fifth (i.e., satisfaction of application compatibility), and the ninth (i.e., satisfaction of many resource available for download) elements (See Table 4-12). For further details of t-test tables, see Appendix D (Table d-1 to d-8).

Table 4-12 Independent-samples t-test of performance on each group

	Male vs. Female		**(Free E-zines) Likely vs. Unlikely**		**(Pay for E-zines) Likely vs. Unlikely**		**Regularly vs. Seldom**	
	t-value	M.D.	t-value	M.D.	t-value	M.D.	t-value	M.D.
1	.520	.090	.759	.133	-2.208*	-.523	-.721	-.127
2	.440	.073	1.911	.319	-2.184*	-.575	.082	.014
3	-2.304*	-.433	1.060	.201	-2.915*	-.743	-.248	-.047
4	-.628	-.103	2.008*	.332	-2.636*	-.589	-.018	-.003
5	-.580	-.094	1.692	.282	-.032	-.007	1.532	.257
6	-.014	-.002	1.664	.274	-1.552	-.413	.542	.090
7	-.488	-.075	.820	.132	-.292	-.062	1.719	.270
8	-1.469	-.228	2.594*	.409	-1.248	-.333	.480	.079
9	-.758	-.140	.797	.150	.575	.147	-.368	-.070
10	-.657	-.123	.067	.013	-1.229	-.318	.545	.104
11	-1.423	-.241	1.120	.194	-1.330	-.307	.693	.119

* denotes a significant value ($p<0.05$)

M.D.: Mean of high group minus mean of low group

4.6 Exploratory Factor Analysis

When all technology acceptance model items are included in the measurement model, the model would not fit the data well. To overcome that problem, exploratory factor analysis is employed to reduce the number of technology acceptance model items to a few factors and to determine the item-factor assignment. In this thesis, we used full sample to conduct exploratory factor analysis on the technology acceptance model items, using principal component analysis as the extraction method and virmax as the rotation method. The iterative process resulted in the final TAM Scale, consisting of 10 items on three dimensions, which we labeled as ease of use, usefulness, and attitude toward use and shown in Table 4-13 .

Exploratory factor analysis does not allow statistical assessment of prespecified models and explicit testing for construct validity and unidimensionality. In contrast, confirmatory factor analysis allows one to explicitly posit one or more a priori models and systematically compare the ability of competing models to fit the observed data (Wen, Lan, and Cheng, 2005). Further discussion on the testing of construct reliability and validity analysis is given in the next section.

Table 4-13 EFA results for the technology acceptance model

Factor	EFA Loading (after virmax rotation)		
	Perceived Ease of Use	Perceived Usefulness	Attitude Toward Use
Perceived Ease of Use			
T1	0.848		
T2	0.828		
T3	0.751		
Perceived Usefulness			
T4		0.840	
T5		0.744	
T6		0.730	
Attitude Toward Use			
T7			0.807
T8			0.801
T9			0.779
T10			0.673

Note: EFA=exploratory factor analysis

Before we use Lisrel to validate the hypotheses, we have to validate the reliability of samples first. If the reliability of construct is high, then these measurements under that construct are consistent to describe construct. If the reliability of construct is low, it means these measurements under that construct are not consistent in describing the construct and we have to delete one or some measurements to increase the reliability to maintain the consistency. According to the standard proposed by Cronbach (1951), Cronbach's α value should be higher than 0.7. After we adjust measurements with Cronbach's α value, we will further calculate factor loading and reliability of each measurement. We delete those measurements with factor loadings under 0.5. All of them were retained because the Cronbach's α wouldn't be raised if any one of them was deleted. See Table 4-14.

Table 4-14 Reliability analysis of research variables

Construct	ITEM	Factor loading	Cronbach's α
Perceived Ease of Use	E_1	0.848	0.911
	E_2	0.828	
	E_3	0.751	
Perceived Usefulness	U_1	0.840	0.933
	U_2	0.744	
	U_3	0.730	
Attitude Toward Use	A_1	0.807	0.954
	A_2	0.801	
	A_3	0.779	
	A_4	0.673	

4.7 Confirmatory Factor Analysis

Standardized loading and t-value were estimated to display the convergent validity of the construct. Moreover, those measures of the internal consistency of the relevant factors were also computed, including composite reliability, average variance extracted, and Cronbach`s α. Internal consistency is a type of convergent validity which seeks to assure moderate correlation among the indicators for a construct. Poor convergent validity among the indicators for a construct may reflect that the model needs to include more factors.

4.7.1 Perceived Ease of Use

Table 4-15 shows covariance matrix for the perceived ease of use. Besides, Table 4-16 demonstrates all relevant estimates. Standardized factor loadings range from 0.83 to 0.93 and is greater than the 0.50 guideline; composite reliability are higher than the recommended level of 0.70; values of average variance extracted exceed the commonly used criterion of 0.50; and Cronbach`s α are above 0.70. Based on these outcomes, convergent validity for the construct of perceived value is satisfactorily demonstrated.

Figure 4-2 illustrates the path diagram for convergent validity analysis of the research construct of the perceived ease of use.

Table 4-15 Covariance matrix for the perceived ease of use

	M.	Std.	E_1	E_2	E_3
E_1	4.61	1.696	2.877		
E_2	4.44	1.538	2.026	2.367	
E_3	4.46	1.615	2.006	2.041	2.608

Table 4-16 Convergent validity of perceived ease of use

Construct	ITEM	Factor loading	t-value	Cronbach`s α	Average Variance Extracted	Composite Reliability
Perceived Ease of Use	E_1	0.83	17.31	0.911	0.777	0.912
	E_2	0.93	20.62			
	E_3	0.88	18.82			

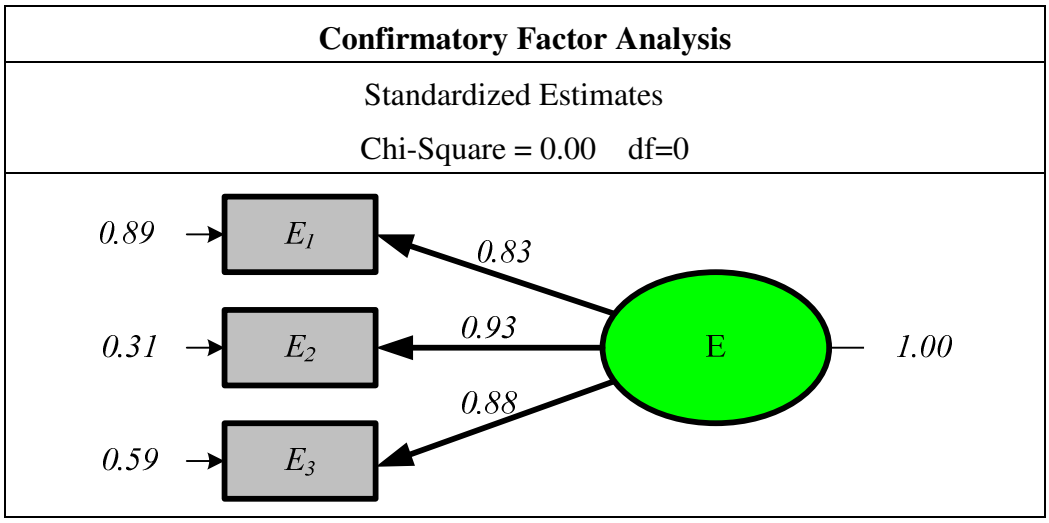


Figure 4-2 Convergent validity of perceived ease of use

4.7.2 Perceived Usefulness

In the perceived usefulness, the approach for the scale invariant procedure is similar to the one used earlier in the construct of perceived usefulness. Table 4-17 shows covariance matrix for the perceived usefulness. Besides, Table 4-18 demonstrates all relevant estimates. Standardized factor loadings range from 0.86 to 0.93 and is greater than the 0.50 guideline; composite reliability are higher than the recommended level of 0.70; values of average variance extracted exceed the commonly used criterion of 0.50; and Cronbach`s α are above 0.70. Based on these outcomes, convergent validity for the construct of perceived usefulness is satisfactorily demonstrated.

Table 4-17 Covariance matrix for the perceived usefulness

	M.	**Std.**	**U_1**	**U_2**	**U_3**
U_1	4.56	1.623	2.633		
U_2	4.52	1.634	2.117	2.669	
U_3	4.68	1.662	2.156	2.358	2.764

Table 4-18 Convergent validity of perceived usefulness

Construct	**ITEM**	**Factor loading**	**t-value**	**Cronbach`s α**	**Average Variance Extracted**	**Composite Reliability**
Perceived Usefulness	U_1	0.86	18.36	0.933	0.826	0.934
	U_2	0.93	20.95			
	U_3	0.93	20.98			

Figure 4-3 illustrates the path diagram for convergent validity analysis of the research construct of perceived usefulness.

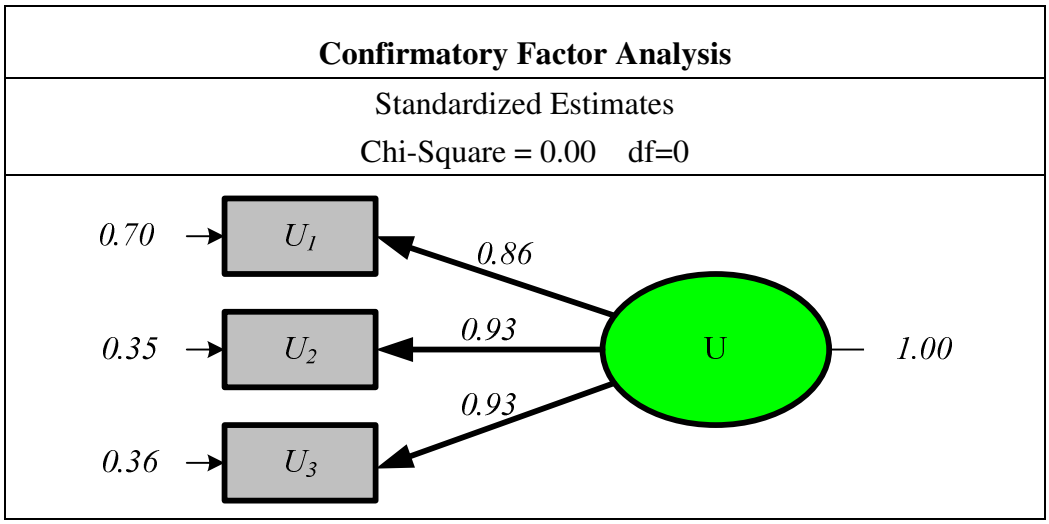


Figure 4-3 Convergent validity of perceived usefulness

4.7.3 Attitude Toward Use

As the measurement of attitude toward use, the approach for the scale invariant procedure is similar to the construct of perceived ease of use. Table 4-19 shows covariance matrix for the attitude toward use. Besides, Table 4-20 demonstrates all relevant estimates. Standardized factor loadings range from 0.88 to 0.96 and is greater than the 0.50 guideline; composite reliability are higher than the recommended level of 0.70; values of average variance extracted exceed the commonly used criterion of 0.50; and Cronbach`s α are above 0.70. Based on these outcomes, convergent validity for the construct of attitude toward use is satisfactorily demonstrated.

Figure 4-4 illustrates the path diagram for convergent validity analysis of the research construct of attitude toward use.

Table 4-19 Covariance matrix for the attitude toward use

	M.	Std.	A_1	A_2	A_3	A_4
A_1	4.56	1.675	2.806			
A_2	4.60	1.625	2.227	2.640		
A_3	4.69	1.588	2.245	2.266	2.522	
A_4	4.45	1.665	2.222	2.223	2.320	2.773

Table 4-20 Convergent validity of attitude toward use

Construct	ITEM	Factor loading	t-value	Cronbach`s α	Average Variance Extracted	Composite Reliability
Attitude Toward Use	A_1	0.88	19.37	0.954	0.840	0.954
	A_2	0.91	20.59			
	A_3	0.96	22.57			
	A_4	0.91	20.34			

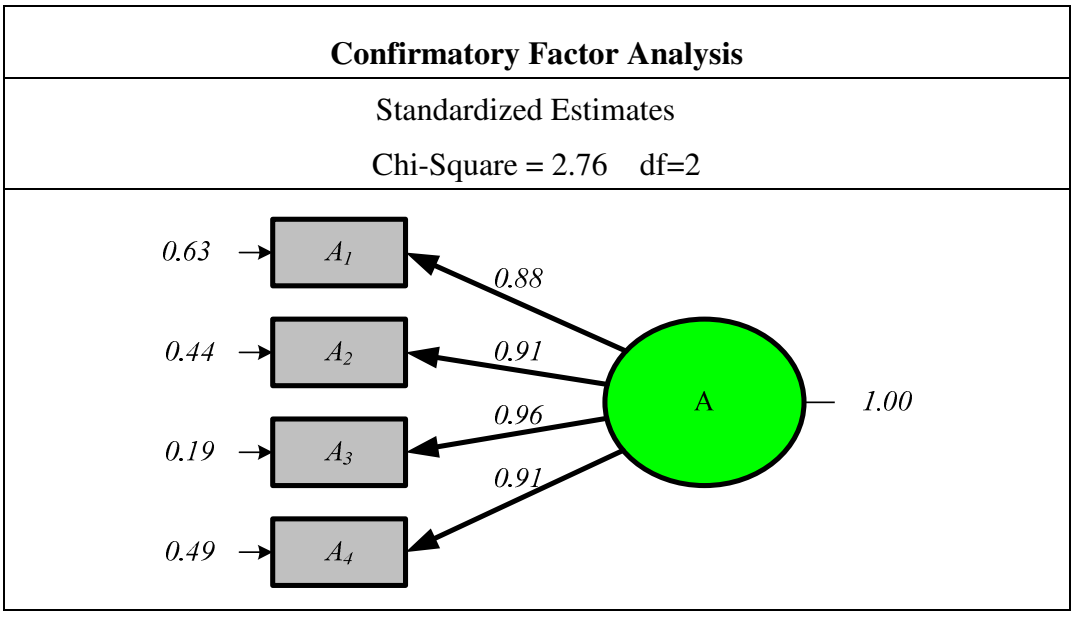


Figure 4-4 Convergent validity of attitude toward use

4.8 Structural Equation Modeling

The purpose of this study is to examine the relationships among the perceived ease of use, perceived usefulness, and attitude toward use between males and females in the context of using iPad2 to read. Structural equation modeling (SEM) was performed using Lisrel 8.20 to estimate the hypothesized relationship. As for this point, see the research model in section 3.1.

Table 4-21 Covariance matrix of males for the SEM

	M.	Std.	E_1	E_2	E_3	U_1	U_2	U_3	A_1	A_2	A_3	A_4
E_1	4.55	1.863	3.472									
E_2	4.40	1.687	2.562	2.847								
E_3	4.45	1.758	2.565	2.482	3.089							
U_1	4.52	1.765	2.266	2.025	2.036	3.116						
U_2	4.39	1.744	2.130	1.828	1.753	2.488	3.042					
U_3	4.53	1.730	2.247	1.976	1.975	2.442	2.606	2.992				
A_1	4.32	1.752	2.053	2.154	2.039	2.341	2.232	2.448	3.070			
A_2	4.50	1.712	2.057	1.888	2.048	2.177	2.135	2.381	2.450	2.931		
A_3	4.59	1.643	2.226	1.995	2.058	2.090	1/996	2.200	2.422	2.418	2.700	
A_4	4.33	1.729	2.145	2.075	1.997	2.075	2.141	2.404	2.431	2.394	2.458	2.988

Table 4-22 Model fit of males

Fit index	Suggested value	Value	Acceptability
Chi-square	<0.05	84.54	Not accepted
Chi-square/df	<5.00	2.704	Accepted
Root-Mean-Square (RMR)	<0.05	0.028	Accepted
Goodness-of-Fit Index (GFI)	>0.9	0.90	Not accepted
Adjusted for the Defree of Freedom Goodness-of-Fit Index (AGFI)	>0.9	0.83	Not accepted
Root-Mean-Square Error Approximation (RMSEA)	<0.08	0.103	Not accepted
Normed Fix Index (NFI)	>0.9	0.95	Accepted
Non-Normed Fit Index (NNFI)	>0.9	0.95	Accepted
Comparative Fit Index (CFI)	>0.9	0.96	Accepted
Incremental Fit Index (IFI)	>0.9	0.96	Accepted
Relative Fit Index (RFI)	>0.9	0.93	Accepted

Table 4-23 shows males' direct, indirect and total effects of independent variables on attitude toward using iPad2 to read. Perceived ease of use has direct effects on attitude toward using iPad2 to read (β =0.33); perceived usefulness has direct effects on attitude toward using iPad2 to read (β =0.64); and perceived usefulness has indirect effects on attitude toward using iPad2 to read by the product of the two direct effects (0.79 * 0.64 = .0.51).

Table 4-23 Estimates of the direct and indirect effect on attitude among males

Constructs	Direct effect	Indirect effect	Total effect
E → U	0.79		
E → A	0.33		
U → A	0.64		
E → U → A		0.51 (0.79×0.64)	
E → A; E → U → A			0.84 (0.33+0.51)

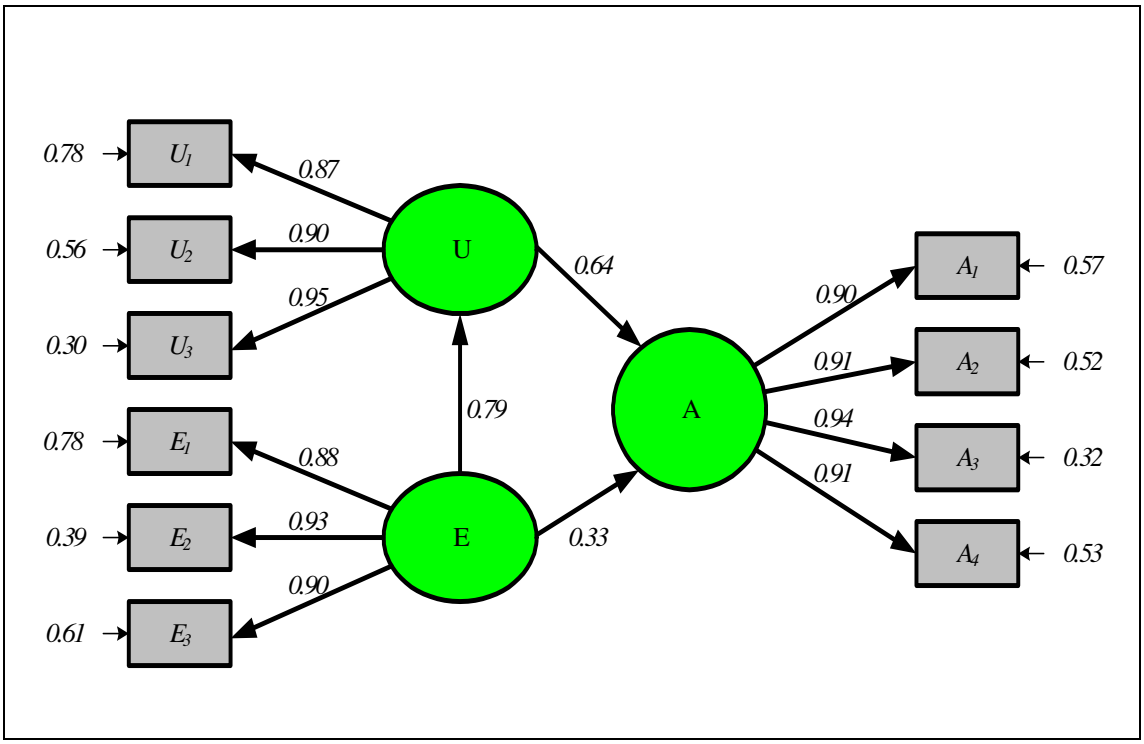


Figure 4-5 Result of SEM among males

Table 4-24 Covariance matrix of females for the SEM

	M.	Std.	E_1	E_2	E_3	U_1	U_2	U_3	A_1	A_2	A_3	A_4
E_1	4.68	1.480	2.189									
E_2	4.48	1.348	1.407	1.817								
E_3	4.46	1.436	1.364	1.537	2.062							
U_1	4.60	1.443	1.388	1.323	1.372	2.081						
U_2	4.68	1.485	1.310	1.143	1.208	1.683	2.206					
U_3	4.86	1.568	1.461	1.331	1.320	1.819	2.033	2.457				
A_1	4.86	1.540	1.578	1.334	1.287	1.702	1.859	2.048	2.371			
A_2	4.83	1.514	1.517	1.277	1.271	1.566	1.609	1.806	1.923	2.293		
A_3	4.71	1.519	1.581	1.286	1.253	1.608	1.630	1.833	1.995	2.079	2.307	
A_4	4.80	1.583	1.476	1.333	1.244	1.682	1.574	1.700	1.923	2.009	2.147	2.506

Table 4-25 Model fit of females

Fit index	Suggested value	Value	Acceptability
Chi-square	<0.05	110.23	Not accepted
Chi-square/df	<5.00	3.445	Accepted
Root-Mean-Square (RMR)	<0.05	0.051	Not accepted
Goodness-of-Fit Index (GFI)	>0.9	0.86	Not accepted
Adjusted for the Defree of Freedom Goodness-of-Fit Index (AGFI)	>0.9	0.76	Not accepted
Root-Mean-Square Error Approximation (RMSEA)	<0.08	0.133	Not accepted
Normed Fix Index (NFI)	>0.9	0.93	Accepted
Non-Normed Fit Index (NNFI)	>0.9	0.93	Accepted
Comparative Fit Index (CFI)	>0.9	0.95	Accepted
Incremental Fit Index (IFI)	>0.9	0.95	Accepted
Relative Fit Index (RFI)	>0.9	0.90	Not accepted

Table 4-26 shows females' direct, indirect and total effects of independent variables on attitude toward using iPad2 to read. Perceived ease of use has direct effects on attitude toward using iPad2 to read (β =0.25); perceived usefulness has direct effects on attitude toward using iPad2 to read (β =0.68); and perceived usefulness has indirect effects on attitude toward using iPad2 to read by the product of the two direct effects (0.78 * 0.68 = 0.53).

Table 4-26 Estimates of the direct and indirect effect on attitude among females

Constructs	Direct effect	Indirect effect	Total effect
E → U	0.78		
E → A	0.25		
U → A	0.68		
E → U → A		0.53 (0.78×0.68)	
E → A; E → U → A			0.78 (0.25+0.53)

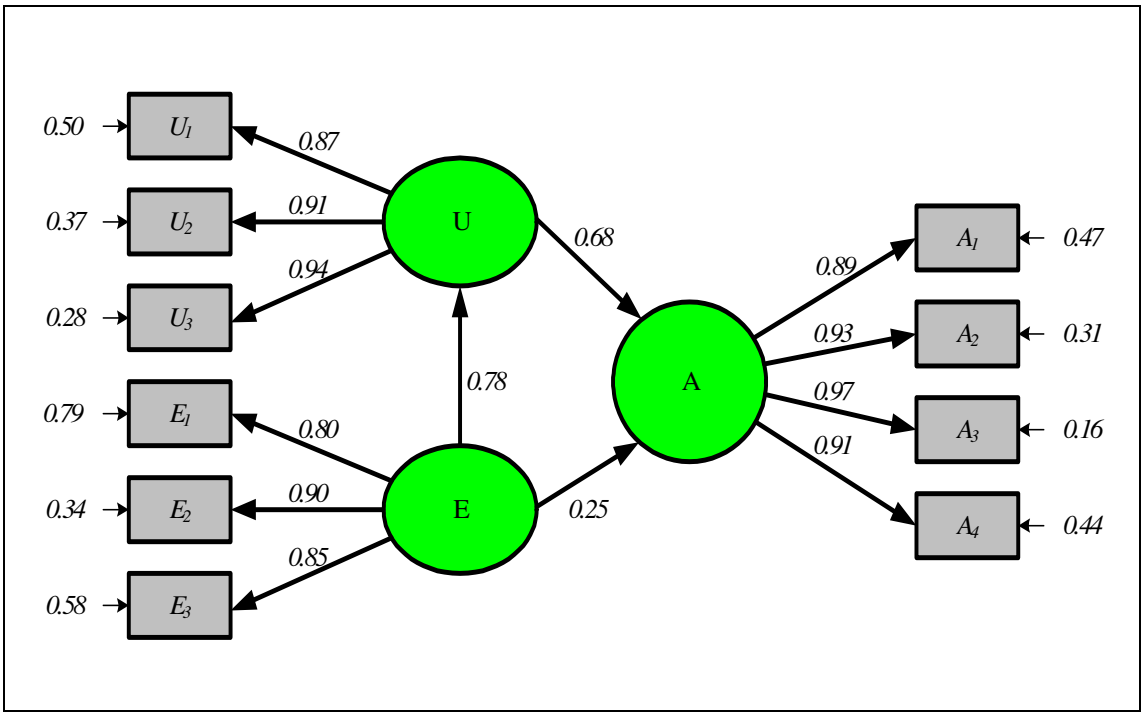


Figure 4-6 Result of SEM among females

Table 4-27 Test results of the hypotheses

	Hypothesize	t-value	Result
H 1-1:	Perceived ease of use has positive affected on perceived usefulness among males.	8.43	Support
H 1-2:	Perceived ease of use has positive affected on perceived usefulness among females.	7.32	Support
H 2-1:	Perceived usefulness has positive affected on users' attitudes toward using iPad2 to read among males.	4.24	Support
H 2-2:	Perceived usefulness has positive affected on users' attitudes toward using iPad2 to read among females.	2.78	Support
H 3-1:	Perceived ease of use has positive affected on users' attitudes toward using iPad2 to read among males.	6.32	Support
H 3-2:	Perceived ease of use has positive affected on users' attitudes toward using iPad2 to read among females.	5.90	Support

Chapter 5 Conclusion and Suggestion

This chapter will present conclusion of the analysis in the first section, limitation and suggestion of this study in the second section.

5.1 Conclusion and Suggestion

This section will provide the conclusion of structural equation modeling analysis , and the conclusion of importance-performance analysis.

Research objective 1: *Use the structure equation model (SEM) to explore the relationship between the perceived ease of use, perceived usefulness and attitude toward use when the freshmen use iPad2 to read.*

In this study, we have explored the relationships between perceived ease of use, perceived usefulness, and attitude toward use. The numerical results of hypotheses reveal both in the part of male and female respectively that perceived ease of use and perceived usefulness all have positive effects on attitude toward using iPad2 to read (i.e., perceived ease of use has direct effects on attitude toward use, perceived usefulness has direct effects on attitude toward use, and perceived ease of use has indirect effects on attitude toward use by effects from two direct products).

1. Perceived ease of use has positive effects on perceived usefulness

It refers to the greater the degree to which the users expect the target to be free of effort, the greater degree of increasing users' job performance. In other words, the more users feel that iPad2 is easy to operate, the more efficiency they get when they use iPad2 to read.

2. Perceived ease of use has positive effects on users' attitudes toward using iPad2 to read

When users feel that using iPad2 to read is easy to operate, they may start to exploit the device to achieve the target they desire in a short time, so that the users will have more positive attitude toward using iPad2 to read. Furthermore, users not only have more tends in using iPad2 to read, but also recommend it to other people.

3. Perceived usefulness has positive effects on users' attitudes toward using iPad2 to read

When users find out that reading on iPad2 may help them in broadening their horizons, receiving information they need efficiently, using iPad2 to read at anytime and anywhere, then they will think that reading in this form is useful. Once they have confidence in the effect, they will have more enthusiastic attitude to present the form of reading, even the device, to others.

Research Objective 2: *To investigate the relationship between perceived ease of use, perceived usefulness and attitude toward use for males and females respectively*

For both males and females, there were the same results that perceived ease of use had the highest path coefficient to perceived usefulness, followed by perceived usefulness to attitude toward use, and perceived usefulness had the lowest path coefficient to attitude toward use. In addition, both males and females' perceived ease of use had similar effects on usefulness, and females' perceived usefulness had more effects on attitude toward use than males. But perceived ease of use to attitude toward use are the opposite, males' path coefficient was higher than females'.

It means that both males and females' belief that iPad2 is easy to operate may help them have high possibility of broadening their horizons. Their thinking that

iPad2 helps them in broadening their horizons will make them have much more positive attitude toward using iPad2 to read, and females have stronger belief than males. As for the relationship between perceived ease of use and attitude toward use, both males and females' belief that iPad2 is easy to operate may make them have positive attitude toward using iPad2 to read, but the effects is less obvious than the others.

The study suggests iPad2 should provide an easy to operate interface or application, so that users can achieve maximum results through using iPad2 to read. Then they will recommend the device to the people around (e.g., family member, friend, and relative etc.).

Research Objective 3: *Use importance-performance analysis to examine which functions are users focused*

Through the importance-performance analysis, element 10 (i.e., there are many free resource available for download) and element 11 (i.e., there is an explicit and fair return standard) fall in quadrant Ⅰ – concentrate here, which need to be improved preferentially. Modern people spend much more time on the internet, so they will have more demand for network resources. In addition, spending less time and getting the same quality is the objective people seek, so users hope to have more free resources for downloading from internet. According to the principle of fair trade, more explicit trading norms should be developed in order to avoid deceptive or obviously unfair act or even the dispute between transactions. This research suggests that company should specifically disclose information to the consumers. Other parts that needed to be improved in advance, which fall in quadrant Ⅰ, included elements 3 (i.e., battery life), 4 (i.e., comfort felt when reading through screen) and 9 (i.e., there are many resource of books and magazines available for download), and these had different results depending on different groups.

It is inferred from importance-performance analysis that only element 6 (i.e., fluency of reading) fell in quadrant Ⅱ – keep up the good work. Using iPad2 to read is very different from the past in the reading form. Conversion of the reading of printed form to the tablet will first face to the question of adaptation. If the process of reading on tablet device gives smoothness to the users, they will have high evaluation of satisfaction. According to the results, users think that the function should be maintained. Other parts that needed to keep up the good work in quadrant Ⅱ included elements 3 (i.e., battery life), 4 (i.e., comfort felt when reading through screen), and 9 (i.e., there are many resource of books and magazines available for download), and these had different results depending on different groups.

According to the elements which fell in quadrant Ⅰ- concentrate here, we presented the implication as follow:

● Battery life

Apple Inc. should extend the continuing power of the battery or provide an application that spends less power when users use it.

● There are many resource of books and magazines available for download

Apple Inc. should provide a regulation that it is free to upload but downloading of the content must be paid for. It may encourage people to upload more resource to the internet.

● There are many free resource available for download

Apple Inc. should provide a regulation that it is free to upload but downloading of the content of which the price is greater than U.S. $3 must be paid for.

● There is an explicit and fair return standard

The government should draw up a statute to protect consumers' right when they conduct trading behavior.

5.2 Limitations

This research has successfully corroborated the integrated framework for understanding the situation of reading on iPad2. Through SEM, this study has interpreted relationship among perceived ease of use, perceived usefulness and attitude toward use. Despite the care taken to ensure that the methodology in this study was appropriate, several limitations are given as follows.

1. Because of the policy that freshmen received an iPad2 when they entered in the private university, we only chose iPad2 as reading vehicle in this study. Future researches can use other brands of tablet vehicles, (e.g., Acer, ASUS, Gigabyte, HTC, Samsung, SONY and view sonic etc.) or even the e-reader that displayed e-paper (e.g., Kindle, greenbook etc.) as the reading vehicles.

2. The results of this study provide relationship between perceived ease of use, perceived usefulness and attitude toward use. To obtain further thorough and certain results, future studies could add behavior intention to the framework or use other revised TAM to have a more detailed evaluation and clear understanding on research hypotheses.

3. Our data are all focused and gathered on the students of the private university, so the conceptual framework proposed by us is suitable for students. But users in different universities, or with different professions, even in different countries may not be explained by this conceptual framework. Future researches can collect samples from other groups and compare the differences.

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Appendix A　Questionnaire

您好：

感謝您撥冗填答此份問卷，請思考您關於閱讀之習慣，並依您平時進行閱讀活動時之情況回答相關問題。本問卷採取不具名之方式調查，僅供學術研究使用，敬請安心作答。

敬祝

順心 如意

南華大學出版與文化事業管理研究所

指導教授：黃昱凱 博士

研究生：陳倪筑 敬上

▲第一部分　網路使用與閱讀行為

1、請問您平均每天使用網路的小時數為？1.□1 小時(含)以內　2.□1-2(含)小時　3.□2-3(含)小時　4.□3-4(含)小時　5.□4-5(含)小時　6.□5-6(含)小時　7.□6 小時以上

2、請問您有幾年網路購物的經驗？

1.□1 年(含)以內 2.□1-2(含)年 3.□2-3(含)年 4.□3-4(含)年 5.□4-5(含)年 6.□5 年以上

3、請問您平均約多久購書一次(包含實體通路、網路)？

1.□1 個月　2.□2-3 個月　3.□4-6 個月　4.□半年-1 年　5.□1 年以上

4、請問您平均每次購書(包含實體通路、網路)的金額約為？

1.□250 元以內　2.□251-500 元　3.□501-1000 元　4.□1001-1500 元　5.□1501 元以上

5、請問您平常閱讀(例：書報雜誌)的頻率為何？

1.□幾乎每天　2.□每週　3.□每個月　4.□有需要才看　5.□幾乎不閱讀

6、請問您平常會使用 iPad2 來進行何種活動？**(複選)**

1.□閱讀(例：書報雜誌)　2.□玩遊戲　3.□上網瀏覽(例：部落格、新聞)　4.□上網購物　5.□上網找資料　6.□使用 App 下載之應用程式　7.□收發電子郵件　8.□看網路影片　9.□其他

＊承上題，請問您**最常**使用 iPad2 來進行何種活動？**(單選)**

1.□閱讀(例：書報雜誌)　2.□玩遊戲　3.□上網瀏覽(例：部落格、新聞)　4.□上網購物　5.□上網找資料　6.□使用 App 下載之應用程式　7.□收發電子郵件　8.□看網路影片　9.□其他

7、請問您平常閱讀紙本形式的書報雜誌種類為何？**(複選)**

1.□文學　2.□財經企管　3.□生活風格　4.□心理勵志　5.□醫療保健　6.□旅遊　7.□宗教命理　8.□親子教養/童書　9.□輕小說　10.□漫畫　11.□語言學習　12.□藝術設計　13.□電腦資訊　14.□自然科普

15.□人文歷史　16.□社會科學　17.□考試書/政府出版品

＊承上題，請問您較有可能使用 iPad2 來進行閱讀的圖書種類為哪些？**(複選)**

1.□文學　2.□財經企管　3.□生活風格　4.□心理勵志　5.□醫療保健
6.□旅遊　7.□宗教命理　8.□親子教養/童書　9.□輕小說　10.□漫畫
11.□語言學習　12.□藝術設計　13.□電腦資訊　14.□自然科普
15.□人文歷史　16.□社會科學　17.□考試書/政府出版品

8、請問您認為您可能會使用 iPad2 來進行閱讀活動(如：書報雜誌、PDF、epub)的地點為？**(複選)**

1.□家中/宿舍　2.□交通工具上　3.□學校　4.□公共場所　5.□其他

＊承上題，請問您認為您**最有可能**會使用 iPad2 來進行閱讀活動(如：書報雜誌、PDF、epub)的地點為？　**(單選)**　1.□家中/宿舍　2.□交通工具上　3.□學校　4.□公共場所　5.□其他

9、請問您認為您可能會使用 iPad2 來進行閱讀活動(書報雜誌、PDF、ePUB)的時點為？**(複選)**

1.□課堂上　2.□通勤途中　3.□吃飯時　4.□睡覺前　5.□看電視時
6.□其他

＊承上題，請問您認為您**最有可能**會使用 iPad2 來進行閱讀活動(書報雜誌、PDF、epub)的時點為？　**(單選)**　1.□課堂上　2.□通勤途中　3.□吃飯時　4.□睡覺前　5.□看電視時　6.□其他

10、您擁有哪些閱讀載具？**(複選)**

1.□蘋果平板　2.□Android 系統平板(如：Acer、Asus、HP…等)
3.□Notebook(筆記型電腦)　4.□電子書閱讀器(如：漢王、Kindle…等)
5.□智慧型手機　6.□其他

＊承上題，請問您**最有可能**使用**哪一種**閱讀載具進行閱讀活動？**(單選)**

1.□蘋果平板　2.□Android 系統平板(如：Acer、Asus、HP…等)
3.□Notebook(筆記型電腦)　4.□電子書閱讀器(如：漢王、Kindle…等)
5.□智慧型手機　6.□其他

▲第二部分　以下請根據您使用 iPad2 來閱讀時的感覺，勾選您的意見

	非常不滿意<----->非常滿意 1 2 3 4 5 6 7
01.學習使用 iPad2 來閱讀對我來說是容易的	□ □ □ □ □ □ □
02.我覺得 iPad2 的閱讀程式(iBooks)閱讀介面操作起來很人性化	□ □ □ □ □ □ □
03.iPad2 閱讀程式(iBooks)的操作介面對我來說是容易瞭解的	□ □ □ □ □ □ □
04.使用 iPad2 使我能有效率地獲取我所需要的資訊（例如：書報雜誌、PDF 或 epub 格式內容、網路新聞等）	□ □ □ □ □ □ □

並進行閱讀活動	
05.使用 iPad2 使我能隨時隨地獲取我所需要的資訊（例如：書報雜誌、PDF 或 epub 格式內容、網路新聞等）並進行閱讀活動	□ □ □ □ □ □ □
06.使用 iPad2 來閱讀我所需要的資訊（例如：書報雜誌、PDF 或 epub 格式內容、網路新聞等）讓我感覺很方便	□ □ □ □ □ □ □
07.我認為使用 iPad2 可以讓我隨時享受閱讀的樂趣	□ □ □ □ □ □ □
08.我對使用 iPad2 進行閱讀活動持正面肯定的看法	□ □ □ □ □ □ □
09.我願意持續使用 iPad2 進行我的閱讀活動	□ □ □ □ □ □ □
10.我願意推薦他人使用 iPad2 作為閱讀的載具	□ □ □ □ □ □ □

▲第三部分 當您使用 iPad2 進行閱讀活動時，就下列問項中請問您所認知的重要程度與滿意程度為何？

重　要　程　度 非常不重要<----->非常重要 1 2 3 4 5 6 7	問　項	**滿　意　程　度** 非常不滿意<----->非常滿意 1 2 3 4 5 6 7
□ □ □ □ □ □ □	01.重量	□ □ □ □ □ □ □
□ □ □ □ □ □ □	02.螢幕的大小	□ □ □ □ □ □ □
□ □ □ □ □ □ □	03.電池的續航力	□ □ □ □ □ □ □
□ □ □ □ □ □ □	04.閱讀文字時螢幕所感受之舒適度	□ □ □ □ □ □ □
□ □ □ □ □ □ □	05.與閱讀有關之應用程式的相容性	□ □ □ □ □ □ □
□ □ □ □ □ □ □	06.閱讀時的流暢度(如翻頁效果)	□ □ □ □ □ □ □
□ □ □ □ □ □ □	07.多樣化的閱讀體驗(如語音唸書等)	□ □ □ □ □ □ □
□ □ □ □ □ □ □	08.與閱讀有關的設計(例如：貼標、劃線、註記、調整字體大小等功能)	□ □ □ □ □ □ □
□ □ □ □ □ □ □	09.是否有許多書報雜誌的資源可供下載(包含付費、免費)	□ □ □ □ □ □ □
□ □ □ □ □ □ □	10.是否有許多免費的內容可下載	□ □ □ □ □ □ □
□ □ □ □ □ □ □	11.是否有明確、公平的退貨規範	□ □ □ □ □ □ □

▲第四部分　數位閱讀行為傾向　（以下皆為單選）

1、未來一年，您會嘗試使用 iPad2 來進行閱讀活動(如：書報雜誌、PDF、epub 等)的可能性為何？

1.□已有使用 iPad2 來進行閱讀活動　2.□很有可能　3.□看情況　4.□不太可能　5.□絕不可能

2、未來一年，您透過 iPad2 的 App **下載免費電子雜誌並閱讀**之可能性為何？

1.□我已開始下載免費電子雜誌　2.□很有可能　3.□視情況而定　4.□不太可能　5.□絕不可能

3、未來一年，您透過 iPad2 的 App **下載免費電子書並閱讀**之可能性為何？

1.□我已開始下載免費電子書　2.□很有可能　3.□視情況而定　4.□不太可能　5.□絕不可能

4、未來一年，您透過 iPad2 的 App **付費購買電子雜誌並閱讀**之可能性為何？

1.□我已開始付費購買過電子雜誌　2.□很有可能　3.□視情況而定　4.□不太可能　5.□絕不可能

5、未來一年，您透過 iPad2 的 App **付費購買電子書並閱讀**之可能性為何？

1.□我已開始付費購買過電子書　2.□很有可能　3.□視情況而定　4.□不太可能　5.□絕不可能

▲第五部分　基本資料

1、請問您的性別？ 1.□男　2.□女

2、請問您就讀的學院別為？

1.□管理學院　2.□人文學院 3.□社會科學院 4.□藝術學院 5.□科技學院

3、請問您每月可支用之零用錢為？

1.□3,000 元以下　2.□3,001-6,000 元　3.□6,001-10,000 元　4.□10,001-15,000 元　5.□15,001 元以上

4、請問您的戶籍地為？

1.□北部(基隆、台北、桃園、新竹、苗栗)　2.□中部(台中、彰化、雲林、南投)　3.□南部(嘉義、台南、高雄、屏東)　4.□東部(宜蘭、花蓮、台東)　5.□離島(澎湖、金門、馬祖)　6.□其他

～本問卷至此結束，感謝您的協助，祝您心想事成～

Appendix B Descriptive analysis

Table b-1 Frequency table of experience of internet using and reading habits

Experience	Sample(n)	Percentage(%)	Rank
Hours of internet using per day			
Less than one hour (included)	23	7.6	[6]
One to two hours (included)	30	9.9	[5]
Two to three hours (included)	48	15.9	[4]
Three to four hours (included)	48	15.9	[4]
Four to five hours (included)	53	17.5	[1]
Five to six hours (included)	49	16.2	[3]
More than six hours	51	16.9	[2]
Experience in internet shopping			
Less than one year (included)	147	48.7	[1]
One to two years (included)	51	16.9	[2]
Two to three years (included)	38	12.6	[3]
Three to four years (included)	20	6.6	[5]
Four to five years (included)	14	4.6	[6]
More than six years	32	10.6	[4]
Frequency of books purchasing			
One year	71	23.5	[2]
Two to three months	41	13.6	[5]
Four to six months	49	16.2	[4]
seven months to one year	58	19.2	[3]
More than one year	83	27.5	[1]
Amount spent for books purchasing each time			
Less than 250 dollars	102	33.8	[2]
251-500 dollars	123	40.7	[1]
501-1000 dollars	58	19.2	[3]
1001-1500 dollars	8	2.6	[5]
More than 1501 dollars	11	3.6	[4]
Frequency of reading			
Almost every day	52	17.2	[3]
Weekly	77	25.5	[2]
Each month	46	15.2	[4]
Reading only need	109	36.1	[1]
Almost no reading	18	6.0	[5]

Table b-2 Frequency table of the experience of reading on iPad2

Experience	Sample	Percentage(%)	Rank
The most activities on iPad2			
Reading	21	7.0	[3]
Play games	106	35.1	[2]
Internet browsing	113	37.4	[1]
Online shopping	3	1.0	[9]
Find information online	18	6.0	[4]
Using application download from App	10	3.3	[7]
Send and receive E-mail	4	1.3	[8]
Watch internet video	16	5.3	[5]
Others	11	3.6	[6]
Location			
Home / Dormitory	60	19.9	[2]
Transport	36	11.9	[3]
School	185	61.3	[1]
Public places	16	5.3	[4]
Others	5	1.7	[5]
Point in time			
Class time	82	27.2	[2]
Commute time	102	33.8	[1]
Eating time	23	7.6	[5]
Before going to sleep	52	17.2	[3]
Watching TV	5	1.7	[6]
Others	38	12.6	[4]
Reading tool			
Apple Tablet	114	37.7	[1]
Tablet android system	15	5.0	[5]
Notebook	110	36.4	[2]
E-book reader	4	1.3	[6]
Smartphone	34	11.3	[3]
Others	25	8.3	[4]

Table b-3 The most common activity used with iPad2

Common Activities	Number	Percentage of Cases	Rank
Reading	117	38.7	[6]
Play games	238	78.8	[2]
Internet browsing	248	82.1	[1]
Online shopping	57	18.9	[8]
Find information online	199	65.9	[3]
Using application download from App	171	56.6	[4]
Send and receive E-mail	95	31.5	[7]
Watch internet video	167	55.3	[5]
Others	38	12.6	[9]
Total	1330	440.4	

Table b-4 The categories of books usually read in the paper form

Categories of Books	Number	Percentage of Cases	Rank
Literature	90	29.8	[6]
Financial business management	41	13.6	[12]
Life style	134	44.4	[3]
Psychological inspirational	112	37.1	[4]
Health care	40	13.2	[13]
Tourism	108	35.8	[5]
Religious numerology	25	8.3	[16]
Parent-child education / children's books	18	6.0	[17]
Light novel	152	50.3	[1]
Comic books	148	49.0	[2]
Language learning	44	14.6	[10]
Art and design	86	28.5	[7]
Computer and information	75	24.8	[8]
Natural science	35	11.6	[14]
Cultural and historical	47	15.6	[9]
Social sciences	42	13.9	[11]
Examination books / Government Publications	30	9.9	[15]
Total	1227	406.3	

Table b-5 The categories of books are more likely to read on iPad2

Categories of Books	Number	Percentage of Cases	Rank
Literature	66	21.9	[7]
Financial business management	30	9.9	[8]
Life style	92	30.5	[3]
Psychological inspirational	69	22.8	[6]
Health care	28	9.3	[10]
Tourism	88	29.1	[4]
Religious numerology	21	7.0	[13]
Parent-child education / children's books	10	3.3	[14]
Light novel	149	49.3	[1]
Comic books	128	42.4	[2]
Language learning	29	9.6	[9]
Art and design	72	23.8	[5]
Computer and information	66	21.9	[7]
Natural science	26	8.6	[11]
Cultural and historical	30	9.9	[8]
Social sciences	30	9.9	[8]
Examination books / Government Publications	24	7.9	[12]
Total	958	317.2	

Table b-6 The location of most likely to use iPad2 to read

Location	Number	Percentage of Cases	Rank
Home / Dormitory	154	51.0	[3]
Transport	117	38.7	[4]
School	247	81.8	[1]
Public places	172	57.0	[2]
Others	27	8.9	[5]
Total	717	237.4	

Table b-7 Point in time of most likely to read on iPad2

Point In Time	Number	Percentage of Cases	Rank
Class time	134	44.4	[2]
Commute time	165	54.6	[1]
Eating time	74	24.5	[4]
Before going to sleep	108	35.8	[3]
Watching TV	31	10.3	[5]
Others	74	24.5	[4]
Total	586	194.0	

Table b-8 The reading tool of most likely to use to read

Reading Tool	Number	Percentage of Cases	Rank
Apple Tablet	205	67.9	[1]
Tablet android system	40	13.2	[4]
Notebook	164	54.3	[2]
E-book reader	21	7.0	[6]
Smartphone	86	28.5	[3]
Others	36	11.9	[5]
Total	552	182.8	

Appendix C IPA

Table c-1 Mean importance and satisfaction of the elements among males

	Elements	Mean Imp.	Std. Error	Mean Sat.	Std. Error	Quadrant
1	Weight	5.466	1.715	4.733	1.660	Ⅳ
2	Screen size	5.693	1.553	5.080	1.563	Ⅳ
3	Battery life	6.018	1.459	4.301	1.750	Ⅰ
4	Comfort felt when reading through the screen	5.853	1.428	4.761	1.555	Ⅱ
5	Application compatibility related to reading	5.697	1.540	4.546	1.645	Ⅲ
6	Fluency of reading	5.733	1.433	4.847	1.562	Ⅱ
7	Diversified reading experience	5.233	1.635	4.601	1.497	Ⅳ
8	Reading-related design	5.697	1.415	4.571	1.519	Ⅲ
9	There are many resource of books and magazines available for download	5.650	1.639	4.270	1.764	Ⅲ
10	There are many free resource available for download	5.834	1.549	4.294	1.812	Ⅰ
11	There is an explicit and fair return standard	5.755	1.512	4.356	1.601	Ⅰ
	Overall	5.698		4.582		

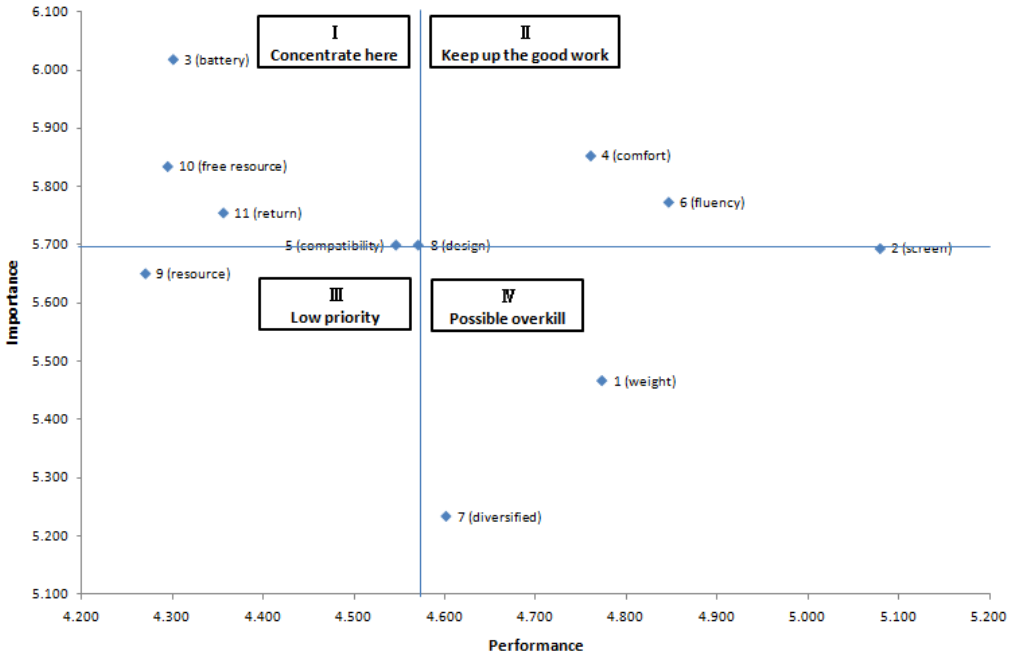

Figure c-1 Mean data plotting on the importance-performance analysis grid for males

Table c-2 Mean importance and satisfaction of the elements among females

	Elements	Mean Imp.	Std. Error	Mean Sat.	Std. Error	Quadrant
1	Weight	5.633	1.309	4.683	1.330	Ⅲ
2	Screen size	5.727	1.350	5.007	1.305	Ⅳ
3	Battery life	6.151	1.262	4.734	1.472	Ⅱ
4	Comfort felt when reading through the screen	6.000	1.308	4.863	1.281	Ⅱ
5	Application compatibility related to reading	5.849	1.262	4.640	1.167	Ⅲ
6	Fluency of reading	5.986	1.263	4.849	1.251	Ⅱ
7	Diversified reading experience	5.561	1.425	4.676	1.175	Ⅲ
8	Reading-related design	5.849	1.268	4.799	1.174	Ⅳ
9	There are many resource of books and magazines available for download	6.108	1.171	4.410	1.449	Ⅰ
10	There are many free resource available for download	6.245	1.185	4.417	1.434	Ⅰ
11	There is an explicit and fair return standard	6.129	1.262	4.597	1.295	Ⅰ
	Overall	5.931		4.698		

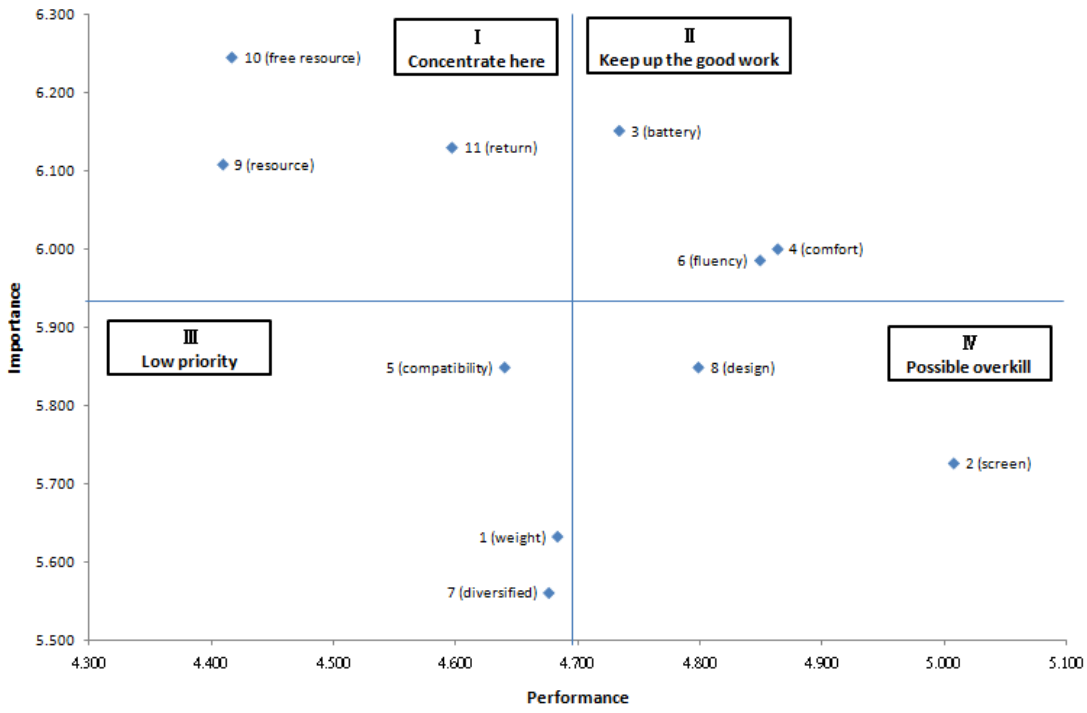

Figure c-2 Mean data plotting on the importance-performance analysis grid for females

Table c-3 Mean importance and satisfaction of the elements among respondents that are likely to download free E-zines and then read on iPad2

	Elements	Mean Imp.	Std. Error	Mean Sat.	Std. Error	Quadrant
1	Weight	5.634	1.520	4.806	1.606	Ⅳ
2	Screen size	5.769	1.466	5.224	1.520	Ⅳ
3	Battery life	6.239	1.355	4.612	1.721	Ⅰ
4	Comfort felt when reading through the screen	6.060	1.413	4.993	1.448	Ⅱ
5	Application compatibility related to reading	5.866	1.535	4.746	1.520	Ⅲ
6	Fluency of reading	5.955	1.455	5.000	1.522	Ⅱ
7	Diversified reading experience	5.463	1.671	4.709	1.491	Ⅲ
8	Reading-related design	5.896	1.442	4.903	1.419	Ⅳ
9	There are many resource of books and magazines available for download	6.037	1.468	4.418	1.722	Ⅰ
10	There are many free resource available for download	6.231	1.398	4.358	1.787	Ⅰ
11	There is an explicit and fair return standard	6.075	1.459	4.575	1.582	Ⅰ
	Overall	**5.929**		**4.758**		

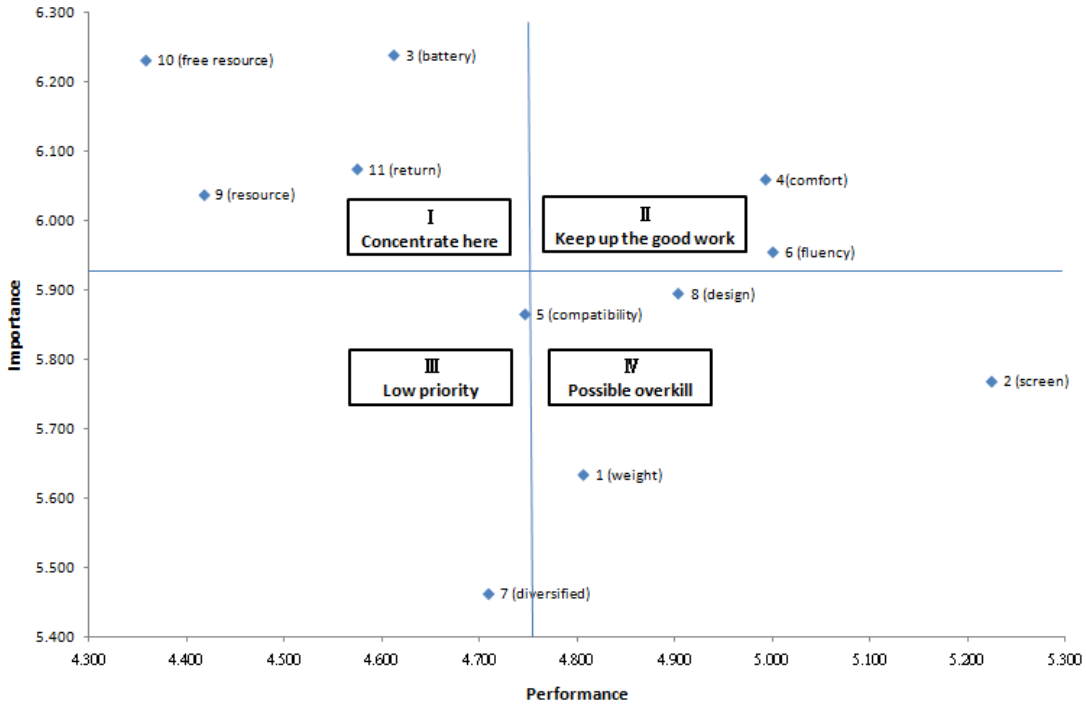

Figure c-3 Mean data plotting on the importance-performance analysis grid for respondents that are likely to download free E-zines and then read on iPad2

Table c-4 Mean importance and satisfaction of the elements among respondents that are unlikely to download free E-zines and then read on iPad2

	Elements	Mean Imp.	Std. Error	Mean Sat.	Std. Error	Quadrant
1	Weight	5.470	1.559	4.673	1.441	Ⅳ
2	Screen size	5.661	1.459	4.905	1.377	Ⅳ
3	Battery life	5.952	1.375	4.411	1.572	Ⅰ
4	Comfort felt when reading through the screen	5.810	1.336	4.661	1.409	Ⅱ
5	Application compatibility related to reading	5.690	1.318	4.464	1.371	Ⅲ
6	Fluency of reading	5.804	1.277	4.726	1.334	Ⅱ
7	Diversified reading experience	5.321	1.445	4.577	1.241	Ⅳ
8	Reading-related design	5.667	1.265	4.494	1.313	Ⅲ
9	There are many resource of books and magazines available for download	5.720	1.439	4.268	1.546	Ⅰ
10	There are many free resource available for download	5.857	1.394	4.345	1.532	Ⅰ
11	There is an explicit and fair return standard	5.810	1.367	4.381	1.375	Ⅰ
	Overall	**5.706**		**4.537**		

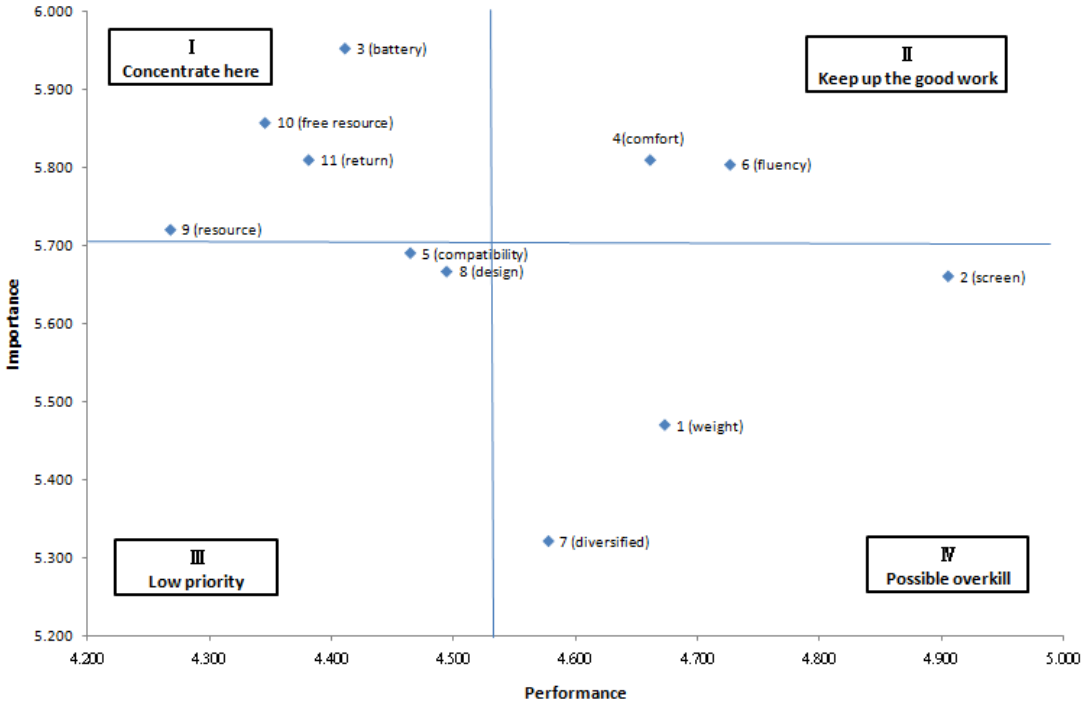

Figure c-4 Mean data plotting on the importance-performance analysis grid for respondents that are unlikely to download free E-zine and then read on iPad2

Table c-5 Mean importance and satisfaction of the elements among respondents that are likely to pay for E-zines and then read on iPad2

	Elements	Mean Imp.	Std. Error	Mean Sat.	Std. Error	Quadrant
1	Weight	5.438	1.761	4.292	1.774	Ⅲ
2	Screen size	5.521	1.726	4.563	1.725	Ⅳ
3	Battery life	5.875	1.645	3.875	1.709	Ⅰ
4	Comfort felt when reading through the screen	5.875	1.409	4.313	1.703	Ⅰ
5	Application compatibility related to reading	5.542	1.701	4.583	1.648	Ⅳ
6	Fluency of reading	5.771	1.561	4.500	1.750	Ⅱ
7	Diversified reading experience	5.417	1.748	4.583	1.609	Ⅳ
8	Reading-related design	5.625	1.645	4.396	1.759	Ⅳ
9	There are many resource of books and magazines available for download	5.708	1.637	4.458	1.833	Ⅱ
10	There are many free resource available for download	5.833	1.602	4.083	1.855	Ⅰ
11	There is an explicit and fair return standard	5.708	1.529	4.208	1.663	Ⅰ
	Overall	**5.665**		**4.350**		

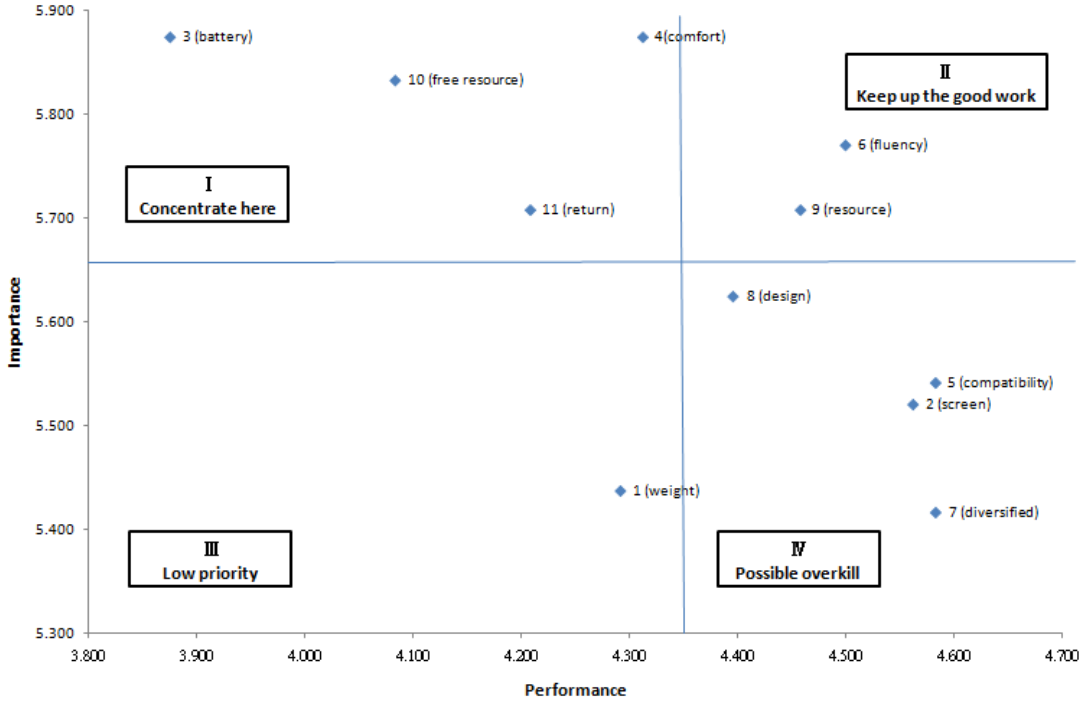

Figure c-5 Mean data plotting on the importance-performance analysis grid for respondents that are likely to pay for E-zines and then read on iPad2

Table c-6 Mean importance and satisfaction of the elements among respondents that are unlikely to pay for E-zines and then read on iPad2

	Elements	Mean Imp.	Std. Error	Mean Sat.	Std. Error	Quadrant
1	Weight	5.563	1.499	4.815	1.451	Ⅳ
2	Screen size	5.744	1.406	5.138	1.375	Ⅳ
3	Battery life	6.118	1.313	4.618	1.603	Ⅰ
4	Comfort felt when reading through the screen	5.929	1.370	4.902	1.361	Ⅱ
5	Application compatibility related to reading	5.811	1.359	4.591	1.405	Ⅲ
6	Fluency of reading	5.890	1.320	4.913	1.349	Ⅱ
7	Diversified reading experience	5.378	1.511	4.646	1.307	Ⅲ
8	Reading-related design	5.795	1.287	4.728	1.286	Ⅳ
9	There are many resource of books and magazines available for download	5.890	1.424	4.311	1.586	Ⅰ
10	There are many free resource available for download	6.059	1.366	4.402	1.604	Ⅰ
11	There is an explicit and fair return standard	5.969	1.388	4.516	1.430	Ⅰ
	Overall	**5.831**		**4.689**		

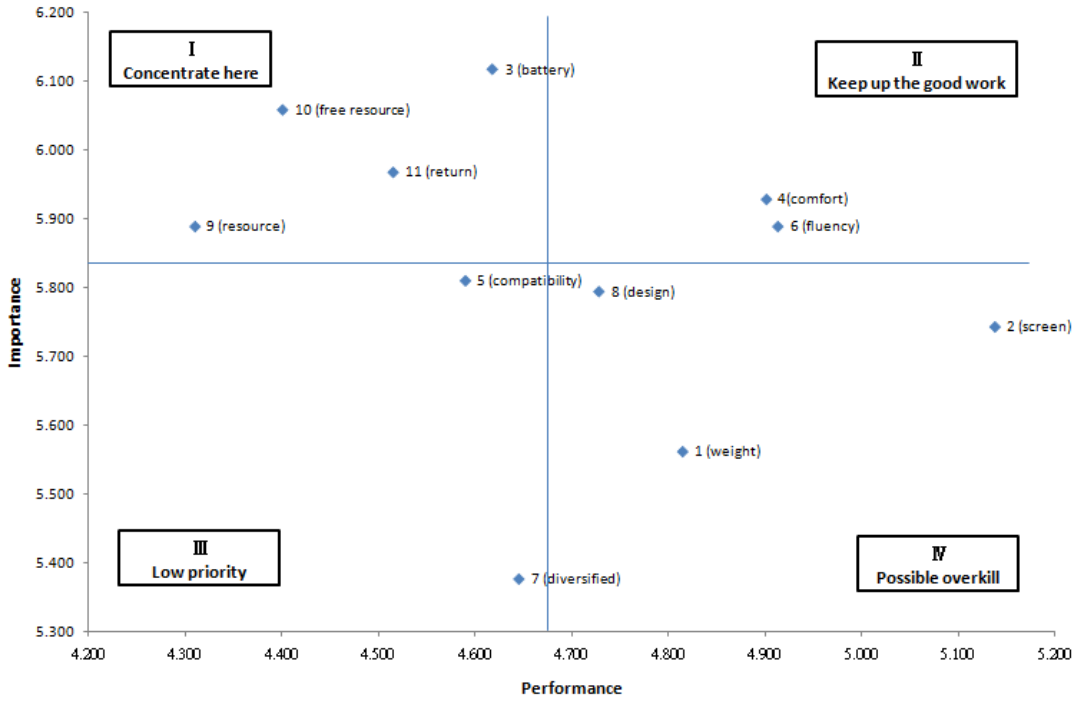

Figure c-6 Mean data plotting on the importance-performance analysis grid for respondents that are unlikely to pay for E-zine and then read on iPad2

Table c-7 Mean importance and satisfaction of the elements among respondents that read regularly

	Elements	Mean Imp.	Std. Error	Mean Sat.	Std. Error	Quadrant
1	Weight	5.527	1.625	4.659	1.603	Ⅲ
2	Screen size	5.798	1.470	5.054	1.502	Ⅳ
3	Battery life	6.140	1.391	4.473	1.663	Ⅰ
4	Comfort felt when reading through the screen	6.016	1.364	4.806	1.552	Ⅱ
5	Application compatibility related to reading	5.829	1.501	4.736	1.428	Ⅳ
6	Fluency of reading	5.992	1.383	4.899	1.494	Ⅱ
7	Diversified reading experience	5.450	1.644	4.791	1.418	Ⅳ
8	Reading-related design	5.853	1.358	4.721	1.541	Ⅳ
9	There are many resource of books and magazines available for download	5.961	1.538	4.295	1.568	Ⅰ
10	There are many free resource available for download	6.070	1.448	4.411	1.628	Ⅰ
11	There is an explicit and fair return standard	5.984	1.381	4.535	1.541	Ⅰ
	Overall	**5.875**		**4.671**		

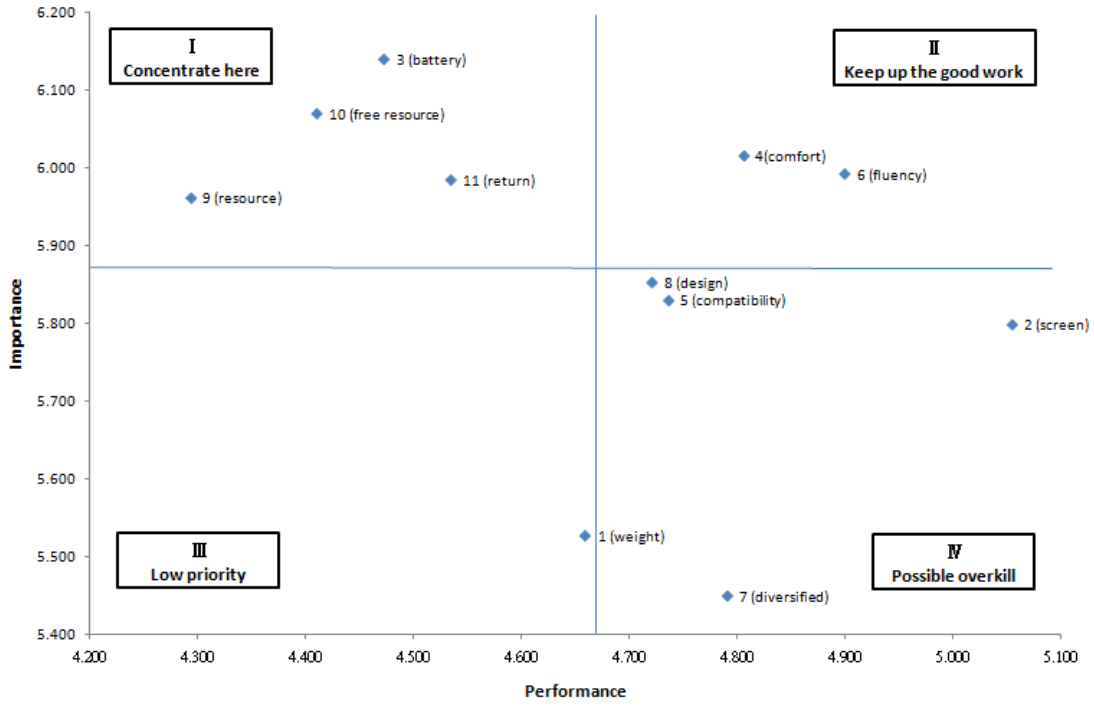

Figure c-7 Mean data plotting on the importance-performance analysis grid for respondents that read regularly

Table c-8 Mean importance and satisfaction of the elements among respondents that read seldom

	Elements	Mean Imp.	Std. Error	Mean Sat.	Std. Error	Quadrant
1	Weight	5.555	1.480	4.786	1.449	Ⅳ
2	Screen size	5.642	1.454	5.040	1.412	Ⅳ
3	Battery life	6.035	1.359	4.520	1.627	Ⅰ
4	Comfort felt when reading through the screen	5.850	1.381	4.809	1.344	Ⅱ
5	Application compatibility related to reading	5.723	1.357	4.480	1.449	Ⅲ
6	Fluency of reading	5.780	1.337	4.809	1.374	Ⅱ
7	Diversified reading experience	5.335	1.476	4.520	1.301	Ⅲ
8	Reading-related design	5.705	1.342	4.642	1.238	Ⅳ
9	There are many resource of books and magazines available for download	5.786	1.396	4.364	1.671	Ⅰ
10	There are many free resource available for download	5.988	1.377	4.306	1.665	Ⅰ
11	There is an explicit and fair return standard	5.884	1.438	4.416	1.418	Ⅰ
	Overall	**5.753**		**4.609**		

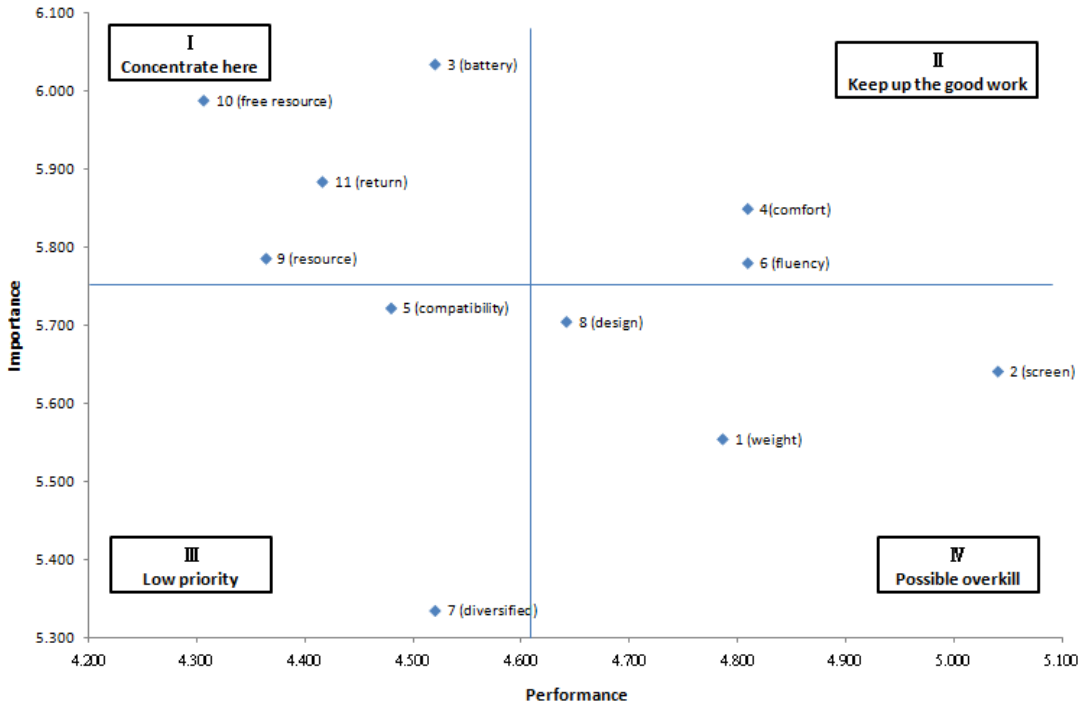

Figure c-8 Mean data plotting on the importance-performance analysis grid for respondents that read seldom

Appendix D Independent samples t-test

Table d-1 The importance of t-test between male and female

		Levene's Test for Equality of Variances		T-test for Equality of Mean						
		F	Sig.	t	d.f.	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Imp. - Weight	Equal variances assumed	13.989	.000	-.937	300	.349	-.167	.178	-.517	.183
	Equal variances not assumed			-.957	296.476	.339	-.167	.174	-.510	.176
Imp. - Screen	Equal variances assumed	5.235	.023	-.198	300	.844	-.033	.169	-.366	.299
	Equal variances not assumed			-.200	299.880	.842	-.033	.167	-.362	.295
Imp. - Battery	Equal variances assumed	2.778	.097	-.838	300	.403	-.133	.158	-.444	.179
	Equal variances not assumed			-.847	299.935	.398	-.133	.157	-.441	.175
Imp. - Comfort	Equal variances assumed	4.929	.027	-.928	300	.354	-.147	.159	-.459	.165
	Equal variances not assumed			-.935	298.465	.351	-.147	.158	-.457	.163
Imp. - Compatibility	Equal variances assumed	9.577	.002	-.913	300	.362	-.150	.164	-.472	.173
	Equal variances not assumed			-.927	299.544	.355	-.150	.161	-.467	.168
Imp. - Fluency	Equal variances assumed	7.322	.007	-1.357	300	.176	-.213	.157	-.521	.096
	Equal variances not assumed			-1.371	299.669	.172	-.213	.155	-.518	.093
Imp. - Diversified	Equal variances assumed	6.036	.015	-1.842	300	.066	-.328	.178	-.678	.022
	Equal variances not assumed			-1.863	299.852	.063	-.328	.176	-.675	.019
Imp. - Design	Equal variances assumed	2.984	.085	-.960	300	.338	-.150	.156	-.456	.157
	Equal variances not assumed			-.968	299.248	.334	-.150	.154	-.453	.154
Imp. - Resource	Equal variances assumed	23.998	.000	-2.747	300	.006	-.458	.167	-.785	-.130
	Equal variances not assumed			-2.819	291.462	.005	-.458	.162	-.777	-.138
Imp. – Free resource	Equal variances assumed	16.229	.000	-2.551	300	.011	-.410	.161	-.727	-.094
	Equal variances not assumed			-2.605	296.641	.010	-.410	.158	-.720	-.100
Imp. - Return	Equal variances assumed	10.594	.001	-2.316	300	.021	-.375	.162	-.693	-.056
	Equal variances not assumed			-2.349	299.870	.019	-.375	.160	-.689	-.061

Table d-2 The satisfaction of t-test between male and female

		Levene's Test for Equality of Variances		T-test for Equality of Mean						
		F	Sig.	t	d.f.	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Sat.. - Weight	Equal variances assumed	8.523	.004	.511	300	.610	.090	.175	-.255	.434
	Equal variances not assumed			.520	298.868	.603	.090	.172	-.249	.428
Sat.. - Screen	Equal variances assumed	7.311	.007	.433	300	.665	.073	.167	-.257	.402
	Equal variances not assumed			.440	299.870	.661	.073	.165	-.252	.397
Sat..- Battery	Equal variances assumed	2.955	.087	-2.304	300	.022	-.433	.188	-.803	-.063
	Equal variances not assumed			-2.336	299.949	.020	-.433	.185	-.798	-.068
Sat..- Comfort	Equal variances assumed	5.333	.022	-.619	300	.536	-.103	.166	-.429	.224
	Equal variances not assumed			-.628	299.657	.530	-.103	.163	-.424	.219
Sat.. - Compatibility	Equal variances assumed	14.560	.000	-.565	300	.572	-.094	.167	-.423	.234
	Equal variances not assumed			-.580	290.773	.562	-.094	.162	-.414	.226
Sat..- Fluency	Equal variances assumed	4.160	.042	-.014	300	.989	-.002	.165	-.327	.322
	Equal variances not assumed			-.014	298.857	.989	-.002	.162	-.321	.316
Sat..- Diversified	Equal variances assumed	7.164	.008	-.478	300	.633	-.075	.157	-.384	.234
	Equal variances not assumed			-.488	298.011	.626	-.075	.154	-.378	.228
Sat.. - Design	Equal variances assumed	8.381	.004	-1.440	300	.151	-.228	.158	-.540	.084
	Equal variances not assumed			-1.469	297.247	.143	-.228	.155	-.533	.077
Sat.. - Resource	Equal variances assumed	4.395	.037	-.746	300	.456	-.140	.188	-.510	.229
	Equal variances not assumed			-.758	299.592	.449	-.140	.185	-.504	.224
Sat.. - Free resource	Equal variances assumed	6.895	.009	-.645	300	.519	-.123	.190	-.497	.252
	Equal variances not assumed			-.657	298.398	.512	-.123	.187	-.491	.245
Sat..- Return	Equal variances assumed	3.826	.051	-1.423	300	.156	-.241	.170	-.575	.092
	Equal variances not assumed			-1.447	299.191	.149	-.241	.167	-.569	.087

Table d-3 The importance of downloading free E-zines' T-test between high possibility and low possibility

		Levene's Test for Equality of Variances		T-test for Equality of Mean						
		F	Sig.	t	d.f.	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Imp. - Weight	Equal variances assumed	.311	.578	.919	300	.359	.164	.179	-.187	.515
	Equal variances not assumed			.922	288.254	.357	.164	.178	-.186	.515
Imp. - Screen	Equal variances assumed	.118	.731	.637	300	.524	.108	.169	-.225	.441
	Equal variances not assumed			.637	284.693	.525	.108	.169	-.226	.441
Imp. - Battery	Equal variances assumed	.634	.427	1.810	300	.071	.286	.158	-.025	.598
	Equal variances not assumed			1.813	286.943	.071	.286	.158	-.025	.597
Imp. - Comfort	Equal variances assumed	.286	.593	1.576	300	.116	.250	.159	-.062	.563
	Equal variances not assumed			1.566	277.769	.118	.250	.160	-.064	.565
Imp. - Compatibility	Equal variances assumed	.049	.824	1.066	300	.287	.175	.164	-.148	.498
	Equal variances not assumed			1.048	262.878	.295	.175	.167	-.154	.504
Imp. - Fluency	Equal variances assumed	.689	.407	.963	300	.336	.152	.157	-.158	.461
	Equal variances not assumed			.949	266.521	.343	.152	.160	-.163	.466
Imp. - Diversified	Equal variances assumed	3.620	.058	.787	300	.432	.141	.179	-.212	.494
	Equal variances not assumed			.775	264.134	.439	.141	.182	-.218	.500
Imp. - Design	Equal variances assumed	.601	.439	1.468	300	.143	.229	.156	-.078	.536
	Equal variances not assumed			1.446	266.473	.149	.229	.158	-.083	.540
Imp. - Resource	Equal variances assumed	.600	.439	1.885	300	.060	.317	.168	-.014	.648
	Equal variances not assumed			1.881	282.692	.061	.317	.169	-.015	.649
Imp. – Free resource	Equal variances assumed	.819	.366	2.315	300	.021	.374	.162	.056	.692
	Equal variances not assumed			2.314	284.934	.021	.374	.162	.056	.692
Imp. - Return	Equal variances assumed	.036	.850	1.625	300	.105	.265	.163	-.056	.586
	Equal variances not assumed			1.613	276.424	.108	.265	.164	-.058	.589

Table d-4 The satisfaction of downloading free E-zines' T-test between high possibility and low possibility

		Levene's Test for Equality of Variances		T-test for Equality of Mean						
		F	Sig.	t	d.f.	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Sat.. - Weight	Equal variances assumed	2.859	.092	.759	300	.448	.133	.176	-.212	.479
	Equal variances not assumed			.750	270.057	.454	.133	.178	-.217	.483
Sat.. - Screen	Equal variances assumed	2.514	.114	1.911	300	.057	.319	.167	-.010	.648
	Equal variances not assumed			1.890	271.428	.060	.319	.169	-.013	.652
Sat..- Battery	Equal variances assumed	3.191	.075	1.060	300	.290	.201	.190	-.172	.575
	Equal variances not assumed			1.049	272.743	.295	.201	.192	-.176	.579
Sat..- Comfort	Equal variances assumed	.152	.697	2.008	300	.046	.332	.165	.007	.657
	Equal variances not assumed			2.002	281.754	.046	.332	.166	.006	.658
Sat.. - Compatibility	Equal variances assumed	2.671	.103	1.692	300	.092	.282	.167	-.046	.610
	Equal variances not assumed			1.672	270.749	.096	.282	.169	-.050	.614
Sat..- Fluency	Equal variances assumed	.869	.352	1.664	300	.097	.274	.165	-.050	.598
	Equal variances not assumed			1.640	266.381	.102	.274	.167	-.055	.603
Sat..- Diversified	Equal variances assumed	6.601	.011	.837	300	.403	.132	.157	-.178	.441
	Equal variances not assumed			.820	257.824	.413	.132	.160	-.184	.448
Sat.. - Design	Equal variances assumed	.068	.795	2.594	300	.010	.409	.158	.099	.719
	Equal variances not assumed			2.572	274.706	.011	.409	.159	.096	.722
Sat.. - Resource	Equal variances assumed	2.467	.117	.797	300	.426	.150	.188	-.221	.521
	Equal variances not assumed			.787	270.000	.432	.150	.191	-.225	.525
Sat.. - Free resource	Equal variances assumed	5.464	.020	.068	300	.946	.013	.191	-.363	.389
	Equal variances not assumed			.067	262.722	.947	.013	.194	-.370	.396
Sat..- Return	Equal variances assumed	4.618	.032	1.137	300	.256	.194	.170	-.141	.529
	Equal variances not assumed			1.120	264.951	.264	.194	.173	-.147	.534

Table d-5 The importance of paying free E-zines' T-test between high possibility and low possibility

		Levene's Test for Equality of Variances		T-test for Equality of Mean						
		F	Sig.	t	d.f.	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Imp. - Weight	Equal variances assumed	4.292	.039	-.517	300	.606	-.125	.243	-.603	.352
	Equal variances not assumed			-.463	60.536	.645	-.125	.271	-.668	.417
Imp. - Screen	Equal variances assumed	6.607	.011	-.971	300	.332	-.223	.230	-.676	.229
	Equal variances not assumed			-.845	59.363	.402	-.223	.264	-.752	.305
Imp. - Battery	Equal variances assumed	7.780	.006	-1.127	300	.261	-.243	.216	-.668	.181
	Equal variances not assumed			-.967	58.842	.337	-.243	.251	-.746	.260
Imp. - Comfort	Equal variances assumed	.771	.381	-.250	300	.803	-.054	.217	-.480	.372
	Equal variances not assumed			-.245	64.916	.807	-.054	.221	-.495	.387
Imp. - Compatibility	Equal variances assumed	3.765	.053	-1.207	300	.228	-.269	.223	-.708	.170
	Equal variances not assumed			-1.037	58.861	.304	-.269	.260	-.789	.251
Imp. - Fluency	Equal variances assumed	3.173	.076	-.555	300	.579	-.119	.214	-.540	.302
	Equal variances not assumed			-.496	60.364	.622	-.119	.240	-.599	.361
Imp. - Diversified	Equal variances assumed	1.647	.200	.159	300	.874	.039	.244	-.442	.519
	Equal variances not assumed			.144	60.981	.886	.039	.270	-.500	.578
Imp. - Design	Equal variances assumed	5.492	.020	-.802	300	.423	-.170	.212	-.588	.248
	Equal variances not assumed			-.679	58.359	.500	-.170	.251	-.672	.332
Imp. - Resource	Equal variances assumed	3.481	.063	-.790	300	.430	-.181	.230	-.633	.271
	Equal variances not assumed			-.718	61.171	.475	-.181	.253	-.686	.324
Imp. – Free resource	Equal variances assumed	2.517	.114	-1.020	300	.308	-.226	.221	-.661	.210
	Equal variances not assumed			-.915	60.586	.364	-.226	.247	-.719	.268
Imp. - Return	Equal variances assumed	.808	.369	-1.171	300	.242	-.260	.222	-.697	.177
	Equal variances not assumed			-1.096	62.502	.277	-.260	.237	-.734	.214

Table d-6 The satisfaction of paying free E-zines' T-test between high possibility and low possibility

		Levene's Test for Equality of Variances		T-test for Equality of Mean						
		F	Sig.	t	d.f.	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Sat.. - Weight	Equal variances assumed	2.295	.131	-2.208	300	.028	-.523	.237	-.990	-.057
	Equal variances not assumed			-1.926	59.449	.059	-.523	.272	-1.067	.020
Sat.. - Screen	Equal variances assumed	6.109	.014	-2.547	300	.011	-.575	.226	-1.020	-.131
	Equal variances not assumed			-2.184	58.806	.033	-.575	.263	-1.103	-.048
Sat..- Battery	Equal variances assumed	.071	.790	-2.915	300	.004	-.743	.255	-1.245	-.241
	Equal variances not assumed			-2.790	63.600	.007	-.743	.266	-1.275	-.211
Sat..- Comfort	Equal variances assumed	3.189	.075	-2.636	300	.009	-.589	.223	-1.029	-.149
	Equal variances not assumed			-2.264	58.868	.027	-.589	.260	-1.110	-.068
Sat.. - Compatibility	Equal variances assumed	1.998	.159	-.032	300	.975	-.007	.228	-.455	.441
	Equal variances not assumed			-.028	60.583	.977	-.007	.254	-.515	.500
Sat..- Fluency	Equal variances assumed	5.863	.016	-1.851	300	.065	-.413	.223	-.853	.026
	Equal variances not assumed			-1.552	58.000	.126	-.413	.266	-.947	.120
Sat..- Diversified	Equal variances assumed	3.602	.059	-.292	300	.771	-.062	.214	-.483	.358
	Equal variances not assumed			-.253	59.280	.801	-.062	.246	-.555	.430
Sat.. - Design	Equal variances assumed	7.398	.007	-1.541	300	.124	-.333	.216	-.757	.092
	Equal variances not assumed			-1.248	56.859	.217	-.333	.266	-.866	.201
Sat.. - Resource	Equal variances assumed	2.798	.095	.575	300	.566	.147	.256	-.357	.651
	Equal variances not assumed			.521	61.013	.604	.147	.283	-.418	.713
Sat.. - Free resource	Equal variances assumed	1.502	.221	-1.229	300	.220	-.318	.259	-.828	.192
	Equal variances not assumed			-1.113	61.002	.270	-.318	.286	-.890	.254
Sat..- Return	Equal variances assumed	.681	.410	-1.330	300	.185	-.307	.231	-.762	.148
	Equal variances not assumed			-1.200	60.841	.235	-.307	.256	-.820	.205

Table d-7 The importance of reading's T-test between high frequency and low frequency

		Levene's Test for Equality of Variances		T-test for Equality of Mean						
		F	Sig.	t	d.f.	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Imp. - Weight	Equal variances assumed	.643	.423	-.155	300	.877	-.028	.180	-.381	.326
	Equal variances not assumed			-.153	260.960	.879	-.028	.182	-.386	.331
Imp. - Screen	Equal variances assumed	.482	.488	.923	300	.357	.157	.170	-.178	.491
	Equal variances not assumed			.921	274.244	.358	.157	.170	-.178	.492
Imp. - Battery	Equal variances assumed	.037	.848	.657	300	.512	.105	.160	-.209	.419
	Equal variances not assumed			.654	272.456	.513	.105	.160	-.211	.420
Imp. - Comfort	Equal variances assumed	.977	.324	1.038	300	.300	.166	.160	-.149	.480
	Equal variances not assumed			1.040	277.780	.299	.166	.159	-.148	.480
Imp. - Compatibility	Equal variances assumed	.200	.655	.647	300	.518	.107	.165	-.218	.432
	Equal variances not assumed			.638	259.789	.524	.107	.168	-.223	.437
Imp. - Fluency	Equal variances assumed	1.032	.311	1.342	300	.181	.212	.158	-.099	.523
	Equal variances not assumed			1.335	270.718	.183	.212	.159	-.100	.524
Imp. - Diversified	Equal variances assumed	1.280	.259	.634	300	.526	.114	.180	-.240	.469
	Equal variances not assumed			.624	258.561	.533	.114	.183	-.246	.475
Imp. - Design	Equal variances assumed	.941	.333	.940	300	.348	.148	.157	-.161	.456
	Equal variances not assumed			.938	274.121	.349	.148	.157	-.162	.457
Imp. - Resource	Equal variances assumed	.030	.862	1.032	300	.303	.175	.170	-.159	.509
	Equal variances not assumed			1.018	260.396	.310	.175	.172	-.164	.514
Imp. – Free resource	Equal variances assumed	.358	.550	.497	300	.620	.081	.164	-.241	.404
	Equal variances not assumed			.493	268.070	.622	.081	.165	-.243	.406
Imp. - Return	Equal variances assumed	1.478	.225	.609	300	.543	.100	.164	-.224	.424
	Equal variances not assumed			.612	281.684	.541	.100	.163	-.222	.422

Table d-8 The satisfaction of reading's T-test between high frequency and low frequency

		Levene's Test for Equality of Variances		T-test for Equality of Mean						
		F	Sig.	t	d.f.	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Sat.. - Weight	Equal variances assumed	1.551	.214	-.721	300	.471	-.127	.176	-.474	.220
	Equal variances not assumed			-.710	259.705	.478	-.127	.179	-.480	.225
Sat.. - Screen	Equal variances assumed	.839	.360	.082	300	.935	.014	.169	-.318	.346
	Equal variances not assumed			.081	266.236	.935	.014	.170	-.321	.349
Sat..- Battery	Equal variances assumed	.130	.719	-.248	300	.804	-.047	.191	-.423	.329
	Equal variances not assumed			-.247	272.527	.805	-.047	.192	-.425	.330
Sat..- Comfort	Equal variances assumed	3.833	.051	-.018	300	.985	-.003	.167	-.332	.326
	Equal variances not assumed			-.018	252.484	.986	-.003	.171	-.339	.333
Sat.. - Compatibility	Equal variances assumed	.195	.659	1.532	300	.127	.257	.168	-.073	.586
	Equal variances not assumed			1.535	278.036	.126	.257	.167	-.072	.586
Sat..- Fluency	Equal variances assumed	.198	.657	.542	300	.588	.090	.166	-.237	.417
	Equal variances not assumed			.536	262.630	.593	.090	.168	-.241	.421
Sat..- Diversified	Equal variances assumed	1.315	.252	1.719	300	.087	.270	.157	-.039	.580
	Equal variances not assumed			1.698	262.255	.091	.270	.159	-.043	.584
Sat.. - Design	Equal variances assumed	4.831	.029	.496	300	.621	.079	.160	-.236	.394
	Equal variances not assumed			.480	239.613	.631	.079	.165	-.246	.405
Sat.. - Resource	Equal variances assumed	.499	.481	-.368	300	.714	-.070	.189	-.442	.303
	Equal variances not assumed			-.371	284.617	.711	-.070	.188	-.439	.300
Sat.. - Free resource	Equal variances assumed	.044	.834	.545	300	.586	.104	.192	-.273	.482
	Equal variances not assumed			.546	279.152	.585	.104	.191	-.272	.481
Sat..- Return	Equal variances assumed	.903	.343	.693	300	.489	.119	.171	-.218	.456
	Equal variances not assumed			.685	262.729	.494	.119	.173	-.223	.460