Critical Factors of the Buyer Decision Process Model in Business-to-Customer (B2C) E-Commerce in Taiwan

Yu-Ho Chou
Lynn University

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CRITICAL FACTORS OF THE BUYER DECISION PROCESS MODEL IN BUSINESS-TO-CUSTOMER (B2C) E-COMMERCE IN TAIWAN

DISSERTATION
Submitted to the Faculty of the College of Business and Management in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy
Lynn University

By
Yu-Ho Chou

Lynn University
2005
CRITICAL FACTORS OF THE BUYER DECISION PROCESS MODEL IN BUSINESS-TO-CUSTOMER (B2C) E-COMMERCE IN TAIWAN

Chou, Yu-Ho, Ph.D.

Lynn University, 2005

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Acknowledgments

I have waited for “this moment” for nearly 15 years since 1990. Fifteen years ago, I had studied in a Ph.D. program in Taiwan. After 6 years of effort, unfortunately, I did not get the degree in the end and my life became “dark.” It was a frustrating period and heartbreaking experience for me. I could not count how many days I cried at midnight, and it seems as if that had happened to me only yesterday. My wife, Mei-Hsin (Erika), continually encouraged me to study in a Ph.D. program again. My parents also told me, “Where you fail stand up at there.” Therefore, I was very lucky to have an opportunity to study in a Ph.D. program again at Lynn University in 2003. During my studying period, my wife needed to work, to take care of our sons, Jiun-Jer (Bruce) and Jiun-Herng (Steven), and to attend to my aged parents. I do know I owe her very much. Therefore, I want to give the best honor to my wife and to appreciate my family when I have finished my dissertation. Furthermore, I want to tell my dear wife, my family, and my friends that my life has become “colorful” again.

There are many people who have helped me to complete my dissertation, and I would like to take this opportunity to offer my best appreciation to those who stood by me during this most challenging time.

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The completion of my dissertation would not have been possible without the support of many others who also deserve my appreciation.

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CRITICAL FACTORS OF THE BUYER DECISION PROCESS MODEL IN
BUSINESS-TO-CUSTOMER (B2C) E-COMMERCE
IN TAIWAN

By Yu-Ho Chou

August, 2005

Abstract

The purpose of this study is to identify the critical factors involved in each stage of the Buyer Decision Process model, developed by Kotler and Armstrong (1997), as this study relates to online retail shopping in the country of Taiwan. This study explored whether and to what extent these factors influence consumers making online purchase decisions. The Buyer Decision Process model consists of five stages: (a) need recognition; (b) information search; (c) alternatives evaluation; (d) purchase decision; and (e) post-purchase decision. This research study attempted to design a framework based on this model to explore the perceived consumer value of online purchase through the entire consumption process in a B2C e-commerce setting in the country of Taiwan.

There are many problems in this research area, such as: (a) B2C e-commerce is very competitive; (b) online shoppers have different characteristics from traditional shoppers; (c) most B2C Websites are ignored by Internet users; and (d) online shoppers are unable to touch, feel, or see real products to evaluate quality. Therefore, how to attract worldwide potential customers to Websites is a challenge for global e-retailers; and how to analyze and understand consumer preferences is a challenge for global e-retailers in the fast-changing digital marketing as well.
There are five research questions in this research study, based on the five stages of the Buyer Decision Process model to measure consumer online behavior in Taiwan. In order to answer the five research questions, the researcher identified 14 critical factors for consumer online purchase decisions based on the five stages. These critical factors include: Free Trials, Internet Advertisements, Search Engines, Online Shopping Malls, Auction Websites, Convenience, Price, Brand, Security, Promotion, Refund, Satisfaction, Customized Information, and Discount. In general, the study results supported the inference of relationships between the 14 critical factors and Internet users' receptivity to online shopping, with Satisfaction ranking first, Online Shopping Malls ranking second, and Convenience ranking third.
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CHAPTER I
INTRODUCTION TO THE STUDY

The purpose of this study is to identify the critical factors involved in each stage of the Buyer Decision Process model, developed by Kotler and Armstrong (1997), as this study relates to online retail shopping in the country of Taiwan. This study explored whether and to what extent these factors influence consumers making online purchase decisions. Chapter One introduce the background of this study. In addition, this chapter touches upon the statement of the problem, research questions, significance of the study, purpose and objectives, research design rationale, limitations, and contribution of the study.

Background of the Study

The World Wide Web (WWW) and the Internet have been two of the most significant developments of information technology since the 1990s, which have provided companies with the ability to develop electronic commerce (e-commerce) (Aitchison & Stone, 2002). E-commerce is defined as any kind of corporate interaction or transaction in which the participants employ the Internet to transact business or conduct the deals (Alston, 2000). In other words, e-commerce is consumers and sellers utilizing the Internet to purchase and sell goods and services (Bontis & Castro, 2000; Egan, Clancy, & O'Toole, 2003; Elifoglu, 2002; Weippl, 2001).

In e-commerce, the whole purchasing process is computerized from product information, specification, and sales transactions to confirmation of the delivery of goods and services. Since e-commerce transforms real stores into Website-based virtual stores, e-commerce has dramatically changed the traditional marketing concepts between
customers and companies worldwide. Online shopping has gradually become a channel for consumers to purchase their daily goods. Therefore, knowing how to use Internet facilities and resources has become increasingly important for companies engaged in digital marketing (Bontis & Castro, 2000; Egan et al., 2003; Elifoglu, 2002; Movahedi-Lankarani, 2002; Weippl, 2001).

The activity of consumer purchasing over the Internet provides valuable information to companies that market certain products because e-companies can track, document, and analyze consumer online behavior over a period of time. This analysis of customer purchasing behavior by way of e-commercial trade patterns is known as electronic customer relationship management (e-CRM) (Feinberg & Kadam, 2002). E-CRM might provide advantages to companies selling on the Internet because vendors can effectively master consumer information by e-CRM analysis. Therefore, e-commerce not only created unprecedented new marketing opportunities for electronic retailers (e-retailers) through the removal of time/space limitations, but also varied the competitive strategy of all trades and professions by employing e-CRM (Hamid & Kassim, 2000).

According to the U.S. Census Bureau, the U.S. B2C e-commerce sales in 2001, 2002, and 2003 were US $34 billion, US $44 billion, and US $55.7 billion, respectively. In 2004, the U.S. B2C e-commerce sales were about US $69.2 billion, an increase of 23.5% from 2003 (http://www.census.gov/mrts/www/nmrtshist.html). Furthermore, total sales of B2C e-commerce for the first quarter of 2005 in the U.S. was $ 19.8 billion, an increase of 6.4% from the fourth quarter of 2004. By comparison, total retail sales for the first quarter of 2005 in the U.S. were approximately $ 917 billion, an increase of
1.5% from the fourth quarter of 2004 (the growth rate is lower than retail e-commerce). These sales, as shown in Figure 1, indicated that retail e-commerce is promising, and that online shopping has been rapidly accepted by consumers.


The differences between e-commerce and traditional or mainstream commerce are many. There are two factors which seem to stand out: (a) traditional strategic planning, and (b) organizational structures. First, unlike traditional commerce, senior management in e-commerce is constantly challenged by information techniques, because of the need to be current with the Internet's fast-changing speed, information, and effective performance. Second, all units of the organization must constantly adjust and incorporate new policy and new configurations in order to stay viable and competitive (Bontis & Castro, 2000).
Marketing managers should recognize why and how individuals make consumption decisions in order to create better marketing strategies. If marketers can understand consumer purchase behavior, these marketers may predict how consumers are likely to react to various informational and environmental cues, and will be able to shape marketing strategies accordingly (Schiffman & Kanuk, 1997).

The desire for understanding online consumption-related human behavior has led to a diversity of theoretical approaches. In this study, the Buyer Decision Process model, proposed by Kotler and Armstrong (1997), was adopted. The researcher believes this model might be suitable to serve as a theoretical model to analyze consumer online behavior, because online shoppers need to go through the same purchase decision process as on-site purchasers when making their purchase decisions. The purpose of adopting the Buyer Decision Process model was to explore the perceived consumer value through the entire consumption process. The Buyer Decision Process model consists of five stages:

1. Need Recognition;
2. Information Search;
3. Alternatives Evaluation;
4. Purchase Decision; and

In the Buyer Decision Process model, consumers’ purchasing processes start with the consumers’ needs perception. If the purchasers are not satisfied with or are unfamiliar with current products, an information search bearing on their needs will be undertaken. Then, the shoppers will employ the obtained information to evaluate the
alternative selections. Customers rank alternatives and then form purchasing intentions. Next, customers make a purchase decision based on preferred brands, attitudes of others, or unexpected situations. After purchasing products, consumers assess their purchases according to satisfaction or dissatisfaction (Kotler & Armstrong, 1997).

The Buyer Decision Process model provides an effective way to keep track of consumer purchasing behavior in traditional markets. However, a search of ProQuest, LexisNexis, Yahoo, and Google, using the themes of “buyer decision process” and “online shopper behavior” revealed no relevant studies that applied this model to e-commerce settings to investigate online shopper behavior. In this study, critical factors of online shopper purchase decisions were identified based on each stage of the Buyer Decision Process model. These factors might assist e-retailers to acquire new consumers and to retain regular clients. In addition, the inter-relationship between online consumers and e-retailers in Taiwan was defined and explored.

Online shopping is a new trend in Taiwan. Focus on Internet News & Data (FIND) announced the total amount of retail e-commerce purchasing was US $650 million in Taiwan in 2003. The Taiwan’s retail e-commerce sales are continuing to grow. In 2004, the retail e-commerce sales were about US $1.02 billion in Taiwan, an increase of 57.2% from 2003. In 2005, the amount is predicted to be US $1.5 billion (Wu, 2004). In 2004, online shopping encompassed only 1.2% of overall retail sales in Taiwan. By comparison, the United States online shopping accounted for about 1.9% of its overall retail sales in 2004. This indicates Taiwan’s retailing e-commerce still has room to increase.
Understanding consumer purchasing behavior is a critical factor in the success of e-retailing. In the digital marketing era, one of the factors that will make a consumer select certain products or services is the level of customer expectation and satisfaction before and after sales and services are provided. This study was concerned with understanding consumer online behavior; gaining insights into why purchasers acted in certain consumption-related ways; and what internal and external influenced impel online shoppers to act as they did.

This study included a survey of customers conducted at Aletheia University, Taipei, Taiwan. The data collected was analyzed and correlated. Conclusions and recommendations were detailed at the end of the research to develop programs around the model of the consumer purchasing process in the area of e-retailing.

**Statement of the Problem**

E-commerce offers numerous online marketing opportunities to companies worldwide because e-commerce can allow retailers to sell products at lower costs and to more consumers (Bontis & Castro, 2000; McCusker, 2001). Numerous retailers have been using this new selling method. This was why various companies have built Websites, to serve as another channel of selling products (Aitchison & Stone, 2002). However, the Internet has also created a more competitive and open market for e-retailers, where shoppers can obtain diverse product information from different Websites, and compare price as well as quality (Dignum, 2002).

Online shoppers have different characteristics from traditional purchasers. In general, online shoppers tend to be more technology-oriented, and more active than traditional shoppers (Fong, 2004). Therefore, e-retailers need to pay more attention to
current and potential online consumers, because traditional marketing strategies cannot totally apply to these online shoppers. Under this situation, if e-marketers want to survive in the e-commerce era, e-retailers must analyze shoppers’ purchasing behavior on their Websites, and then provide suitable products or services to meet the consumers’ needs.

Commonly, most retail Websites provide only shopping functions and promotional themes with limited information about their products. Some Websites are neither well-designed nor user-friendly. Therefore, customers often find it difficult to locate detailed product information immediately and ignore these Websites (McCusker, 2001). Another problem is the lack of human contact to help answer questions or make a purchase decision while shoppers are browsing products on the Internet. These are some of the reasons why consumers hesitate to shop online (Kolesar & Galbraith, 2000). In addition, customers may spend a great deal of time and energy surfing the Internet to compare prices (Gaertner & Smith, 2001; Luo, 2003). Therefore, answering customer questions in an interactive way in real time and providing a user-friendly environment are becoming critical success factors for e-retailers. Providing customized product information regularly to consumers is also very important to their success, because the customized information may attract shoppers to visit their Websites.

Visiting a Website is the first step to shopping on the Website. Braddock (2001) claimed that only about 0.04% of retail Websites were visited by 80% of all Internet users. This indicates that most retail Websites are ignored by online shoppers. Some Websites are sponsored by the companies that utilize the information generated in order to explore new marketing opportunities. These Websites are called “online shopping malls”
(Dignum, 2002). Nowadays, many portal Websites, such as Yahoo, also provide online shopping malls, which are gradually being accepted by online shoppers, and which form a very important purchase channel. Therefore, many e-retailers join online shopping malls, because the marketers want to have more consumers visit their Websites.

E-commerce converts traditional real-store transactions into electronic virtual-store transactions selling products and services to worldwide customers, thus changing customer purchasing behavior (Luo, 2003). For example, customers can use the Internet to search for product information when wanting to make a purchase. For e-retailers, Website service quality is a primary means of competitive differentiation, and a very important factor for online purchasers when deciding whether to shop again on their Website. Consequently, Wang and Tang (2003) claimed Website service quality may influence customer purchase intentions. How to improve e-retail service quality is a question needing to be explored.

Miyazaki and Fernandez (2001) observed that weaknesses of online shopping noted by consumers included being unable to touch, feel, or see real products to evaluate quality, and possible inaccuracies concerning the products being considered. To explore which ways may convince and encourage consumers to shop online is important for retail e-commerce. For example, e-retailers may provide free trial samples or a refund policy without any condition to induce consumers to shop on their Websites.

Although e-commerce had gone through a period of “boom time,” many people doubt the value of e-commerce, as shown by the fact that e-companies experienced a setback beginning in the late 1990s (Dignum, 2002). However, many e-commerce executives and experts still optimistically believe in the future of e-commerce,
concerning both Business-to-Consumer (B2C) and Business-to-Business (B2B) Internet transactions (Movahedi-Lankarani, 2002). E-retailers should understand those past failed experiences and explore new methods to attract more consumers. E-commerce can provide e-retailers with more efficient ways to collect Internet users’ information while consumers are browsing Websites. However, how to analyze this collected information effectively and understand the consumer preferences more quickly and effectively is a question needing to be explored by e-retailers.

In general, the Internet provides a channel to the public to seek various kinds of information. Therefore, customers may utilize Websites to retrieve information on various products. In view of this, e-retailers may improve their Websites to be both an information provider and a purchase channel. The purpose is to attract more potential consumers to visit Websites (Kolesar & Galbraith, 2000). However, different cultures may change customers’ purchasing behavior and attitudes toward retail e-commerce. How to attract worldwide potential customers to Websites has been a challenge for global e-retailers (Miyazaki & Fernandez, 2001; Ulgado, 2002). This suggests there is a need to explore different national consumers’ attitudes and opinions toward online shopping, so that e-retailers may adjust e-commerce strategies to suit different countries based on the findings. Since only a few research studies had explored Taiwan’s online shopper behavior (Shiu & Dawson, 2002; Wu, 2002), this research study attempted to investigate Taiwan’s consumer online shopping experience.

The issue of e-commerce security is important to both customers and suppliers. Security concerns have been the critical reason many Internet users do not shop online (Gaertner & Smith, 2001; Udo, 2001). The fast expansion of e-commerce has also
increased calls for sustaining privacy and confidentiality of data (Cunningham, 1998; Desmarais, 2000; Gaertner & Smith, 2001; Kesh, Ramanujan, & Nerur, 2002; Miyazaki & Fernandez, 2001; Muralidhar, Sarathy, & Parsa, 2001; Udo, 2001; Whysall, 2000). Security should be integrated into the corporate information systems development process because security problems will influence e-commerce systems (Chan & Kwok, 2001). How to convince consumers online shopping is safe continues to be a critical problem for e-retailers. There is probably a gap of retail e-commerce development between Taiwan and the United States, because Taiwan’s e-commerce is still at a “start-up” stage, and people are not used to purchasing online due to security issues.

If companies want to effectively influence customer purchasing behavior, businesses must succeed in strengthening customer satisfaction (Sandalidou, Baourakis, & Siskos, 2002). Customer satisfaction has been recognized as a measure of performance and excellence of any business organization. In addition, customer satisfaction is regarded as a progressive method for quality and a dynamic parameter of all trades and professions. Therefore, improving customer satisfaction can lead to customer loyalty, which will encourage consumers to purchase more products (Sandalidou et al., 2002). One of the factors that will make a consumer select certain products or services is the level of customer expectation and satisfaction both before and after the sales and services are provided. Therefore, e-retailers should explore how to improve consumer satisfaction and encourage consumers to repurchase on their Websites.

Customer relationship management (CRM) explores the needs, desires, and expectations of individual customers by recognizing and providing products and services that conform to consumer preferences (Hamid & Kassim, 2000). E-retailers may apply
CRM to explore the expectations of individual customers and provide products and services that conform to consumer preferences (Hamid & Kassim, 2000). Furthermore, e-retailers should explore consumer purchasing decisions in great detail to answer questions about what, where, how, when, and why online purchase are made (Kotler & Armstrong, 1997). The majority of marketing scholars believe that suppliers should aim for lasting relationships with customers. Therefore, the concepts of customer relationship management and loyalty management have become popular issues (Soderlund, Vilgon, & Gunnarsson, 2001).

According to Focus on Internet News & Data (FIND), Taiwan’s official statistics indicated that there were about 2.89-million broadband subscribers in 2003. Taiwanese Internet users numbered around 8.83 million, an increase from 600,000 in 1996. Until the end of 2001, Internet users kept increasing by 600,000 every six months. However, from 2002, the growth rate slowed down. In 2004, there were about 9.2 million Internet users. This sign indicated that Internet users were saturated and were entering the mature stage (Lee, 2004). Therefore, e-retailers may explore whether Taiwan’s Internet users are gradually accepting online shopping, which may be a promising market.

Online security issues are still major concerns in Taiwan’s e-commerce. Thirty-nine percent of Taiwanese Internet users were hesitant to shop online due to security concerns in 2004 (Ho, 2004c). To prevent online shopping fraud, in 2003, the Taiwan’s Ministry of Economic Affairs introduced an advanced online payment system allowing purchasers to offer personal information directly to banks and to provide e-retailers with delivery information only (Chen, 2003). The purpose was to improve
online shopping security to encourage the public to purchase online. However, whether this policy can reduce consumers’ concerns about security needs to be explored.

Research activity on Internet shopping or usage has increased steadily. However, the e-commerce literature has rarely addressed the measurement of consumer online behavior in Taiwan. Whether Taiwan online consumers possess common personal characteristics and exhibit similar Internet shopping behavior with other Internet purchasers was examined in this study. The inter-relationship between online consumers and e-retailers was defined and explored as well.

**Purpose of the Study**

The purpose of this study is to identify the critical factors involved in each stage of the Buyer Decision Process model related to online retail shopping in Taiwan. Further, this study explored whether and to what extent these factors influence consumers making online purchase decisions.

The need for greater understanding of online behavior has been proclaimed by both international marketing practitioners and researchers as essential for improving e-commerce efforts (Traylor, 2004). What adds urgency to this study is the need for a solid understanding of Taiwan’s consumer online behavior. This study may provide international e-retailers with valuable information for formulating e-commerce strategies in Taiwan, as well as creating advocacy messages and corrective responses. Additionally, Taiwan’s consumer online behavior may have tremendous implications for mainland China, Singapore and Hong Kong, where Confucian cultural values still have an outstanding influence regardless of economic accomplishment (Gong, 2003).
United States and Taiwanese commercial transactions differ in several respects. Two major differences lie within economics and mindsets. With different social environments, e-retailing in the two countries has achieved different levels of development. The development of e-retailing is closely related to a nation’s Internet popularity, especially in the era of globalization and the knowledge economy.

The Buyer Decision Process model provided the structure for this study. The purpose of determining the critical factors in each stage of the Buyer Decision Process model was to establish a comprehensive list of the important components that described consumer attitudes toward online shopping. This study may help e-retailers to develop effective e-commerce strategies to streamline and offer online purchase activities that cater to purchasers’ needs. The inability of e-retailers to understand consumers’ real needs and behavior could be a significant factor in the large number of e-retailer failures and losses that have unfolded over the past few years. This indicates e-retailers need to pay more attention to what the online purchasers really need, instead of what had been marketed in the past.

The results of this study may also be incorporated into educational programs taught in courses such as “E-commerce and Consumer Online Behavior.” The information gained from this study may also be used in the development of training seminars for marketing executives in the e-retailing industry.

This study related to the disciplines and fields of e-commerce, Website design, Internet technology, marketing management, customer purchasing behavior, customer relationship management, and information technology. The aim of this study was to review state-of-the-art literature and develop an empirical study for identifying critical
factors of online consumer purchasing decisions in Taiwan, using the Buyer Decision Process model, and to identify areas of future scholarly inquiry.

Research Questions

The purpose of this study is to identify the critical factors involved in each stage of the Buyer Decision Process model related to online retail shopping in Taiwan. This study explored whether these factors influenced consumers making online purchase decisions.

To carry out the purpose of this proposed study, the following research questions were examined:

1. What are the critical factors in the need recognition stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?

2. What are the critical factors in the information search stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?

3. What are the critical factors in the alternatives evaluation stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?
4. What are the critical factors in the purchase decision stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?

5. What are the critical factors in the post-purchase decision stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?

The findings of this dissertation are likely to make a significant contribution to the future customer relationship management of e-retailers, due to the in-depth analysis of the characteristics of online shoppers.

**Significance of the Study**

In the e-commerce era, the demands for greater knowledge about consumer online purchasing behavior and consumer online loyalty will continue to increase. E-retailers are now in a position to analyze customer purchasing behavior via customer relationship management in order to gain competitive economic advantages.

Recently, many retailers have been seeking new marketplaces via Websites in order to maintain and improve competitive output and performance, and to provide suitable information to meet customers’ expectations and needs. This trend illustrated the many complexities for both retailers and consumers in an e-commerce setting (Gaertner & Smith, 2001). Furthermore, retail e-commerce has not been regarded as a
replacement for physical retailing, but rather as an extra and alternative channel (Rowley, 1999).

Many previous research studies have widely explored numerous e-commerce topics, such as Website design, advantages and disadvantages of retail e-commerce, security and privacy problems, and customer online loyalty (Boyd, 2002; Duffy, 1998; Fong, 2004; Gaertner & Smith, 2001; Miyazaki & Fernandez, 2001). However, few studies have explored the whole consumer online purchasing behavior, especially in developing countries such as Taiwan (Shiu & Dawson, 2002; Wu, 2002). Although these previous studies did discover some factors that drive the success of retail e-commerce, these studies failed to identify the critical factors during the consumer purchase process, which influenced consumers to make final purchasing decisions. These studies also did not address the degree to which these factors may influence the consumers' final purchasing decisions (Hamid & Kassim, 2004; Lohse & Spiller, 1999; Miyazaki & Fernandez, 2001). However, only when consumers feel satisfied with the whole purchase process, will they return to the same Website to purchase the same or similar products.

This study was justified by thinking of the potential significance, the degree to which the topic is researchable, and the practicability of answering the five research questions. This research study was significant for several reasons:

1. Although the Buyer Decision Process model has been applied in the traditional marketplace (Berkowitz et al., 2000; Gong, 2003; Sandhusen, 2000), a search of ProQuest Database, ProQuest Digital Dissertation, LexisNexis, Yahoo, and Google, using the themes of “buyer decision process” and “online shopper
behavior" revealed no relevant studies that applied this model to e-commerce settings to investigate online shopper behavior;

2. This study might contribute to a body of knowledge about e-commerce, e-retailing, the models of consumer purchase behavior, the critical factors of consumer online purchase decisions, and the current status of e-commerce in Taiwan;

3. This study employed powerful and established tools that allowed the researcher to examine other concerns about Taiwanese consumer online behavior in a creative way. This approach was a dynamic one, which not only interpreted the current state of e-retailing in Taiwan, but also might predict future changes in consumer online purchasing decisions;

4. Although online purchaser decision-making is still a focal research interest, global e-retailers should have a better understanding of cross-cultural issues and the effects on decision-making, because retail e-commerce is a global business. This is the main reason why this study selected Taiwanese online shoppers as the research sample, because there is little research to examine Taiwanese consumer online behavior; and

5. There is a strong need for research on consumer purchasing behavior of e-retailing in Eastern Asia countries, which have become a large and new marketplace in recent years, especially in mainland China. Taiwan, Hong Kong, Singapore, and mainland China are all influenced by Confucian cultural values. The Confucian influence may cause these countries to share many similarities in consumer behavior (Gong, 2003). Many Western corporations
are going to invest in Eastern Asia countries, especially in mainland China. Therefore, the findings may serve as useful information to those corporations. Marketing investors may predict the behavior of online consumers in mainland China based on Taiwan's situation, and plan appropriate retail e-commerce strategies in Eastern Asia countries.

This research study attempted to design a framework based on the Buyer Decision Process model to measure the buying behavior of Internet users in Taiwan. Studies and instruments measuring changes in consumer behavior need to be developed, especially research studies with larger sample sizes. Future research based on the results of this study might explore how e-retailers alter marketing strategies to improve products and services.

Cultivating and supporting research and the evolution of learning and innovations might improve results for the e-retailing industry. This study was researchable because the research questions could be investigated and the variables could be analyzed using statistical techniques. This study was practicable because the instrument, a survey, could be completed in a reasonable amount of time. Respondents were available because Aletheia University, Taipei, Taiwan, had already agreed to participate in this study. Therefore, the study could be executed at a reasonable cost. Furthermore, efforts were made to sustain appropriate ethical concerns and to protect participants' rights.

Objectives of the Study

The current literature does not reveal comprehensive answers about critical factors of online consumers' purchasing decisions and consumers' loyalty. The
objectives of this study were to provide the means based on the Buyer Decision Process model to identify the critical factors of customers’ purchasing decisions. In this way, e-retailers might gain new advantages and facilitate customer loyalty. Specific objectives of the study were:

1. To propose a conceptual framework based on the Buyer Decision Process model, which was to identify a set of factors causing consumers to make online purchasing decisions;
2. To examine how strongly these critical factors could influence consumers’ online purchasing decisions;
3. To broaden understanding about online consumer purchasing behavior in the electronic retailing field;
4. To enhance knowledge of online consumer loyalty in the electronic retailing field; and
5. To suggest to e-retailers ways to design Websites that may promote customer satisfaction and loyalty.

Research Design Rationale

The theoretical foundation for this research study was based on a review of relevant literature. This literature review focused on scholarly literature including textbooks, empirical studies, critical analyses, theoretical articles, case studies, electronic articles, and articles associated with e-commerce strategy, CRM, Buyer Decision Process, and customer purchasing behavior.

This was a quantitative, non-experimental study. The instrument employed was a 24-question survey. The sample included college students (including daytime students
and adult learners) age 18 or more who had experience browsing or shopping online, located within one geographic area (Taiwan). This study intended to identify critical factors of the Buyer Decision Process model by using a non-experimental, causal-comparative, quantitative research method.

In order to answer the research questions of this study, the investigation focused on fourteen critical independent variables, one dependent variable, and four demographic and marketing variables. Two of these independent variables (Free Trials and Internet Advertisements) were linked to the need recognition stage. Three of these independent variables (Search Engines, Online Shopping Malls, and Auction Websites) were linked to the information search stage. Three of these independent variables (Convenience, Price, and Brand) were linked to the alternatives evaluation stage. Three of these independent variables (Security, Promotion, and Refund) were linked to the purchase decision stage. Three of these independent variables (Satisfaction, Customized Information, and Discount) were linked to the post-purchase decision stage. The dependent variable was Receptivity to Online Shopping. Finally, four demographic and marketing variables were Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences.

The survey instrument of this research design consisted of 24 closed-ended questions. The survey asked participants to rate the questions based on a closed-ended 1-to-7 Likert scale format, which made all of the independent variables and dependent variable continuous for statistical analysis. The respondents needed to have experience with either browsing or shopping online in Taiwan in order to participate in the survey.
A non-probability sampling method was employed. This study sample consisted of 309 respondents.

The statistical techniques for data analysis included descriptive statistics, correlation analysis, independent samples t-test, one-way ANOVA analysis, and multiple regression analysis, which were completed through the use of SPSS Windows Version 12.0. The level of statistical significance was set at $p \leq .05$. This survey may assist e-retailers in making the important strategy, quality, and operational decisions which are necessary for effective retail e-commerce implementation. By understanding what, where, how, when, and why online purchases are made, e-retailers may improve services and the quality of e-commerce.

**Delimitation and Scope**

The delimitation of this study was that the participants were students at Aletheia University, Taipei, Taiwan. Furthermore, the goal of this study was to analyze online consumers' purchasing behavior in Taiwan. For that reason, inclusion factors were subjects who were familiar with browsing the Internet, who had experience with either browsing or shopping online, whose ages were older than 18 years old, who could read, write, and speak Chinese, and who were willing to fill out a questionnaire based on Internet experience. People who did not live in Taiwan, did not study at Aletheia University, and did not have the Internet for consumer transactions were excluded from this study.

**Contribution of the Study**

The fact is that no comprehensive established theory in the area of consumer purchasing behavior is available in the retail e-commerce field at the present time.
Many previous research studies on e-retailing issues had focused on customer perceptions of Website design, security and privacy, and customer loyalty (Desmarais, 2000; Duffy, 1998; Fong, 2004; Gaertner & Smith, 2001; Udo, 2001); few studies had shed light on consumer purchasing decisions (Swaminathan, Lepkowska-White, & Rao, 1999). This study proposes a theoretical framework based on the Buyer Decision Process model to identify critical factors of consumer purchasing decisions that are extremely important from both theoretical and practical perspectives. Furthermore, this study may be valuable because the research provides e-retailers a method to analyze online consumer behavior.

The outcomes of the study may be significant to e-retailers, online consumers, and other researchers. E-retailers may benefit greatly by identifying the most important factors of online consumer purchasing decisions. Online consumers may benefit greatly by expressing their opinions in the survey to influence e-retailers' strategies. Other researchers may benefit by duplicating this research or identifying other critical factors based on this study. This study may contribute not only to a better understanding of how consumer purchasing decision is formed, but also to effectively manage such decisions from an e-retailer's standpoint. However, e-retailers should keep in mind that analyzing consumer online behavior carries ethical considerations.

**Definition of Terms**

In applied research, independent and dependent variables work in conjunction with each other, when developing the persuasive power required to consumer purchasing behavior. There were 14 independent variables, 1 dependent variable, and 4 demographic and marketing variables in this study. The operational definition was
introduced, as well as the method of measuring the variables and the data source. The
definition of each variable was as follows.

**Independent Variables in the Need Recognition Stage**

**Free Trials**

**Theoretical definition.** Gong (2003) claimed that purchasers needed to discover the benefits of free samples and how to profit by using the merchandise being offered. Free trials were an effective way to activate consumers’ need recognition because the buyers could not otherwise see or touch a product before purchase unless a free trial was offered. Miyazaki and Fernandez (2001) observed that shoppers indicated the weaknesses of online shopping as being unable to touch, feel, or see real products to evaluate the quality, and possible inaccuracies concerning the products being considered. This was referred to as quality uncertainty.

**Operational definition.** The researcher defined Free Trials in this study as e-retailers providing samples to shoppers free of charge. Consumers would have positive attitudes toward online shopping if the e-retailers provided free trial samples. The goal was to explore whether e-retailers providing free trial samples could facilitate consumers’ need recognition.

**Internet Advertisements**

**Theoretical definition.** Many companies invest money to advertise online. Fong (2004) indicated e-retailers invested about 25% to 50% of their marketing budget on Internet advertisements. Lohse & Spiller (1999) theorized that Internet advertisements lead consumers to special products. Further, Internet advertisements may serve as a reminder or motivator to the consumer to purchase online. Haig (2001)
found that many marketers think "Internet advertisements" was the least efficient way of getting an e-retailer's information across, but others think that "Internet advertisement" was critical for retail e-commerce. Gong (2003) claimed that many purchasers were cautious about advertising because of untruthful, inaccurate and exaggerated advertisements. This problem was related to "Trust." Companies needed to build trust to appeal to consumers. Lee (2001) indicated that only 21% of Internet users stated that Internet advertisements could attract them to read the ad. Shiu and Dawson (2002) stated that the Internet might become a new channel for advertisements to attract consumers.

**Operational definition.** The researcher defined Internet Advertisements in this study as ad banners on Websites. Consumers could be attracted by the Internet advertisements and trust them. The goal was to explore whether e-retailers provided Internet advertisements that could facilitate consumers' need recognition.

**Independent Variables in the Information Search Stage**

**Search Engines**

**Theoretical definition.** Haig (2001) stated that Internet users primarily used search engines to find needed information. Since search engines mainly employed users' judgment to rank Websites, e-retailers should make sure Website quality can satisfy the particular search engine's demands. Spencer (2002) and Traylor (2004) claimed that search engine marketing was a promising marketplace for commercial trade because most product searches began at the major portals of search engines. Norris (2003), Vark (2003), and Waters (2004) stated that 85% of Internet users relied on a search engine, whether for work, play, research, entertainment, or shopping. Waters
(2004) indicated that e-retailers such as Amazon might have the goods, but search engines such as Google had the users. How these companies cooperate will influence the way e-commerce is to be conducted in the future.

**Operational definition.** The researcher defined Search Engines in this study as an effective tool to find product information on the Internet. Consumers may have positive attitudes toward using search engines to find product information. The goal was to explore whether search engines could provide online shoppers with an effective way of finding purchase information.

**Online Shopping Malls**

**Theoretical definition.** Frendo (1999) stated that online shopping malls selling various kinds of consumer products provided an unprecedented chance for e-retailers to reach a global consumer base. Braddock (2001) claimed that only about 0.04% of retail Websites were visited by 80% of all Internet users. Many e-retailers joined online shopping malls in order to have more consumers visit their Websites. Dignum (2002) claimed that some Websites and online shopping malls were sponsored by e-retailers that utilized information the Websites generated in order to explore new marketing opportunities. In the online electronic shopping malls, e-retailers might improve relationships with customers, because the portal Website would allow retailers to handle business immediately. The e-retailers could provide information more quickly and more accurately to address customer demands.

**Operational definition.** The researcher defined Online Shopping Malls in this study as a product information search channel. Consumers may have positive attitudes toward using the electronic shopping malls to find product information. The goal was to
explore whether online shopping malls can provide purchasers with an effective way for finding purchase information.

**Auction Websites**

*Theoretical definition.* Liu, Wang, and Fei (2003) stated that auction Websites attract the interested shoppers together to evaluate product value. Shoppers bid on the products with the evaluated prices, and auctioneers sell the products to the highest price bidders. Bapna, Goes, and Gupta (2003) pointed out that auction Websites were a critical factor in the portfolio of commercial procedures to promote e-commerce activity. Haig (2001) indicated that an auction Website was a productive way for e-retailers to sell products or services. Auction Websites generally provided cheap prices to appeal to consumers. However, there are many reported frauds in auction Websites, causing online consumers to hesitate about whether to shop there or not.

*Operational definition.* The researcher defined Auction Websites in this study as a product information search channel. Consumers could have positive attitudes toward using auction Websites to find product information. The goal was to explore whether auction Websites can provide purchasers with an effective way of finding purchase information.

**Independent Variables in the Alternatives Evaluation Stage**

**Convenience**

*Theoretical definition.* Lee (2002) claimed that online shopping offered convenience and saved time, which were two motivating factors for online purchases. Swaminathan et al. (1999) indicated that convenience was the main reason that motivated consumers to shop online. Lohse and Spiller (1999) stated that convenient access to
product information could facilitate shoppers’ making an online purchase decision. However, Li et al. (1999) pointed out that consumers browsing Websites for product information needed to understand how to use the Internet and to take time to review the results obtained from the Websites. These efforts are regarded as involving costs to the online buyers.

**Operational definition.** The researcher defined Convenience in this study as the removal of time/space limitations. Consumers may have positive attitudes toward online shopping due to purchase convenience. The goal was to explore whether convenience can impact consumers evaluating shopping.

**Price**

**Theoretical definition.** Heim and Sinha (2001) claimed that price was a critical factor for online shopping. Lee (2002) and Swaminathan et al. (1999) indicated that although online consumers could not try out merchandise, shoppers could make price comparisons by browsing other e-retailers providing similar merchandise. However, Li et al. (1999) argued that frequent online shoppers were not price-sensitive, because these consumers thought price comparisons among different e-retailers was time-consuming, and the price difference was always very small. Blosch (2000) also indicated that price may not be the main concern for purchasers, but rather fast and correct responses to consumer service inquiries may be a critical factor.

**Operational definition.** The researcher defined Price in this study as e-retailers providing low prices to attract consumers. Consumers may have positive attitudes toward online shopping if the e-retailers provide low prices to them. The goal was to explore whether price could influence shoppers evaluating alternatives.
Brand

Theoretical definition. Haig (2001) defined brand as the quality related to the products or services the e-retailer offered. Often, brand referred to the seller’s reputation and consumer loyalty associated with the seller. Kotler and Armstrong (1997) claimed that as more information was obtained, consumer awareness and knowledge of the available brands and features increased. Further, Fong (2004) claimed that consumers have many selections among products and brands when shopping online and that there was a need to empirically study brand loyalty in retail e-commerce. Li et al. (1999) proposed that maintaining accurate and current brand information was important when online purchasers have to make the final choices. Wu (2002) indicated that e-retailers can strengthen shopper trust by using famous Websites such as Yahoo to promote the online purchase rate.

Operational definition. The researcher defined Brand in this study as name brand option. Consumers can still have positive attitudes toward brand option when they shop online. The goal was to explore whether the brand identity still play an important role in online shopping.

Independent Variables in the Purchase Decision Stage

Security

Theoretical definition. Kesh et al. (2002) claimed that security was a critical success factor for e-commerce. Lacking a great degree of confidence by Internet users, retail e-commerce would fail. Lee (2002) found that security was a main fear of online purchasers. Security concerns were the critical reason Internet users did not shop online. Rao (2000) found that most buyers who did not shop online indicated the primary reason
was being afraid to reveal personal credit card information to retailers. Wohlers (2001) suggested that e-retailers had to apply the latest security technology, such as 128-bit encryption, into Websites and transactions to convince consumers that online shopping was safe.

**Operational definition.** The researcher defined Security in this study as the promise of being protected on Websites. Consumers would have positive attitudes toward online shopping if the e-retailers promise to provide a safe and secure purchase condition. The goal was to explore whether security issues could impact online shoppers when making purchase decisions.

**Promotion**

**Theoretical definition.** Kotler et al. (2002) recommended that companies could provide regular promotional programs with benefits for both consumers and sellers. Wu (2002) indicated that many Internet users regularly kept an eye on online promotions. However, Lohse & Spiller (1999) stated that promotional activities for online products were not successful for e-retailers, because there was no effective way to inform consumers of promotional activities. The influence of promotions should be explored in more detail. Steinfield & Whitten (1999) proposed that e-retailers might provide special sales that consumers could look for when shopping online. Haig (2001) suggested that e-retailers might use promotions with time limits to appeal to and encourage consumers to shop on Websites.

**Operational definition.** The researcher defined Promotion in this study as the use of special sales provided by e-retailers with time limitations to consumers. Consumers could have positive attitudes toward online shopping if the e-retailers
provided promotions. The goal was to explore whether promotion could impact online consumers in making purchase decisions.

**Refund**

*Theoretical definition.* Lee (2002) reported that online consumers demanded that e-retailers provide an unconditional refund policy if the consumers were not satisfied with the products. Bishop (1998) suggested that e-retailers should have policies to convince online shoppers that they could easily return products and obtain refunds, or exchange products for free within a reasonable timeframe. McKinney et al. (2002) indicated that ease of return was a most important factor to improve consumer loyalty.

*Operational definition.* The researcher defined Refund in this study as a reimbursement policy without any condition if online shoppers are not satisfied with the products. Consumers would have positive attitudes toward online shopping if the e-retailers provided reasonable refund policies. The goal was to explore whether the refund policy could influence online shoppers when making purchase decisions.

**Independent Variables in the Post-purchase Decision Stage**

*Satisfaction*

*Theoretical definition.* Bryant et al. (1998) claimed that the level of customer satisfaction in e-commerce could be evaluated by measuring formerly held expectations with perceived product performance. The researchers recognized that while searching product information might be time-consuming, if the consumers were satisfied with the products, they would probably purchase from the same vendors when needing the same products in the future. Lee (2002) concluded that online shoppers’ purchasing experiences and repeat online shopping were reinforced by after-purchase experiences.
Li et al. (1999) indicated that regular online shoppers tended to purchase the same brand and use the same retailer due to past satisfaction when needing to buy the same products.

**Operational definition.** The researcher defined Satisfaction in this study as consumers being pleased with the products. Consumers may have positive attitudes toward online shopping due to satisfaction. The goal was to explore whether consumer satisfaction could cause online shoppers to shop at the same Websites without searching for information again when the consumers needed to buy the same products.

**Customized Information**

**Theoretical definition.** Hamid and Kassim (2004) found that e-retailers should identify, appeal to, and retain the most valuable purchasers to maintain profitable growth, and that there is a need to empirically explore the impact of customized information on customer loyalty. Li et al. (1999) claimed that as the sum of product information increased, online consumers would find searching for and identifying relevant information increasingly difficult and time-consuming, and that therefore e-retailers should regularly provide customized information to consumers by e-newsletters. Dignum (2002) suggested that e-retailers determined which product information should be available in e-newsletters on the basis of consumers' personal needs, as well as how the information should be presented. These decisions are very important to attract Internet users to read their e-newsletters and to visit Websites again.

**Operational definition.** The researcher defined Customized Information in this study as the provision of personalized information to online consumers with the highest interest. Consumers would have positive attitudes toward online shopping if the e-retailers regularly provided customized information to them. The goal was to explore
whether customized information would encourage the consumers to shop at the same Websites again.

**Discount**

*Theoretical definition.* Dignum (2002) indicated that many e-retailers were supplying the same types of products and services, so that customers could compare products as to price. Lower price became an important factor for online selling. However, many e-retailers failed due to being unable to offer lower price products to attract consumers. Harrington et al. (2004) claimed that lower price strategy might cause a serious “price war,” and that how to appeal to consumers without a potentially destructive “price war” was a critical issue for e-retailers. E-retailers might provide discounts to consumers according to cumulative purchase amounts to avoid price wars.

*Operational definition.* The researcher defined Discount in this study as purchase price reductions provided to consumers according to cumulative purchase amounts. Consumers may be attracted by the discount. The goal was to explore whether the enticed discount could induce consumers to shop at the same Websites again.

**Dependent Variable**

*Receptivity to Online Shopping*

*Theoretical definition.* Buyers make purchase decisions based on the preferred brands, attitudes of others, or unexpected situations. The perceived risks often cause consumers’ decisions to change, be postponed, or avoided. Marketers should realize the factors that stimulate feelings of risk in purchasers and should provide security information that will reduce the perceived risks (Kotler & Armstrong, 1997).
Operational definition. The researcher defined Receptivity to Online Shopping in this study as the consumer was favorable attitude toward making an online purchase. The goal was to explore whether the participants could accept online shopping.

Demographic and Marketing Variables

Gender

Gender was divided into two groups, males and females.

Internet Experience

Internet Experience was related to how many years the participants had used the Internet.

Online Shopping Experience

Online Shopping Experience was related to whether or not the participants had previous online purchase experience before the survey.

Other Purchase Experiences

Other Purchase Experiences was related to whether or not the participants had other purchase experiences prior to online shopping, such as mail order purchases, or cable TV purchases, before the survey. These experiences did not include physical store purchases.

Other Relevant Terminologies

E-commerce

E-commerce is customers and sellers utilizing the Internet to buy and sell goods and services. In e-commerce, the whole purchasing process is computerized from product information, specification, and sales transactions to confirmation of the delivery
of goods and services (Bontis & Castro, 2000; Egan et al., 2003; Elifoglu, 2002; Weippl, 2001).

**Business-to-Business (B2B) E-commerce**

B2B e-commerce is companies doing business with each other via the Internet. Many Websites focus on B2B solutions that provide a vertical market. These Websites are for businesses, and only other businesses have access to make purchases. B2B Websites may streamline operations between two businesses that already have a relationship. B2B is the biggest purchasing sector on the Internet (Movahedi-Lankarani, 2002).

**Business-to-Consumer (B2C) E-commerce**

B2C e-commerce is companies selling products and services directly to consumers via the Internet. B2C is different from the B2B sector because B2C is e-retailers directly selling products to consumers, and this distinction is important when comparing Websites. B2C e-commerce is also called retail e-commerce. Amazon.com is a successful case for retail e-commerce, and perhaps the best known (Movahedi-Lankarani, 2002).

**Electronic Customer Relationship Management (e-CRM)**

E-CRM is the employment of information technology and the Internet in investigating more about each customer, and the ability to reply to them one-on-one (Kotler, 2003). E-CRM aims to identify the needs and wants of individual customers via recognizing and providing services conforming to their preferences (Hamid, & Kassim, 2000). E-CRM allows companies to seize detailed information about customers, which can be utilized for a better targeted marketplace (Kotler, 2003).
Security Issues: The issues of e-commerce security are important to both customers and suppliers. Security concerns are the critical reason many Internet users do not shop online (Lee, 2002). The fast expansion of e-commerce has also increased calls for sustaining privacy and confidentiality of data (Cunningham, 1998; Desmarais, 2000; Gaertner & Smith, 2001; Kesh et al., 2002; Miyazaki & Fernandez, 2001; Muralidhar et al., 2001; Udo, 2001; Whysall, 2000).

Buyer Decision Process Model

As described by Kotler and Armstrong (1997), the Buyer Decision Process consists of five developing stages: (a) need recognition; (b) information search; (c) alternatives evaluation; (d) purchase decision; and (e) post-purchase decision. The purchasing process starts with the customers perceiving their needs. If the customers are not satisfied with the products at hand, an information search bearing on the need may be undertaken. Then, the customers will use the collected information to evaluate the options and make a brand choice. Customers rank brands and then form purchasing intentions. Next, customers make the purchase decision according to the preferred brand, attitude of others, or unexpected situations. After purchasing products, the customer makes an assessment of purchasing according to the level of satisfaction or dissatisfaction experienced (Kotler & Armstrong, 1997).

Customer Satisfaction

Customer satisfaction is regarded as a progressive method for quality, and a dynamic parameter of all trades and professions. The primary e-retail mission is to satisfy purchasers’ wants and needs. If e-retailers want to effectively manage online
shopper purchasing behavior, they must realize improving customer satisfaction is essential (Pan, 2004; Sandalidou, Baourakis, & Siskos, 2002).

**Customer Loyalty**

In marketing, loyalty is referred to as brand loyalty, which is implied by the customer retention rate (Kolter, 2003). Establishing customer loyalty is a corporate strategy, and e-retailers should explore customer satisfaction to promote loyalty and maximize their share of customers (Duffy, 1998).

In causal model building, this survey research design provided the opportunity to develop fundamental knowledge about Taiwanese customers who made online purchases. In accordance with the definitions of the variables above, the research design included an appropriate closed-end 1-to-7 Likert scale of survey questions to evaluate the relationships among the variables. The variables were measured on Critical Factors of the Buyer Decision Process in Consumers’ Online Purchasing Behavior Questionnaire (Chou, 2005), developed by the researcher (see Appendix A).

**Structure of the Dissertation**

This study was organized as follows:

Chapter One introduces information on using the Kotler and Armstrong’s (1997) Buyer Decision Process model to identify the critical factors of online consumers’ purchase decisions in Taiwan’s retail e-commerce. This chapter identifies the background of the study, research questions, and the purpose, objective, significance and contribution of the study. Chapter One also notes the limitations of the research study.

Chapter Two provides a review of the literature of key studies and concepts in this research area. This review: (a) examines e-commerce as a new trend in
business-to-consumers; (b) illustrates effects of e-commerce on customer purchasing behavior; (c) explains the various consumer purchase behavior models to analyze consumer online shopping decisions; (d) discusses the various factors that are important in the study of online purchasing behavior; and (e) provides information about the current status of e-commerce in Taiwan. Through this five-point analysis, e-retailers might learn more about how to explore e-commerce trade activities in order to create a higher level of customer satisfaction.

Chapter Three discusses the research methodology. This chapter begins with a discussion of the research questions and design. The sampling plan, instruments, procedures and data collection methods, reliability and validity of the research, evaluation of the ethical aspects of the study, and methods of data analysis are presented.

Chapter Four describes the findings of the survey instrument through statistical analysis. All results of the research study are presented in proper tables and figures.

Chapter Five is the summary and discussion of the research study. This chapter analyzes and discusses findings and limitations of the study. The chapter also presents practical implications and recommendations. Finally, this chapter provides recommendations for further research and the conclusions.

Appendices contain Critical Factors of the Buyer Decision Process in Consumers’ Online Purchasing Questionnaire, Approval Letter from Aletheia University, Information and Informed Consent for Participants, and Lynn University Institutional Review Board Approval.
Summary

The purpose of this study is to identify the critical factors in each stage of the Buyer Decision Process, developed by Kotler and Armstrong (1997), in Taiwan’s retail e-commerce market, and whether these factors influence Internet users to make their online purchase decisions. This was the main question to be investigated. The findings of this dissertation are likely to make a significant contribution to the future customer relationship management of e-retailers, due to the in-depth analysis of the characteristics of online shoppers.

Understanding the consumer purchasing process will have a far-reaching impact on the current and future viability and profitability of corporations. This study explained the “whats” and “whys” of online consumer buying in Taiwan. The purpose of determining the critical factors in each stage of the Buyer Decision Process model is to establish a comprehensive list of all important quality dimensions that described the service or product for e-retailers. This study may provide international e-retailers with valuable information for formulating e-commerce strategies in Taiwan, as well as creating advocacy messages and corrective responses.

The outcomes of the study may be significant to e-retailers, online consumers, and other researchers. E-retailers might benefit greatly by identifying the most important factors of online consumer purchasing decisions. Online consumers might benefit greatly by expressing their opinions in the survey to influence e-retailers’ strategies. Other researchers might benefit by duplicating this research study or identifying other critical factors based on this research study. This study might contribute not only to a
better understanding of how consumer purchasing decisions are formed, but also to effectively manage such decisions from an e-retailer’s standpoint.

The aim of this study was to review state-of-the-art literature and develop an empirical study about identifying critical factors of online consumer purchasing decisions in Taiwan using the Buyer Decision Process model, and to identify areas of future scholarly inquiry.
CHAPTER II

REVIEW OF THE LITERATURE AND THEORETICAL FRAMEWORK

Literature Review

Overview

The Internet and e-commerce are the two of most significant developments of information technology since the 1990s. There has been a marked increase in sales worldwide conducted via e-commerce, as well as an increase in the number of people who purchase over the Internet. The requirement for innovation in companies is heightened with e-commerce. Innovation and e-commerce relationships have resulted in tremendous changes in market competition among various industries (Blosch, 2000; Hamid & Kassim, 2004). Furthermore, e-companies need to analyze customer purchasing behavior on Websites and to manage customer relationships. These were among the reasons why this review was worth examining. This review:

1. examines e-commerce as a new trend in business-to-consumers;
2. illustrates effects of e-commerce on customer purchasing behavior;
3. explains the various consumer purchase behavior models to analyze consumer online shopping decisions;
4. discusses the various factors that are important in the study of online purchasing behavior; and
5. provides information about the current status of e-commerce in Taiwan.

This analysis was significant due to the potential for global expansion of firms interested in expanding and searching for new opportunities. The analysis shows that e-commerce has no spatial boundaries to restrict the reach and scope of new products.
reaching consumers anywhere in the world. Numerous customers are no longer limited by time or space when purchasing online worldwide (Ismail & Khatibi, 2004; McCusker, 2001; Ulgado, 2002). The literature explains that effective management of customer relationships is based on knowledge of the market and expertise in market components in order for companies to make strategic operational decisions and to function successfully (Amaravadi, Samaddar, & Dutta, 1995). Furthermore, an e-retailer can employ various consumer purchase behavior models, such as the Buyer Decision Process model, to identify critical factors and analyze consume online behavior.

This critical analysis of the literature concluded with a summary and interpretation of theoretical and empirical literature, and stated conclusions and recommendations. The goal of this analysis was to develop a state-of-the-art review of theoretical literature and empirical studies about the relationships that existed between and among e-commerce and customer purchasing behavior, and to identify areas of future scholarly inquiry.

**Definition and Principles of E-commerce**

E-commerce is customers and sellers utilizing the Internet to buy and sell goods and services. In e-commerce, the whole purchasing process is computerized from product information, specification, and sales transactions to confirmation of the delivery of goods and services (Bontis & Castro, 2000; Egan et al., 2003; Elifoglu, 2002; Weippl, 2001). Gaertner and Smith (2001) further pointed out alternative forms of payment in e-commerce transactions, including electronic transfer of funds, digital cash, credit card authorization, and inventory allocation, are different from traditional transactions.
E-commerce is a corporate tactic supported by information technology and thoughtfully chosen business processes. E-commerce is not only an exchange of funds and goods or services, but also includes a set of infrastructures including services, information hardware and software, and communication protocols (Cunningham, 1998). Bontis and Castro (2000), Elifoglu (2002), and Miyazaki and Fernandez (2001) considered Internet users as a commercial population, one that is rapidly increasing every year, thus assuring the continued growth of e-commerce globally.

The World Wide Web (WWW) and the Internet provide companies with the ability to develop various online business activities for individual consumers, industries, organizations, and government agencies. Furthermore, the Internet has been applied across the globe as a medium for communication and commercial exchange (Bontis & Castro, 2000). Internet technology has dramatically changed the marketing concepts between customers and companies worldwide (Aitchison & Stone, 2002; Records & Pitt, 2003; Ulgado, 2002). Knowing how to use Internet facilities and resources has become increasingly important for companies in digital marketing (Wang & Tang, 2003).

As a result of some companies' attention to these areas, companies have heightened innovation in the e-commerce industry. This has brought about tremendous change in the traditional market, including global competition among various industries (Blosch, 2000; Hamid & Kassim, 2004). Another change is that e-commerce is no longer limited to information technology companies, but is now being applied to all industries, from banking to automotive and travel. Furthermore, e-commerce has also changed the features of competition, market value, and the role of financial trade (Bontis & Castro, 2000).
Recently, many retailers have been seeking new marketplaces via Websites in order to maintain and improve competitive output and performance, and to provide suitable information to meet the expectations and needs of their consumers (Gaertner & Smith, 2001). Many retailers think retail e-commerce is not regarded as a replacement for physical retailing, but rather as an extra and alternative channel (Ulgado, 2002). Wal-Mart is a successful example that employs retail e-commerce to expand their market. Thus, this thought may encourage more retailers to expand their businesses into e-commerce.

E-commerce is different from traditional marketing in many aspects. For example, Websites can efficiently provide various customized messages, such as promotional messages and descriptions of new products and services, to attract consumers. In addition, Websites can automatically collect data of customers’ preferences while browsing and shopping online. E-companies can analyze consumers’ preferences based on the collected data. E-commerce enables companies to deploy one-to-one marketing approaches inexpensively and quickly (Benbunan-Fich, Lozada, Pirog, Priluck, & Wisenblit, 2001; Cunningham, 1998; Li, Kuo, & Russel, 1999; Miyazaki & Fernandez, 2001; Movahedi-Lankarani, 2002; Rowley, 1999; Sindhav & Balazs, 1999; Van Bruggen, Smidts, & Wierenga, 2001).

Daniel, Wilson, and Myers (2002) conducted a quantitative, causal-comparative study to explore how small and medium-sized enterprises (SMEs) were applying e-commerce in the United Kingdom. The authors found the developing process of e-commerce for small and medium-sized enterprises consisted of a set of sequential stages.
Cluster analysis was used to identify different e-commerce developing stages: developers, communications, Website presence, and transactors. The companies in Cluster 1 (developers) were at the beginning stage of e-commerce. The main activities were: using e-mail (87%), providing product and service information (77%), and advertising (77%). Cluster 2 (communications) included companies that applied e-mail widely (90%) and offered business information (78%), and the main activity focused on developing Websites to offer product and service information (73% and 59% respectively). Cluster 3 (Website presence) applied the services that Cluster 2 companies were still establishing. These companies mainly provided company information (98%) and products or services (89%). In addition, these companies could receive orders online (24%). This situation implied that these companies were developing transactional capabilities. Companies in Cluster 4 (transactors) were highly-developed e-commerce companies. These companies took orders online (62%), provided post-sale services (62%), and undertook online recruitment (44%). The companies were developing online payment (7%), online purchasing (7%), and delivering digital goods online (6%) (Daniel et al., 2002).

Based on the Daniel et al.'s (2002) findings, the slow rate of e-commerce development may be due to a "time problem." Given more time, these companies may develop more mature e-commerce. Although many countries' e-commerce is still at the startup stage, if nations put more effort into e-commerce, these countries may catch up with the United States' e-commerce scale. This also indicates these countries' companies can learn e-commerce experiences from U.S. e-companies and apply these experiences to speed up their own e-commerce development.
The Advantages of E-commerce

Dignum (2002) and Muralidhar et al. (2001) discussed some advantages of e-commerce in the customer and supplier management area. The researchers showed that e-commerce advantages could be clearly observed when e-companies were able to easily monitor and record the process of interactions between e-vendors and shoppers through the Internet. The entire process of these interactions could be transferred into digital data. These data produce important marketing information for the companies.

Boyd (2002), Cunningham (1998), and Luo (2003) described additional advantages to e-commerce trade. These researchers explained that if e-retailers can provide customized information to customers, then vendors may attract more consumers to their Websites and obtain a competitive advantage. Additionally, e-retailers may gain more regular consumers by providing needed, relevant products and services to consumers. Under this situation, customer loyalty may multiply and e-retailers can respond quickly and correctly to customer demands (Dignum, 2002).

E-commerce not only can reduce the costs of buying, invoicing, and payment, but also can improve the speed and timeliness of trade (Gaertner & Smith, 2001; Kolesar & Galbraith, 2000; Lawton & Michaels, 2001; Luo, 2003). Integration of e-commerce into business procedures could reduce transaction costs and improve efficiency, because electronic procurement facilitates the purchase. Further, electronic procurement can also reduce the lead time needed to deliver stock to retail outlets. E-commerce may reduce errors because the entire transaction process can be automatically completed online. The input can be verified for consistency and accuracy (Dignum, 2002; Egan et al., 2003).
However, there is a common problem in retail e-commerce, as many e-retailers are supplying the same types of products and services, which are quite standardized, at lower prices. Under this situation, customers can compare products on price, and lower price becomes important for online selling. Many e-retailers are likely to fail due to not providing lower price products to contend with competitors (Dignum, 2002).

Gaertner and Smith (2001) conducted a quantitative, causal-comparative study exploring whether there was a difference between the degree of importance placed on the advantages and disadvantages of e-commerce suggested in the literature and by industry suppliers. The authors presented four hypotheses:

1. Company size influenced the level of importance that the e-retailers placed on the advantages of e-commerce;
2. Company size influenced the level of importance that the e-retailers placed on the disadvantages of e-commerce;
3. The corporate technological status influenced the level of importance that the e-retailers placed on the advantages of e-commerce; and
4. The corporate technological status influenced the level of importance that the e-retailers placed on the disadvantages of e-commerce (Gaertner & Smith, 2001).

When the hypotheses were tested with ANOVAs for each factor, only Hypothesis 3 was supported. A sample of 390 companies was drawn from a list of 35,000 suppliers to a South Australian hospital. Questionnaires were mailed to a named senior manager of the companies. Forty-seven managers out of 390 returned completed questionnaires, representing a response rate of 12% (Gaertner & Smith, 2001).
Confidentiality was maintained by using a three-digit identifier located on the back of a paid response envelope. Non-response bias was examined and the sample of senior managers from 47 companies was regarded to be representative of the whole population. Three variables of firm size, Website, and Internet importance were subjected to an independent sample t-test (Gaertner & Smith, 2001).

Respondents were asked to judge the importance of each advantage and disadvantage to their decision to offer goods in e-commerce. The face validity of the survey was checked by e-commerce scholars, and considered to be valid. Empirical validation was used to establish concurrent validity of the survey via pilot testing a small sample. Then, follow-up interviews were conducted to ensure participants' views did not change after the initial survey (Gaertner & Smith, 2001).

The findings indicated: (a) the size of e-companies did not have a relationship with the importance levels concerning total advantages or disadvantages of e-commerce; (b) there was a significant difference between the importance levels concerning customer advantages for companies' size, with medium-sized companies having a higher level of significant advantages than smaller and larger companies; (c) furthermore, there was a significant positive relationship between companies which had Websites, or were planning a Website, and the importance the company placed on the advantages of e-commerce; (d) there was a possibility that companies withdrew from implementing e-commerce due to not realizing the advantages of e-commerce; (e) the Internet had positive effects on the companies; and (f) security was the most important issue to the customers. The authors suggested that an area of future research would be the prioritization of disadvantages (Gaertner & Smith, 2001).
Gaertner & Smith (2001) indicated that there were many advantages to both suppliers and consumers using e-commerce in a Web-based environment. Retail e-commerce provides many advantages, such as low prices, to consumers (Feinberg & Kadam, 2002; Kolesar & Galbraith, 2000; Morganosky, 1997). E-retailing will keep growing and will become an even more important part of retail sales than B2C e-commerce is today. Retail e-commerce provides the opportunity for retailers to extend global markets and to enter completely new market areas (Doherty, Ellis-Chadwick, & Hart, 1999).

Companies that develop Websites have three purposes: (a) to seek to obtain the benefits of new marketplaces; (b) to maintain viable performance with competitors; and (c) to satisfy the expectations and needs of customers. In 1998, Zinkhan and Watson asserted that one of the most promising aspects of the Internet was its ability to serve as a retail platform. E-commerce, which can promote, sell, and deliver goods and services through the Internet, has generated a retail revolution (Sindhav & Balazs, 1999). Accessibility, direct communication, cost savings, and new markets are the advantages for the retailing industry to apply to e-commerce trade (Doherty et al., 1999).

Doherty et al. (1999) conducted a research study in the UK. The authors found that there were only a limited number of high-quality Websites which provided various functions and services. However, the “typical” UK retailers had developed only very basic Websites. In addition, these basic Websites had generally been established in response to competitor pressure and customer expectations rather than as part of a strategic plan. Therefore, retailers should evaluate their competitive position and
establish strategies that are in keeping with the company’s objectives to adjust their e-commerce policies.

Egan et al. (2003) studied the integration of e-commerce tools into the transaction of SMEs using a mixed method design. The purpose of this study was to explore the impact of e-commerce on SMEs. The sample of SMEs was randomly drawn from company’s directories, government lists, the yellow pages, and random telephone contact. The final sample was 81 SMEs out of 500, for a responses rate of 16.2%.

A semi-structured interview was used and an observational audit. Data were recorded during the interviews. The authors classified the 81 companies into three broad industry sectors, which were “primary (agriculture, food, fishing, wood, and furniture), secondary (chemical, pharmaceutical, print, packaging, crafts, construction, product, clothing, textiles, engineering, and metals), and tertiary (consulting, recycling, and tourism)” because the number of companies in most industries was small (Egan et al., 2003, p. 146).

The research findings were: (a) the primary sector had the lowest level of technology adoption; (b) the tertiary sector indicated a significant statistical increase in expanding Website applications (64% compared to the other two sectors, which had 38%); (c) no sector had fully applied e-commerce into the business process, although the tertiary sector had developed the e-commerce more highly than the other two sectors; (d) the majority (83%) of SMEs were found to be interested in an internal focus with a high e-mail application level (70%) and adoption Websites (36%); (e) the rest of the SMEs (17%) were interested in a global focus, with a higher application level for e-mail (86%) and Websites (71%); (f) the degree of applying e-commerce technologies was very low
or non-existent for all three industry sectors; (g) the number of employees was inversely related to Website adoption; (h) many companies (67%) in the primary sectors that adopted e-mail were influenced by their suppliers because the suppliers depended on production input; and (i) in the secondary and tertiary sectors, customers played an important role in asking companies to use e-mail (89% and 84% respectively) and Websites (82% of all companies) (Egan et al., 2003).

The authors concluded that e-commerce development of SMEs was at the beginning stage and most SMEs did not have the ability to develop e-commerce in Ireland. SMEs had not been able to convert businesses into e-commerce and utilize e-commerce to gain competitive advantages. The main reasons SMEs did not exploit e-commerce were: (a) Internet costs, (b) a lack of perceived need for Internet technology, (c) poor information skills, and (d) executives lacking a commitment to e-commerce. Lacking technological ability was the primary reason for SMEs not investing in e-commerce (Egan et al., 2003).

To gain any advantage from e-commerce, companies should redesign business processes to be simple enough for all users. The authors suggested that SMEs can start e-commerce from current business processes, and that these processes might be improved using e-commerce tools (Egan et al., 2003). The authors recommended that the areas of future research use other regional or national samples to compare this study’s findings. The sampled companies could be revisited to evaluate present advances; and more work with executives of SMEs could help to find a method to promote e-commerce adoption (Egan et al., 2003). The research could increase the size of sectors, and the sample size was insufficient, so a larger sample was needed.
Types of E-commerce

Computer networks can be divided into two types: one is intranet, the other is extranet. Intranet is the traditional network system to link computers within one building or between geographically separate buildings within the same area. Extranet is using Internet technology to combine business partners, including suppliers, customers, and distributors. The traditional Electronic Data Interchange (EDI) system is a typical example of extranet networks. When Internet Service Providers (ISPs) are applied to link separate geographical areas, the boundary between intranet, extranet, and Internet gets blurred (Elifoglu, 2002). There are several types of e-commerce:

1. Business-to-Business (B2B): B2B is companies doing business with each other via the Internet. Many Websites focus on B2B solutions that provide a vertical market. These Websites are for businesses, and only other businesses have access to make purchases. B2B Websites may streamline operations between two businesses that already have a relationship. B2B is the biggest purchasing sector on the Internet (Movahedi-Lankarani, 2002);

2. Business-to-Consumer (B2C): B2C is companies selling products and services directly to consumers via the Internet. B2C is different from the B2B sector because B2C is e-retailers directly selling products to consumers, and this distinction is important when comparing Websites. B2C is also called retail e-commerce. Amazon.com is a successful case for retail e-commerce, and perhaps the best known (Movahedi-Lankarani, 2002);

3. Consumer-to-Business (C2B): C2B is customers purchasing products and services via the Internet. Customers dictate what they are willing to pay and
businesses in turn decide whether or not to accept their price (Movahedi-Lankarani, 2002); and

4. Consumer-to-Consumer (C2C): C2C is consumers buying and selling products and services directly with each other via the Internet. Cases with online auctions, such as eBay, are examples of this kind of e-commerce (Movahedi-Lankarani, 2002).

E-commerce Trends

New trends on the Internet today offer exciting opportunities to companies to extract information from multiple sources without regard to time constraints. The Internet provides instruments for more interactivity and connectivity among different groups (Sikder & Gangopadhyay, 2002). Although e-commerce had gone through a period of “boom time,” many people doubted the value of e-commerce because e-companies were experiencing a setback beginning in the late 1990s (Dignum, 2002). However, many corporate marketing executives still optimistically believe in the future of e-commerce, concerning both consumers’ online shopping and B2B Internet transactions. Websites may provide these executives with more efficient ways to analyze marketing phenomena, and may facilitate the ability of marketing executives to forecast the marketing environment quickly and effectively (Movahedi-Lankarani, 2002).

Search Engines’ Development

Search engines marketing is a promising marketplace for commercial trade. Most product searches begin at the major portals of search engines (Spencer, 2002; Traylor, 2004). According to a number of reports, more than 85% of Internet users rely on a search engine, whether for work or play, for research, entertainment, or shopping.
As Internet usage becomes more common, so do the amount of searches conducted (Norris, 2003; Vark, 2003; Waters, 2004).

The functions of search engines are changing rapidly. In 2003, Yahoo launched the latest search engine, providing image searches to allow users to gain access to more information. At the same time, MSN upgraded its search pages, eliminating all banner ads and emphasizing “searched for” terms in results (Vark, 2003).

Search engines can be classified into three types. The first type is “single search engine” (or crawlers), such as Google, which seek Websites consecutively using embedded robot-like search agents. When a user inquires at a database, the list of Websites is ranked by complicated and unique interior algorithms, but not by payment. Sponsored-linked Websites are placed separately. The second type is a “meta-search engine”, such as ViVismo, which simply returns the “top 10 hits” of several single search engines on the topic. However, in practice, many of the first “10 hits” are paid-for advertisements. The third type is a “directory engine,” such as Yahoo, which categorizes information through predetermined rules and headings. Website masters must apply for Websites to be listed on directory engines, where a person in charge approves the Website and laboriously registers the Website into template categories (Archee, 2002; Arnold, 2002; Schrock, 2003; Vark, 2003).

Retail Websites, such as Amazon, may have the goods, but search engines, such as Google, have the users. Waters (2004) predicted that how these retailers cooperate would influence the way e-commerce will be guided in the future. Increasingly, e-companies are adopting “enterprise search engines” to index and administer corporate data and avoid the costs related to recovering lost data (Doherty, 2003). The biggest
benefit to applying an enterprise search engine is that customers can find many corporate documents collected in multiple formats using a single product (Doherty, 2003).

**Online Shopping Malls**

Some Websites are sponsored by the companies that utilize the information generated in order to explore new marketing opportunities. These Websites are called “online shopping malls.” An example of this is Travelocity (www.travelocity.com). Travelocity is a Website portal that establishes a community providing traveling information to attract customers (Dignum, 2002). In the online shopping malls, customers can easily gain more information about products and/or shop or trace orders online. In addition, Travelocity can eventually provide statistical analyses for the customers and the companies in order to offer the right information at the best time. In this way, customers and companies are more closely bound to Websites.

According to Dignum (2002), the advantage of the Internet community is that the company can improve relationships with the customers. Therefore, customer loyalty increases when a company can provide information more quickly and more accurately to address customer demands. Nowadays, many portal Websites, such as Yahoo, also provide online shopping malls, which are gradually accepted by online shoppers, and which form a very important purchase channel.

**E-Retailing**

E-retailing is at the forefront of e-commerce. The Website is an effective tool to drive sales, operations and marketing goals. The future of retail e-commerce is promising (Kolesar & Galbraith, 2000; Traylor, 2004). According to the U.S. Census Bureau, U.S. retail e-commerce sales in 2001, 2002, and 2003 were US $34 billion, US
$44 billion, and US $55.7 billion, respectively. In 2004, the U.S. retail e-commerce sales were about US $69.2 billion, an increase of 23.5% from 2003 (http://www.census.gov/mrts/www/nmrthist.html). These sales indicate that retail e-commerce is promising, and that online shopping is rapidly being accepted by consumers.

Electronic Customer Relationship Management

Electronic Customer relationship management (e-CRM) is a corporate tactic that allows companies to make more revenue and more profit by putting customers first through the Internet. E-CRM not only aims to please customers, but to increase corporate profitability. Recently, companies have been collecting knowledge about the customers that can identify opportunities for “up-selling and cross-selling” (Bhullar, 2004). To gain the information about customers and prospects, companies should connect the e-CRM systems to high-quality external business information. However, integrating disparate external information into corporate e-CRM systems is challenging to the resources of the company (Israel, 2004).

Information Integration

The integration of information searches and purchasing procedures is becoming increasingly customized in the e-economy. Customized targeting is a critical reason for customers to shop online compared with traditional retailing (Bontis & Castro, 2000). In an ideal world, e-commerce information systems should be able to automatically identify valued customers, check the warehouse for inventory, and make online procurements for items not available in the store. E-retailers suffer from aging
information systems that cannot share data in real-time with operational systems, Websites and in-store kiosks (Kalin, 2004).

**Online Banking**

Customers have access to personal or business banking services via the Internet. Most major banks allow clients to access account balances, transfer money, pay bills, and perform other banking procedures while online. With more and more customers making use of online banking systems, banks use resources more efficiently, with the aim of reducing personnel costs (Movahedi-Lankarani, 2002).

**Electronic Customer Relationship Management (e-CRM)**

Electronic Customer Relationship Management (e-CRM) is the employment of information technology and the Internet in investigating more about each customer, and the ability to reply one-on-one (Kotler, 2003). E-CRM aims to identify the needs and wants of individual customers via recognizing and providing services conforming to consumer preferences (Hamid & Kassim, 2000). E-CRM allows companies to seize elaborative information about customers, which can be utilized for a better targeted marketplace (Kotler, 2003).

Internet technology provides the ability for e-retailers to apply the e-CRM function in Websites, using the Website as a bridge between companies and customers. As business moves to e-commerce, e-CRM will become the center of the operation (Feinberg & Kadam, 2002).

Although Websites may be regarded as a marketing facility that can globalize business, different cultures have changed consumer online purchasing behavior and attitudes towards e-commerce (Ulgado, 2002). How to attract potential culturally
diverse customers to Websites has been a challenge to e-retailers (Miyazaki & Fernandez, 2001). At present, customers generally use search engines to access the targeted Websites or information. Kolesar and Galbraith (2000) asserted that since customers utilize Websites to retrieve information about various products, the companies must appeal to the potential shoppers in order to apply Websites as both an information facility and as a purchase channel.

Companies need to determine which product information should be available on the Website, as well as decide how the information should be presented. Information technology can easily implement different structures by creating links between products (Cunningham, 1998; Dignum, 2002). According to a customer’s historical purchasing records, the company may apply e-CRM to analyze what might be of consumer interest. The company will provide customized information only to those with the highest interest (Kotler, 2003).

The Security and Trust Concerns of E-commerce

The issues of e-commerce security are important to both customers and suppliers. Security concerns are the critical reason Internet users do not shop online (Lee, 2002). This means that companies need to be committed to following the security policy of Secure Electronic Transaction (SET) in order to ensure that customers become and remain confident with purchasing online. The fast expansion of e-commerce has also increased calls for sustaining privacy and confidentiality of data (Cunningham, 1998; Desmarais, 2000; Gaertner & Smith, 2001; Kesh et al., 2002; Miyazaki & Fernandez, 2001; Muralidhar et al., 2001; Udo, 2001; Whysall, 2000). Security concerns should be integrated into the corporate information systems’ developing process because
e-commerce security problems will influence all corporate systems (Chan & Kwok, 2001).

Security needs have to be re-examined on a continuous basis, varying as the corporate principles change. Providing e-commerce security and ensuring constant analysis are critical economic factors in the success of the e-company (Elifoglu, 2002; Kesh et al., 2002; Udo, 2001). E-commerce serves a global market with many foreign participants. Ensuring trust, privacy, and security are critical for the global electronic market (Dignum, 2002; Udo, 2001).

Examples of e-commerce security problems include stealing, destroying, obstructing or interrupting transactions in transit; interception; and changing financial data (Elifoglu, 2002). In 1997, the U.S. Department of Trade and Industry (DTI) adopted a policy to introduce measures of security to users and providers of e-commerce services. Security problems were principally due to lack of awareness of the reckless use and storage of data. In addition, security measures were put in place to confine or prohibit access where necessary (Bond & Whiteley, 1998).

Presently, the most commonly adopted security protocol is the Secure Socket Layer (SSL) proposed by Netscape in 1994. SSL provides a protected data transport service for the application layer protocols. In many secure e-commerce systems, SSL works in conjunction with Hyper Text Transfer Protocol (HTTP) to sustain secure data transfer between a Website client and Website server. SSL appears to be an industry security standard for online purchasing (Chan, Lee, Dillon, & Chang, 2001; Larson, 1998).
Many businesses suppose that time alone will decrease consumer concerns about the security of purchasing online, while others dispute that greater Internet knowledge and broader promulgation of the conceivable risks of purchasing online will be the cause to boost risk awareness (Miyazaki & Fernandez, 2001). All can agree, however, that a secure e-commerce transaction is a guarantee of satisfaction for both purchasers and providers of e-commerce services and products. According to Desmarais (2000), a secure transaction includes the following three characteristics: (a) allowing senders and receivers to share data without risk of a third party stealing and forging; (b) allowing the receiver of information to recognize whether somebody has corrupted the information during delivery; and (c) ensuring senders and receivers know who has been contacted.

Udo (2001) conducted a quantitative, descriptive survey to explore privacy and security concerns of Internet users. This study was conducted through a 29-item questionnaire mailed to 250 randomly selected Internet users in a major city in the Southeastern United States. The survey instrument was examined by experienced online purchasers who were aware of privacy and security issues of e-commerce. Based on the responses received from the pretest, amendments were made to the instrument before mailing the questionnaire to the respondents. Some responses were excluded from the survey due to not having experience using e-mail or shopping online. The final data-producing sample was 158 of 250, representing a response rate of 63.2%. The author indicated that there were no differences between respondents and non-respondents based on the demographics of those respondents.

The main research findings from Udo’s (2001) study were: (a) 90.5% of participants had e-mail accounts or addresses, 44.9% had personal e-mail, 44.3% had
work e-mail, and 32.3% had school e-mail; (b) 66.5% of participants had experience with online purchasing, but 32.9% did not have any experience with online purchasing; (c) 70% of respondents worried about misuse of personal credit cards and other individual information when shopping online; and (d) 70% of participants indicated that if worries about privacy and security were eliminated, purchases online would be made (Udo, 2001).

Udo (2001) concluded that most Internet users not only worry about privacy and security when shopping online, but also worry about safety and confidentiality of e-mails. If e-retailers want to survive and thrive in the digital era, e-companies need to assure shoppers that privacy and safety are protected.

Bond and Whiteley (1998) claimed a secure e-commerce system needs the application of cryptography, a principle of keeping a message secure. In general, cryptography is used to hide information matters, build authenticity, preclude undetected change, prohibit repudiation, and forbid unauthorized use. Cryptography is employed to guard the confidentiality of financial data or individual records, whether in storage or in transit. Furthermore, cryptography is also used to confirm the integrity of data by disclosing whether the information had been changed and by recognizing the person or device that sent the data.

Encryption techniques are critical factors for the development of e-commerce. Encryption techniques allow senders and receivers to own two keys: one is a private key; the other one is a public key. Within the encrypting procedure, the sender encodes a message with the recipient's public key. Thus, any party could not decrypt the message except the one holding the private key. Consequently, encryption ensures the
electronic messages to and from all parties does not reveal one’s private key to the sender (Bond & Whiteley, 1998). Websites usually provide encryption and decryption capabilities. Many of them offer 128-bit or greater encryption for added security (Desmarais, 2000).

Kesh et al. (2002) proposed a framework for analyzing e-commerce security: (a) estimating security needs, (b) analyzing threats, (c) providing a list of all credible technologies to oppose threats, (d) removing technologies based on repetition and opposition, (e) choosing tools that sustain the final technology list, (f) determining which security features of each tool to use, and (g) expanding final security architecture. The authors described how e-companies chose information technology based on the risks and the technology ability, and chose tools based on the technologies needed.

Miyazaki and Fernandez (2001) conducted a mixed method, causal-comparative study to explore customer perceptions of privacy and security risks and online purchasing. Eight hypotheses were tested by regression analysis. A paper survey was used to gather data. Two data collectors randomly selected respondents from a major international airport in a large United States city. The sample needed to have Internet experience measured by how many days per month the participants browsed on the Internet and sent/read e-mail. Online purchasing behavior was measured by how many purchases were made on the Internet during the past three years. The authors used a 7-point Likert scale to measure perceived risk and a semi-structural questionnaire to measure “concerns” evaluated with a pre-tested scale containing three seven-point Likert-type items (Miyazaki & Fernandez, 2001).
The eligible sample was 189 respondents, and the final data-producing sample was 160 respondents who agreed to complete the survey, representing a response rate of 84.7%. The age of respondents ranged from 15 to 75 years old. The mean age was 34.5 years old and median was 34 years old. Gender was similar, 52% male and 48% female. Education levels were from grade school to graduate degree with a median of a four-year degree. Annual income was from US $50,000 to over US $110,000, with a median of US $60,000 to US $70,000. These figures were consistent with those Internet users (Miyazaki & Fernandez, 2001).

The semi-structured survey resulted in 269 concerns, which were classified into six categories, including: (a) privacy, (b) system security, (c) online retailer fraud, (d) inconveniences of online shopping, (e) no concerns, and (f) unsuitable for classification. The preliminary findings were: (a) 53% of the respondents had made at least one online purchase within three years; (b) purchasing quantities ranged from 1 to 15, with the mean and median 8.4 and 4, respectively; (c) experience frequency was 1 to 30 days per month, with the mean and median 18.6 and 20, respectively; and (d) e-mail usage was 0 to 30 days per month, with the mean and the median 20.8 and 23.5, respectively (Miyazaki & Fernandez, 2001).

The results showed the following: (a) Internet experience was negatively associated with awareness of risks in conducting online shopping; (b) Internet experience was negatively associated with the presence of interests regarding the privacy and security of conducting online shopping; (c) the choice of existing methods for remote retail shopping transactions was negatively associated with the awareness of risks in conducting online shopping; (d) the choice of existing methods for remote retail purchase
transactions was negatively associated with the presence of interests regarding the privacy and security of conducting online shopping; (e) the awareness of risk in conducting online shopping was negatively associated with the rate of online shopping; (f) the presence of concerns regarding the security of online shopping was negatively associated with the rate of online shopping and privacy was not significantly associated with the rate of online shopping; (g) Internet experience was positively associated with online shopping, with awareness of risks in conducting online shopping interfering with this relationship; and (h) the choice of existing methods for remote retail shopping transactions was positively associated with online shopping, with the awareness of risks involved in conducting online shopping interfering with this relationship (Miyazaki & Fernandez, 2001).

The authors concluded that customers were concerned with both privacy and security issues. Although privacy issues and possible deceitful actions by online retailers were recognized as critical concerns for online shoppers, these concerns did not explain online purchasing rates. In addition, these concerns were of less importance for Internet users with more knowledge, and for users of other remote purchasing methods. Online retailer dishonesty with respect to Internet knowledge had similar results (Miyazaki & Fernandez, 2001). The disclosure of privacy and security information was associated with higher levels of purchasing online aspirations. More studies are needed to support the findings.

The findings regarding system security concerns seemed to impact customer purchasing behavior, while those regarding privacy did not. This may have implications for the mandatory regulation of intelligence on Websites. These discoveries also have
implication for the utilization of third-party Internet seals of authorization (Miyazaki & Fernandez, 2001).

There were several limitations in this study. First, global generalizations of the findings are limited. Second, more definite measures of risk awareness would help in interpreting how customers recognize the diverse dimensions of risk concerning online shopping. Finally, examining only awareness of risk and online purchasing was not enough. Specific evaluation of risk concerning privacy, online retailer fraud, and the security of online transaction systems would disclose which of these risky aspects of e-commerce were causing purchase aspirations (Miyazaki & Fernandez, 2001).

In Miyazaki and Fernandez’s findings (2001) Privacy was positively related to online customers having longer periods of experience, implying that the accumulation of Internet experience may cause a higher interest in privacy issues. This result conflicted with the suggestion that more experience leads to fewer privacy concerns; therefore, this result needs additional research. The authors also recommended future study to explore specific evaluation in empirical work that would interpret more online shopping behavior than was done in this study (Miyazaki & Fernandez, 2001).

The lack of protection and confidentiality, privacy is another issue facing consumers when shopping online. By disclosing a Website's privacy policy, e-retailers can greatly relieve consumers of their privacy concerns and create a more trustworthy environment for online businesses (Benassi, 1999). For instance, many Internet users in Taiwan can access a wealth of data, including ID numbers, home telephone numbers, addresses, and occupations by doing a simple name search on the Internet (Chang, 2001). Furthermore, Websites with monitoring technology are able to silently track their visitors'
browsing habits and obtain personal information (Chou, 2002). Therefore, there is a need to create Internet privacy regulations to prevent these privacy violations.

Lack of online trust is another major concern in Taiwan’s B2C e-commerce. Thirty-nine percent of Taiwanese Internet users were hesitant to shop online due to trust concerns in 2004 (Ho, 2004). In 2003, Taiwan’s Ministry of Economic Affairs introduced an advanced online payment system allowing purchasers to provide personal information directly to banks and to provide e-retailers with delivery information only (Chen, 2003). The purpose is to prevent online fraud and to encourage the public to purchase online.

Other more general and widespread mechanisms have been developed to ease these concerns, namely, awarding a trusted Website an assurance seal to be displayed on the Website. In Taiwan, these trust marks can be divided into Website assurance seals and Secured Seals:

1. Website Assurance Seals: The purposes of these seals are to promote business-to-customer (B2C) e-commerce activities, to establish self-regulatory, fair, effective, and secure e-commerce environment, and to solve dispute between consumers and their members (http://www.sosa.org.tw/index.asp).

Two representative organizations are Secure Online Shopping Association (SOSA) and Online Trust Store. These organizations are non-profit association; and

2. Secured Seals: The purposes of these seals are to provide service for value and trust in the secure e-commerce transaction (http://www.hitrust.com/).
Two representative organizations are HiTrust and Verified by VISA. These organizations are profit association.

**Customer Satisfaction and Customer Loyalty**

Customer satisfaction is regarded as a progressive method for ensuring quality, and a dynamic parameter of all trades and professions. The primary e-retail mission is to satisfy purchasers’ wants and needs and to make a profit for e-retailers as well. If e-retailers want to effectively manage online shopper purchasing behavior, vendors must realize improving customer satisfaction is essential (Pan, 2004; Sandalidou, Baourakis, & Siskos, 2002). The perception of value occupies a very important position in customer satisfaction. In other words, if the effort of marketing managers lacks customer perceived value, companies fail (Ismail & Khatibi, 2002; Pan, 2004).

There has been a need for e-retailers to realize how to satisfy shoppers so as to maintain growth and market returns (McKinney, Yoon, & Zahedi, 2002). Customer satisfaction in traditional commerce has three antecedents: expectation, disconfirmation, and perceived performance. These antecedents have also been suitable for retail e-commerce (McKinney et al., 2002). The level of consumer satisfaction in retail e-commerce can be evaluated by measuring formerly held expectations against perceived product performance. If performance surpasses expectation, an e-commerce shopper is satisfied and tends to purchase again. To the contrary, if performance does not match customers’ expectations, customers will not be satisfied and may find substitute products or services (Bryant, Kent, Lindenberger, & Schreih, 1998). This indicated that retaining regular customers by addressing consumer satisfaction is very important for e-retailers to explore.
McKinney et al. (2002) conducted a study to explore the measurement of online shopper satisfaction during the information-search stage. The authors suggested that e-retailers had to supervise the satisfaction of purchasers with Websites to compete with other e-vendors in retail e-commerce. To that end, these e-retailers should perceive the singular characteristics of information content and Website performance in accessing and delivering product information. Shoppers commonly repurchase using various Websites. Accordingly, measuring expectations and the disconfirmation of expectations is useful in analyzing Internet customer satisfaction. Consequently, e-companies are able to examine whether Websites meet consumers' expectations by examining customers’ expectations and disconfirmation.

In marketing, loyalty is referred to as brand loyalty, which is measured by the customer retention rate (Kolter, 2003). Establishing customer loyalty is a corporate strategy, and e-retailers should explore customer satisfaction to promote loyalty and maximize their share of shoppers (Duffy, 1998). In general, companies lose half of their customers in less than five years. By comparison, companies with high brand loyalty may lose less than 20% of customers in five years (Kolter, 2003). In 1996, Reichheld claimed that a 5% addition in customer retention may cause a 35-39% growth in the total lifetime benefits from a typical customer relying on the industry. Loyal online clients represent the e-retailers’ long-term benefits. Clearly, there is a need to explore the critical factors that drive online consumer loyalty.

Heim and Sinha (2001) conducted a quantitative, causal-comparative study to explore operational drivers of customer loyalty in retail e-commerce. The sample was randomly derived from 52 of the 255 electronic food retailers. The independent
variables in this study were: (a) price, (b) website navigation, (c) product information, (d) Website aesthetics, (e) product selection, (f) product availability, (g) timeliness of delivery, (h) customer support, and (i) ease of return. The dependent variable was customer loyalty.

The main study findings were: (a) Website navigation, product information, and price were positively related to customer loyalty; (b) available product, instant delivery, and easy return were positively related to customer loyalty; (c) the most statistically significant correlations between the six variables and improving customer loyalty from highest to lowest were: 1) easy return, 2) instant delivery, 3) Website navigation, 4) product availability, 5) price, and 6) product information. Website aesthetics, product selection, and customer support were not found to be statistically significant.

The authors indicated that e-retailer’s product design flexibility, the competence to convert similar segments of consumer needs into the targeted digital market, was positively related to consumer loyalty. In addition, e-retailers should prioritize the marketing decisions associated with order procurement and fulfillment procedures in a way which will lead to improved consumer loyalty (Heim & Sinha, 2001).

The Models of Consumer Purchase Behavior

The Buyer Decision Process Model

According to Kotler and Armstrong (1997), the Buyer Decision Process model consists of five stages:

1. Need Recognition: The purchasing process starts with the customers perceiving their needs. Need recognition is associated with both the actual state, and the desired state of consumers, i.e., internal stimuli and external
stimuli. At this phase, the marketers have to decide the factors and situations that may appeal to consumers' need recognition. The marketers have to assess shoppers to identify what kinds of needs or problems appear, what brought these needs/problems about, and how they guide the buyer to the special products (Kotler & Armstrong, 1997);

2. Information Search: If the consumers are not satisfied with the current products or are unfamiliar with current products, online shoppers will undertake an information search bearing on their needs. Generally, the amount of buyer search activity increases when the shopper moves from decisions involving confined problem-solving to those that relate to extensive problem-solving. The consumer may gain information from any derivation, such as personal sources, commercial sources, public sources, and experiential sources. As more information is gained, the buyer's awareness and learning of the obtainable brands and features increases. Managers have to carefully identify the origins of information obtained by shoppers and the significance of each origin (Kotler & Armstrong, 1997);

3. Evaluation Alternatives: The managers should explore how consumers select among the various brands. The purchasers often use the information gained online to assess the selections and make a brand choice. That is, buyers rank brands and develop purchase purposes. Therefore, the managers should investigate purchasers' behavior to discover how shoppers actually evaluate brand alternatives (Kotler & Armstrong, 1997);
4. Purchase Decision: Buyers make purchase decisions based on the preferred brands, attitudes of others, or unexpected situations. The perceived risks often cause consumers’ decisions to change, be postponed, or avoided. Managers should realize the factors that arouse feelings of risk in purchasers and should provide security information that will reduce the perceived risk (Kotler & Armstrong, 1997); and

5. Post-Purchase Behavior: After purchasing products, the shoppers make an assessment of the shopping experience according to satisfaction or dissatisfaction. Retaining existing consumers is often more critical than attracting new ones, and the effective way to fulfill this purpose is to make regular shoppers satisfied. Managers should evaluate customer satisfaction regularly (Kotler & Armstrong, 1997).

Chen and Dubinsky’s Model

Chen and Dubinsky (2003) proposed a model about perceived consumer value in e-commerce. The model consists of:

1. Perceived Consumer Value, which referred to a purchaser’s awareness of the advantages acquired in trade for the expenses caused in gaining the desired advantages;

2. Impact of Experience, which referred to a shopper’s emotion or attitude being influenced by his or her previous online purchasing experience;

3. Perceived Product Quality, which referred to the customer’s opinion concerning a merchandise’s quality; and
4. Perceived Risk, which referred to the purchaser’s awareness of the uncertainty and following unfavorable results of purchasing a product or service online (Chen and Dubinsky, 2003).

The authors conducted an empirical study to test their model. The main study findings were: (a) the degree of pertinent information provided by the e-retailer, and the user-friendliness of the retail Website had a positive relationship with the online buyer’s impact of experience; (b) the online purchaser’s valence of experience, and the reputation of the e-retailer both had a positive relationship with perceived product quality; (c) perceived product quality had a negative relationship with perceived risk; however, the product price had a positive relationship with perceived risk; (d) product price had a negative relationship with perceived consumer value; and (e) perceived consumer value had a positive relationship with online purchase intention (Chen & Dubinsky, 2003).

**Beckett, Hewer, and Howcroft’s Model**

Beckett et al. (2000) suggested using a two-dimensional matrix of consumer choices to better understand customer behavior. The authors identified two important factors, involvement and uncertainty, which inspired and decided personal contracting selections. This model provides greater penetration into the likely scope of interaction modes. Each quadrant represented an ideal type of customer behavior, which symbolized a varied combination of involvement and uncertainty:

1. Repeat-passive Customers: Customers who had a low degree of involvement with the products or services, and limited perception of uncertainty. These customers were passive and tended to make repeated interactions without actively searching for a replacement (Beckett et al., 2000);
2. Rational-active Customers: Customers who were actively involved in the process (high contact participation) had the competence and intention to make carefully prudent purchase decisions across all choice environments (Beckett et al., 2000);

3. No purchase: There were customers who made no purchases due to having no involvement with the products and so did not have the competence or the confidence to make purchasing decisions (Beckett et al., 2000); and

4. Relational-dependent: These were customers who were highly involved. However, these consumers were not fully confident due to the intricacy of the products and the uncertainty of final consequence. Purchasers in this category generally did not engage in shopping (Beckett et al., 2000).

Lee's Model

Lee (2002) conducted a quantitative study using the behavioral model of consumer online purchasing. The author suggested a behavioral model of the online shopper could help e-companies concentrate on potential customers. The author proposed a model to classify the behavioral aspects of an online purchaser into three groupings. The three stages were:

1. Building trust and confidence;

2. Online purchase experience; and

3. After-purchase needs (Lee, 2002).

These three groupings could be a predictor of different stages that an online shopper would experience. In the first stage, the interested customer would inspect the product to ensure that an authentic and reliable company was responsible for the Website.
In this stage, the customer was seeking information that could develop trust before proceeding further. The customer also wanted to know the description of product or service, the accuracy of the information, and privacy protection and security (Lee, 2002).

In the second stage, the customer wanted ease of navigation so that he/she could move back and forth easily within different pages of the Website. The customer wanted speedy access to all related Website pages for an easy purchase experience, examining product information, examining payment modes, and examining sales policy. Customers also wanted to shorten product searching time, as well as to have speedy and flexible payment routines. Convenience was the motivating factor for purchase (Lee, 2002).

In the third stage, the customer desired fast delivery, assurance of availability of refunds or returns, and after-sales service. Product warranty, full return, and customer service policies should be definitely declared on the Website (Lee, 2002).

In this study, the author first compiled behavioral factors found in the literature review. Five main factors were translated into a set of statements for a questionnaire survey: (a) past experience with mail order and online shopping, (b) use of credit cards, (c) security and transaction integrity issues, (d) Internet knowledge, and (e) psychological factors. The age range of respondents was from 16 to 60, divided into six age groups. The author selected 10 respondents, which were randomly selected from each age group through intercept interview, to participate in a pre-test questionnaire. The main survey was conducted by intercept interviews and online posting of the questionnaire. Finally, the adopted sample was drawn from 424 participants, which included 179 online users and 245 intercept interviews (Lee, 2002).
The main study findings were: (a) 81% of respondents were less than 26 years old; (b) 42% of participants spent more than 5 hours per week surfing on the Internet; (c) 38% of respondents worried about the risk of transacting with a fake company; (d) 52% of participants were concerned about the risk of stolen credit cards; (e) 26% of respondents worried about the risk of inaccurate billings; (f) 24% of participants were concerned about the risk of receiving wrong items; (g) in response to the importance of psychological factors, 91% thought protection of personal information was most important, 86% thought warranty, 80% thought convenience and money back guarantees, 79% thought after-sales service, 74% thought short delivery time, 40% thought advertisement through TV, radio, print, and 21% thought online advertisement to be most important; (h) e-companies ranked the following factors as most important: speed of Website, ease of navigation, graphics that load quickly, effective product description, and currency of data; (i) customers ranked the following factors in order of importance for online purchases: thorough product description, company background information, speed of Website, currency of data, and ease of navigation; (j) the products most frequently purchased online were movies/concert tickets, books/stationery, CDs, food, airplane tickets, stocks/shares, groceries, household furniture, toys, clothes/shoes, electronic appliances, computer products, jewelry/accessories, and cosmetics; and (k) desired payment options were ranked as follows: cash on delivery, credit card, personal check, cash card, money order/cashier's order, and bank draft (Lee, 2002).

Lee (2002) further indicated the study revealed a gap in perception between e-retailers and online shoppers. The lesson from this study is that e-retailers should examine each stage of the purchasing activity and the related behavioral patterns of the
customer in order to ensure product purchase. Establishing the behavioral model of online purchasers may allow e-retailers to provide shoppers with a more organized shopping experience, address their interests, and build trust.

**Li, Kuo, and Russell’s Model**

Li et al. (1999) conducted a quantitative study to explore what factors determined whether customers selected “to purchase” or “not to purchase” online, and how frequently such purchases were made. In this study, the authors presented a model of consumer online purchase behavior. The model assumed that buyer online purchase behavior and purchase frequency were influenced by demographics, channel understanding, comprehended channel utilities, and purchase orientations.

This survey was conducted on a private Website administered by Clickin Research Company. The sample size was a total of 999 randomly selected respondents, with an overall response rate of 65%. The consumer’s online purchasing behavior was the dependent variable and was measured by questioning the subjects as to the number of times they shopped online within a three-month period. The response categories ranged from “never” to “more than 20 times.” This question was used to filter invalid samples if the respondent’s answer was “never,” resulting in producing a sample of 981 respondents. Hypotheses were tested with one-way ANOVA (Li et al., 1999).

The results indicated: (a) online shoppers regarded the Websites as having greater advantages in communication, distribution, and accessibility than non-online shoppers, and regular online shoppers realized higher utility than infrequent online shoppers; (b) online shoppers tended to believe they were more knowledgeable about Websites than non-online shoppers, and frequent online shoppers thought themselves
more knowledgeable than infrequent online shoppers; (c) online shoppers were more convenience-oriented than non-online shoppers, and regular online shoppers were higher convenience-oriented than infrequent online shoppers; (d) online shoppers were lower experience-oriented than non-online shoppers, and regular online shoppers were lower experience-oriented than infrequent online shoppers; (e) recreational preferences were not a factor for online shopping; (f) pricing was not a factor for online shopping; (g) online shoppers had higher levels of education than non-online shoppers, and frequent online shoppers had higher levels of education than infrequent online shoppers; (h) more men shopped online than women, and more men were regular online shoppers than women; (i) online shoppers had a higher income than non-online shoppers, and regular online shoppers had a higher income than infrequent online shoppers; and (j) age was not a factor for online shopping (Li et al., 1999).

Li et al. (1999) recommended improving several limitations of this study for future research. Of the recommendations, three are important to mention because of relevance to this current study: (a) some multi-item scales were less reliable than had been anticipated; (b) the channel utility had to be re-phrased; and (c) more variables needed to be added in the future research (Li et al., 1999). Overall, this study is clearly written, and the results supported the authors' hypotheses. However, more research is needed to confirm the findings, because Internet technology is fast-changing. In addition, the authors did not include perceived risks as a predictor of online purchasing. Risk factors may be added in future research studies.
**Sindhav and Balzas's Model**

Sindhav and Balzas (1999) proposed a model of factors impacting the growth of retailing on the Internet:

1. **Consumer Characteristics:** Retailing e-commerce was one of the applications of home-based purchasing. The authors examined consumer characteristics through preferences for home-based purchasing, technological orientation, and access to the new media. Consumers tended to have a preference for online purchasing for various reasons, such as a desire to purchase at a convenient time. Technological orientation was the inclination to obtain and utilize new technology for daily tasks. E-commerce required that customers who prefer shopping online have a higher degree of technological perception and skills than those who did not. Therefore, online shopping should involve easy access to the Website (Sindhav & Balzas, 1999);

2. **Firm-related factors:** The authors recognized corporate information intensity and corporate expertise in e-commerce as relevant factors. Information intensity was relevant for retailing e-commerce because companies with high information intensity were likely to provide more value to customers in digital marketing compared to low information-intensive rivals. These companies could obtain better value from the information collected online. In addition, these companies could combine new information produced by online retailing with the existing information system, gaining an advantage from the combining of information (Sindhav & Balzas, 1999); and
3. Environmental factors: Environmental factors mainly addressed the critical mass of consumers and retailers, and technical and legal considerations. The retail e-commerce sector presumed a threshold of customers and suppliers interested in electronic transactions. Sindhav and Balzas (1999) stated their “critical mass theory,” that the broadcast of interactive media was contingent on having a “critical mass” of both customers and suppliers on the Internet. One limitation of critical mass theory was that the theory supposed that when customers selected a new medium for purchasing, they discarded the old one. The reasons were: (a) most products were obtainable in various retail formats, (b) customers were accustomed to choosing products among formats, and (c) customers could join non-store and in-store retailing choices. E-companies should provide more encouragement to customers to consider online purchasing. Therefore, a critical mass of online customers and suppliers produced a positive feedback cycle that directly facilitated the increased potential of retailing e-commerce through the increased advantages to customers (Sindhav & Balzas, 1999).

The pre-purchase stage for purchasing products (information search and product trial) was significant to produce and evaluate more choices. The potential of Website-based retailing may be unfavorably impacted by the restrained capability of the Internet to deliver sensory information. In addition, more information on the pre-purchase stage for specialty products (information search and product trial) was necessary for shoppers to learn more about these specific products (Sindhav & Balzas, 1999).
Customers gained two advantages during the transaction stage. One was a saving of physical effort, because customers did not need to go to the real store to purchase the products. The other was time saved from not making the purchasing trip. However, during transaction, the restriction of e-commerce was the inability to convey information on the actual products. Consumers learned about the product being sold through a picture of the product displayed on the screen. Increased financial risk was also a factor about which customers worry. How to balance the financial risk of online purchases against the perception of increased physical endeavor depended on how customers regarded online retailing during the transaction stage (Sindhav & Balzas, 1999).

During the post-transaction period, many products needed retailer input for customers to understand the full advantages of consumption. Other post-purchase values provided by suppliers were product maintenance, information regarding consumption of the product, warranties, and the option of returning products. Post-transaction input was not applicable for most convenience merchandise. Retailing e-commerce was found to have the potential for advancing the consumption experience for highly information-intensive merchandise (Sindhav & Balzas, 1999).

The implications for this study were that: (a) managers should stress easy comparisons on price and attributes for purchasing products online; (b) managers should aim for those customers who lacked time and who were willing to give up an in-store visit to examine the merchandise in exchange for increased financial risk; and (c) managers should emphasize convenience features such as fast and reliable service for products offered online (Sindhav & Balzas, 1999). The limitations of this study were
that: (a) the authors only focused on the stage of pre-purchase search, while ignoring the stages of purchase and post-purchase searches; (b) the authors did not explore how customer knowledge obtained from Website browsing influenced customer behavior in an in-store situation; and (c) the factors of this model selected for study were not completely independent of each other (Sindhav & Balzas, 1999).

Soderlund et al. (2001) conducted a quantitative study about predicting customer online purchasing behavior. The purpose of this study was to explore how customer repurchasing intentions and past purchasing behavior were associated with future purchasing behavior in industrial markets. The authors presented three hypotheses:

1. The relationship between previous repurchase intentions and following purchasing behavior was weak;
2. The relationship between previous purchasing behavior and following purchasing behavior was positive;
3. Previous purchasing behavior was more positively related to following purchasing behavior than to previous repurchase intentions (Soderlund et al., 2001).

The sample in this study was derived from purchase records for 1995, 1996, and 1997 of a European wholesaler of paper and various related products. The company's products consisted of about 5,000 different items, and some 10,000 regular customers. The adopted sample consisted of 418 customers. Repurchase intentions and purchasing behavior were two variables used to test the reliability and validity of the hypotheses (Soderlund et al., 2001).
The method to test the hypotheses was multiple regression analysis. The results indicated that: (a) repurchase intentions were not significantly related to future purchasing behavior; (b) past behavior was a strong predictor of future behavior; and (c) past purchasing behavior was more positively related to future purchasing behavior than to past repurchase intentions. Consequently, the three hypotheses were supported.

The authors recommended that future studies could: (a) explore factors of the customers' organizational and inter-organizational conduct; (b) examine factors of customers' cognition, such as effort and visibility; (c) explore the accuracy of predicting purchaser determinants; and (d) examine the degree of customers' consciousness which may be related to repetitive purchasing behavior (Soderlund et al., 2001).

Although the findings of this study are consistent with other findings in the literature, these results cannot be generalized to the entire paper industry, because the sample was derived from only one company's daily purchase records. However, marketing executives can use the transactions to analyze daily customers' purchasing behavior. For a suitable period, such as a season or half-year, marketing executives can create a marketing survey to both compare results and assess the differences. After analyzing customers' data for a season or half-year result, marketing executives can develop appropriate strategies to improve their competitive advantage.

**Critical Factors of the Buyer Decision Process Model**

Customer purchasing decisions are influenced by motivation, perception, learning, beliefs and attitudes. The motive is the customer's desire to meet his or her own needs. Perception is how the customers select, organize, and interpret information to form knowledge. Learning represents changes in customers' behavior arising from
experience. Beliefs are customers’ thoughts about a product or service. Finally, attitudes describe customers’ steadily favorable or unfavorable assessments, feelings, and inclinations toward an object or idea (Kotler & Armstrong, 1997).

Factors in the Stage of Need Recognition

1. Free Trials: Gong (2003) claimed that purchasers needed to discover the benefits of free samples and how to profit by using the merchandise being offered. Free trials were an effective way to activate consumers’ need recognition because the buyers could not otherwise see or touch a product before purchase unless a free trial was offered. Miyazaki and Fernandez (2001) observed that shoppers indicated the weaknesses of online shopping as being unable to touch, feel, or see real products to evaluate the quality, and possible inaccuracies concerning the products being considered; and

2. Internet Advertisements: Many companies invest money to advertise online. Fong (2004) indicated e-retailers invested about 25% to 50% of their marketing budget on Internet advertisements. Lohse & Spiller (1999) theorized that Internet advertisements lead consumers to special products. Further, Internet advertisements may serve as a reminder or motivator to the consumer to purchase online. Haig (2001) found that many marketers thought “Internet advertisement” was the least efficient way of getting an e-retailer’s information across, but others think that “Internet advertisement” was critical for retail e-commerce. Gong (2003) claimed that many purchasers were cautious about advertising because of untruthful, inaccurate, and exaggerated advertisements. This problem is related to “Trust.” Companies need to build trust to appeal to
consumers. Lee (2001) indicated that only 21% of Internet users stated that Internet advertisements could attract them to read the ad. Shiu and Dawson (2002) stated that the Internet might become a new channel for advertisements to attract consumers.

**Factors in the Stage of Information Search**

1. Search Engines: Haig (2001) stated that Internet users primarily used search engines to find needed information. Since search engines mainly employed users' judgment to rank Websites, e-retailers should make sure Website quality can satisfy the particular search engine's demands. Spencer (2002) and Traylor (2004) claimed that search engine marketing was a promising marketplace for commercial trade because most product searches began at the major portals of search engines. Norris (2003), Vark (2003), and Waters (2004) stated that 85% of Internet users relied on a search engine, whether for work, play, research, entertainment, or shopping. Waters (2004) indicated that e-retailers such as Amazon might have the goods, but search engines such as Google had the users. How these companies cooperate will influence the way e-commerce is to be conducted in the future;

2. Online Shopping Malls: Frendo (1999) stated that online shopping malls selling various kinds of consumer products provided an unprecedented chance for e-retailers to reach a global consumer base. Braddock (2001) claimed that only about 0.04% of retail Websites were visited by 80% of all Internet users. Many e-retailers joined online shopping malls in order to have more consumers visit their Websites. Dignum (2002) claimed that some Websites and online
shopping malls were sponsored by e-retailers that utilized information the
Websites generated in order to explore new marketing opportunities. In the
online shopping malls, the e-retailers may improve relationships with
customers, because the portal Website would allow retailers to handle business
immediately. The e-retailers could provide information more quickly and
more accurately to address customer demands; and

attract the interested shoppers together to evaluate product value. Shoppers
bid on the products with the evaluated prices, and auctioneers sell the products
to the highest price bidders. Bapna, Goes, and Gupta (2003) pointed out that
auction Websites were a critical factor in the portfolio of commercial
procedures to promote e-commerce activity. Haig (2001) indicated that an
auction Website was a productive way for e-retailers to sell products or services.
Auction Websites generally provide cheap prices to appeal to consumers.
However, there are many reported frauds in auction Websites, causing online
consumers to hesitate about whether to shop there or not.

Factors in the Stage of Alternatives Evaluation

1. Convenience: Lee (2002) claimed that online shopping offered convenience
and saved time, which were two motivating factors for online purchases.
Swaminathan et al. (1999) indicated that convenience was the main reason that
motivated consumers to shop online. Lohse and Spiller (1999) stated that
convenient access to product information could facilitate shoppers’ making an
online purchase decision. However, Li et al. (1999) pointed out that
consumers browsing Websites for product information needed to understand how to use the Internet and to take time to review the results obtained from the Websites. These efforts are regarded as involving costs to the online buyers;

2. Price: Heim and Sinha (2001) claimed that price was a critical factor for online shopping. Lee (2002) and Swaminathan et al. (1999) indicated that although online consumers could not try out merchandise, shoppers could make price comparisons by browsing other e-retailers providing similar merchandise. However, Li et al. (1999) argued that frequent online shoppers were not price-sensitive, because these consumers thought price comparisons among different e-retailers was time-consuming, and the price difference was always very small. Blosch (2000) also indicated that price may not be the main concern for purchasers, but rather fast and correct responses to consumer service inquiries may be a critical factor; and

3. Brand: Haig (2001) defined brand as the quality related to the products or services the e-retailer offered. Often, brand referred to the seller’s reputation and consumer loyalty associated with the seller. Kotler and Armstrong (1997) claimed that as more information was obtained, consumer awareness and knowledge of the available brands and features increased. Further, Fong (2004) claimed that consumers have many selections among products and brands when shopping online and that there was a need to empirically study brand loyalty in retail e-commerce. Li et al. (1999) proposed that maintaining accurate and current brand information was important when online purchasers have to make the final choices. Wu (2002) indicated that e-retailers should
strengthen shopper trust by using famous Websites such as Yahoo to promote the online purchase rate.

Factors in the Stage of Purchase Decision

1. Security: Kesh et al. (2002) claimed that security was a critical success factor for e-commerce. Lacking a great degree of confidence by Internet users, retail e-commerce would fail. Lee (2002) found that security was a main fear of online purchasers. Security concerns were the critical reason Internet users did not shop online. Rao (2000) found that most buyers who did not shop online indicated the primary reason was being afraid to reveal personal credit card information to retailers. Wohlers (2001) suggested that e-retailers had to apply the latest security technology, such as 128-bit encryption, into Websites and transactions to convince consumers that online shopping was safe;

2. Promotion: Kotler et al. (2002) recommended that companies could provide regular promotional programs with benefits for both consumers and sellers. Wu (2002) indicated that many Internet users regularly kept an eye on online promotions. However, Lohse & Spiller (1999) stated that promotional activities for online products were not successful for e-retailers, because there was no effective way to inform consumers of promotional activities. The influence of promotions should be explored in more detail. Steinfield & Whitten (1999) proposed that e-retailers might provide special sales that consumers could look for when shopping online. Haig (2001) suggested that e-retailers might use promotions with time limits to appeal to and encourage consumers to shop on Websites; and
3. Refund: Lee (2002) reported that online consumers demanded that e-retailers provide an unconditional refund policy if the consumers were not satisfied with the products. Bishop (1998) suggested that e-retailers should have policies to convince online shoppers that they could easily return products and get refunds, or exchange products for free within a reasonable timeframe. McKinney et al. (2002) indicated that ease of return was a most important factor to improve consumer loyalty.

Factors in the Stage of Post-Purchase Decision

1. Satisfaction: Bryant et al. (1998) claimed that the level of customer satisfaction in e-commerce could be evaluated by measuring formerly held expectations with perceived product performance. The researchers recognized that while searching product information might be time-consuming, if the consumers were satisfied with the products, they would probably purchase from the same vendors when needing the same products in the future. Lee (2002) concluded that online shoppers’ purchasing experiences and repeat online shopping were reinforced by after-purchase experiences. Li et al. (1999) indicated that regular online shoppers tended to purchase the same brand and use the same retailer due to past satisfaction when needing to buy the same products;

2. Customized information: Hamid and Kassim (2004) found that e-retailers should identify, appeal to, and retain the most valuable purchasers to maintain profitable growth, and that there is a need to empirically explore the impact of customized information on customer loyalty. Li et al. (1999) claimed that as
the sum of product information increased, online consumers would find searching for and identifying relevant information increasingly difficult and time-consuming, and that therefore e-retailers should regularly provide customized information to consumers by e-newsletters. Dignum (2002) suggested that e-retailers determined which product information should be available in e-newsletters on the basis of consumers' personal needs, as well as how the information should be presented. These decisions are very important to attract Internet users to read e-newsletters and to visit Websites again; and

3. Discount: Dignum (2002) indicated that many e-retailers were supplying the same types of products and services, so that customers could compare products as to price. Lower price became an important factor for online selling. However, many e-retailers failed due to being unable to offer lower price products to attract consumers. Harrington, Lemak, Reed, & Kendall (2004) claimed that lower price strategy might cause a serious “price war,” and that how to appeal to consumers without a potentially destructive “price war” is a critical issue for e-retailers. E-retailers might provide discounts to consumers according to cumulative purchase amounts to avoid price wars.

How consumers make purchasing decisions is an important factor in analyzing consumer purchasing behavior. Analyzing consumer favorites is particularly important for product policy, such as pricing, and promoting. Companies need to take advantage of any source available to gain information about customers (Hamid & Kassim, 2000; Butler & Peppard, 1998). Table 1 is a summary of the above critical factors:
Table 1

**Critical Factors of the Buyer Decision Process Model**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Factor</th>
<th>Source of Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need Recognition</td>
<td>Free Trials</td>
<td>Gong (2003); Miyazaki &amp; Fernandez (2001)</td>
</tr>
<tr>
<td></td>
<td>Internet</td>
<td>Fong (2004); Gong (2003); Haig (2001); Lee (2001); Lohse &amp; Spiller (1999); Shiu &amp; Dawson (2002)</td>
</tr>
<tr>
<td></td>
<td>Search Engines</td>
<td>Braddock (2001); Dignum (2002); Frendo (1999)</td>
</tr>
<tr>
<td></td>
<td>Online Shopping</td>
<td>Bapna, et al. (2003); Haig (2001); Liu et al. (2003)</td>
</tr>
<tr>
<td></td>
<td>Malls</td>
<td>Lee (2002); Li et al. (1999); Lohse &amp; Spiller (1999); Swaminathan et al. (1999)</td>
</tr>
<tr>
<td></td>
<td>Auction Websites</td>
<td>Fong (2004); Haig (2001); Kotler &amp; Armstrong (1997); Li et al. (1999); Wu (2002)</td>
</tr>
<tr>
<td>Alternatives Evaluation</td>
<td>Convenience</td>
<td>Braddock (2001); Dignum (2002); Frendo (1999)</td>
</tr>
<tr>
<td></td>
<td>Price</td>
<td>Blosch (2000); Heim &amp; Sinha (2001); Lee (2002); Li et al. (1999); Swaminathan et al. (1999)</td>
</tr>
<tr>
<td></td>
<td>Brand</td>
<td>Fong (2004); Haig (2001); Kotler &amp; Armstrong (1997); Li et al. (1999); Wu (2002)</td>
</tr>
<tr>
<td>Purchase Decision</td>
<td>Security</td>
<td>Cunningham (1998); Desmarais, (2000); Gaertner &amp; Smith, (2001); Kesh et al. (2002); Lee (2002); Miyazaki &amp; Fernandez (2001); Muralidhar et al. (2001); Rao (2000); Udo (2001); Wohlers (2001); Whysall (2000)</td>
</tr>
<tr>
<td></td>
<td>Promotion</td>
<td>Haig (2001); Kotler et al. (2002); Lohse &amp; Spiller (1999); Steinfield &amp; Whitten (1999); Wu (2002)</td>
</tr>
<tr>
<td></td>
<td>Refund</td>
<td>Bishop (1998); Lee (2002); McKinney et al. (2002)</td>
</tr>
</tbody>
</table>
Table 1 (continued)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Factor</th>
<th>Source of Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-Purchase Decision</td>
<td>Satisfaction</td>
<td>Bryant et al. (1998); Lee (2002); Li et al. (1999)</td>
</tr>
<tr>
<td></td>
<td>Customized</td>
<td>Dignum (2002); Hamid &amp; Kassim (2004); Li et al. (1999); Steinfield &amp; Whitten (1999)</td>
</tr>
<tr>
<td></td>
<td>Information</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discount</td>
<td>Dignum (2002); Harrington et al. (2004)</td>
</tr>
</tbody>
</table>

The Current Status of E-commerce in Taiwan

Governmental Efforts

The global economy has been in a recession the last several years. To overturn the economic slump, the government of Taiwan has proposed a six-year long-term digital developing plan. Business opportunities are estimated at about US $25 billion. In this plan, the budget of software and services will take about 43% (about US $18.5 billion), and the budget of information technology (IT) hardware will occupy 22% (about US $5.6 billion). Website development will take 18% of the total figure (about US $4.5 billion) (Hung, 2002). The purpose of this plan is to create a better e-society in Taiwan and to provide new e-business opportunities for the Taiwanese to share.

The Taiwan government is eager to facilitate e-commerce and to convert Taiwan into an “e-Hub” in the East Asia countries. In recent years, the Taiwan government has devoted resources to establishing Internet infrastructure and education. The goal is to let Taiwan be 5 to 10 years ahead of other countries in the region in order to appeal to foreign investment and to promote sales. By 2005, more than 500,000 of Taiwan’s companies will launch e-commerce in Taiwan (Renwick, 2002; Ho, 2003).
In 2002, the Taiwan government introduced a "Six-Year National Development Project." The purpose is to promote domestic demand for information technology goods and services, and to create multitudinous job opportunities. The subproject to produce a "digital Taiwan" alone will make more than US $11.73 billion in demand for information technology products (Yin, 2002). The "Digital Taiwan" subproject aims at enhancing e-commerce sales to comprise up to 15% of all commercial transactions, up from 1.5% presently, and expanding the ratio of "e-companies" to 60% from the present 26%. The purpose is to produce over US $3 billion in business opportunities for providers of e-commerce services and goods. In 2002, Taiwan's domestic information security sales also expanded to US $733 million, up from US $152 million in 2001 (Yin, 2002).

The Taiwan government is active in establishing the Internet infrastructure, enabling the public to can use various governmental services online. Taiwan's government was rated highly by the World Economic Forum, second to Singapore in Asian countries, for overall performance in e-readiness (Ho, 2003). The Taiwan government continued to facilitate e-commerce and helping e-companies to receive orders, and to purchase, manufacture, distribute, and provide post-sales services on the Internet to enhance Taiwan's international competitiveness (Shih, 2003).

In 2003, the National Science Council (NSC) started Professional Training Programs for university graduates and employees in the information technology category. The total program budget was US $105 million. The purpose was to improve the quality and quantity of Taiwan's software development capital because there was a massive gap existing between the demands of Taiwan's companies and Taiwan's
educational system. The courses included software design, systems analysis, application programming, data warehousing, online communications, e-commerce management, information security, digital content provision, and other Website software management specialties (Chi, 2003).

Statistical Figures

According to Focus on Internet News & Data (FIND), Taiwan’s official statistics indicated that there were about 2.89 million broadband subscribers in 2003. There were around 9.28 million Taiwanese Internet users, an increase from 600,000 in 1996. Until the end of 2001, Internet users increased by 600,000 every six months. However, from 2002, the growth rate slowed down. In 2004, there were about 9.2 million Internet users. This sign indicated the Internet users’ market was saturated and was entering the mature stage (Lee, 2004).

Online shopping is a new trend in Taiwan. FIND estimates the total amount of online purchasing was US $650 million in 2003 in Taiwan. The growth rate of online shopping in Taiwan was around 57.2% or US $1.02 billion in 2004. In 2005, the amount will be US $1.5 billion. Online shopping encompassed only 0.39% of overall retail sales in Taiwan in 2003. By comparison, United States online shopping was 1.5% of the overall retail sales in 2003 (Wu, 2004). This indicated Taiwan’s retail e-commerce may still have room to grow.

E-commerce has exhibited solid advances in the quality of information technology infrastructure, diverse services, and efficient products over the years in Taiwan. According to the Taiwan’s Ministry of Economic Affairs, as of September 2003, there were 8.83 million households in Taiwan with Internet access. Among these
users, 2.7 million used broadband links (Shiau, 2004). There was still room for retail e-commerce future growth, because 77.9% of Internet users still did not have online shopping experience (Shiau, 2004). However, online security remained a major concern in Taiwan because 39% of online users were hesitant to shop online due to security concerns (Shiau, 2004).

In 2003, the TechVantage Magazine announced survey results about Taiwan's small and medium enterprises (SMEs) employing e-commerce in daily operations. This survey was carried out from September 15 to October 9, 2003. The sample size was 21,000 SMEs, defined as firms hiring less than 50 employees and with revenues less than US $3 million. The survey revealed that although 81% of firms had Websites, only 56% thought there was a need to do business via the Internet. Forty-three percent of respondents thought the Internet allowed them to gain more advantages, and 42% regarded the Website as a tool to promote corporate image (Ho, 2003).

The other main findings were: (a) 98% of the participants had prepared themselves with at least minimum e-commerce facilities; (b) 83% of workers had used broadband Internet; (c) 70% of the firms had indicated Management of Information Systems (MIS) departments had a regular budget of less than US $330 thousand in the 2003 fiscal year; (d) 35% of SMEs would allocate more than US $330 thousand to MIS departments in 2004; (e) the SMEs most willing to promote e-commerce were firms in the finance and insurance industries; (f) although most firms provided e-commerce environments for workers, less than 50% recruited information technology talents; (g) 33% of designated workers in other positions handled the information technology hardware and software as a part-time job within the same company; and (h) less than
15% of the firms recruited more than five workers to sustain the corporate e-environments (Ho, 2003).

**Portal Websites**

Yahoo-Kimo, PCHome, Yam, MSN, and Sina are five Internet portal Websites in Taiwan. These portal Websites cooperate with other firms or shopping Websites to provide online purchase services (Yung, 2004). In 2003, more than 4.5 million Taiwan’s Internet users had shopped for products online. E-retailers had penetrated deeply into business and home life, with online sales of US $660 million. However, disputes between purchasers and sellers were on the increase due to online shopping fraud (Yung, 2004).

Taiwan’s largest portal Website and online auctioneer is Yahoo-Kimo Corporation. Yahoo-Kimo listed 4 million items of products for sale, from which 95% of Taiwan’s e-auction activity was operated in 2004. However, eBay, the leading online auction company in the world, had failed to win the Taiwanese market, attracting only 200,000 products for sale in 2004. Perhaps the main reason is that most local e-retailers do not sell goods to foreign consumers, due to the difficulty and expense of arranging shipping (Ho, 2004a).

Online shopping was worth US $640 million in 2003, making up 0.39% of all domestic retail sales. The Institute for Information Industry in Taiwan indicated the figure will increase 57.2% to US $1 billion in 2004. In the United States, retail e-commerce occupied about 1.5% of the retail sector in 2003. These figures indicated that Taiwan’s retail e-commerce is still in the beginning stage (Ho, 2004b).
Finance and human resources shortages are two primary problems that make SMEs reluctant to launch corporate e-commerce in Taiwan. Taiwan’s government has been urging SMEs to procure the services of outside professionals, without employing expensive and less experienced information technology staff. These e-retailers should assess the advantages and disadvantages of e-commerce, considering the corporate culture, product nature and consumer needs (Ho, 2003).

**Security Issues**

Security is the most important factor to the success of e-commerce. Once consumers are convinced personal information is secure, retail e-commerce will flourish. However, Taiwan’s shoppers still regard online purchasing with skepticism. Shoppers in Taiwan prefer to shop at retail stores instead of on the Internet (Chamberlin, 2002). To reduce online shopping fraud, in 2003, the Taiwan’s Ministry of Economic Affairs introduced an advanced online payment system, allowing purchasers to offer personal information directly to banks and to provide e-retailers with delivery information only (Chen, 2003).

**Online Trust Mark Seals**

There are four major online trust mark seals in Taiwan, namely, SOSA, Online Trust Store, HiTrust, and Verified by VISA. SOSA was founded in August, 1, 1999 by HP, Microsoft, and more than ten other Taiwanese leading online companies. SOSA inspects the online stores (using their seal) and announce the results of compliance regularly. The cost of acquiring a SOSA seal is typically determined by corporate capital. Capital higher than NT $10 million (about US $320,000), the first year will be charged NT $11,000 (about US $355) and following years will be charged NT $10,000
Online Trust Store was founded by Taiwan Ministry of Economic Affairs (MOEA) in August 2004. Applying qualifications are B2C e-commerce stores with a capital higher than NT $50,000 (about US $1,600). Application and service fees are totally subsidized by the Taiwanese government. That is to say, the fee is free. MOEA asks that the members disclose information including: (a) company’s basic information, such as company name, IP, executive name, address; (b) privacy policy; (c) products or services’ descriptions and prices; (d) order procedures; (e) payments and due dates; (f) refund policy; and (g) appeal mechanism. MOEA inspects 12 of their members every week randomly and uses bulletin board to announce the results (http://www.ec.org.tw/). MOEA does not provide an official seal to their members, leaving the design to the members themselves. MOEA asks these online stores not to display words like “Verified by the Taiwanese government” or similar on their seals. Currently, there are about 4 most popular used seals.

HiTrust was founded in March 1998 and the aim is provide the provision of solutions for secure e-commerce. The most important shareholders are Acer Group, HSBC, New World Group, AIG and VeriSign. HiTRUST cooperates with VeriSign to provide Certification Authority (CA) and Registration Authority (RA) with PKI (Public Key Infrastructure) technology in Taiwan. In addition, HiTRUST is the top provider of SSL server certificate in Taiwan (http://www.hitrust.com/).
Verified by VISA consists of two key procedures: the enrollment process and the online purchase transaction process. Cardholders have to register with their card issuer and to set their personalized passwords. After the enrollment procedure, the cards will be recognized by participating e-retailers. Cardholders are asked to enter their password and authenticate their identity each time they shop at a participating e-store (http://www.visa.com.tw/).

**Online Banking**

Taiwan’s Hua Nan Bank indicated the most important advantage in managing an e-commerce environment was the savings in time and costs. As of 2003, more than 210,000 consumers had employed an online banking system, with nearly US $740 million in transactions being completed through the e-commerce system (Ho, 2003).

In 2002, the Taiwan government and R.O.C. Bankers Association jointly introduced a "cash plan" (C plan) to help investors provide more effective financial services. Taiwan’s Ministry of Finance demanded that all members of the Bankers Association created a financial flow platform meeting the requirements of the “C plan” before the end of 2004. This revealed that more than 50 banks in Taiwan would provide well-developed e-commerce services by that time (Deng, 2002).

In 2001, the Taiwan’s Ministry of Finance (MOF) permitted property insurance companies to offer policies protecting Websites from damage caused by hacker attacks and viruses. These insurance policies would include both B2B and B2C e-commerce transactions, and would compensate damages caused by sources outside of Taiwan because the Internet has no boundary (Lee, 2001).
E-learning

Online learning is a new educational trend in Taiwan. The Taiwan government is cooperating with National Central University to introduce a national program of long distance learning. The total expenditure was predicted to reach US $117 million (Deng, 2003). In 2002, four high-tech companies, Microsoft, Intel, LEO Systems, and Neplus, sponsored more than US $2.5 million in an online learning project that allowed Taiwan's teachers, students, and parents to search information from a wide array of devices. The plan was to provide computer training to over 10,000 elementary and high school teachers, and to teach one million children basic computer skills by 2004. Taiwan's online learning market would be about US $1.12 billion by 2003, including US $900 million for software development, US $181 million for on-the-job training, and US $3.93 million for online training. At same time, the U.S. market for online learning was predicted to be as high as US $11.5 billion by 2003 (Fei, 2002). This indicated online learning may be promising in Taiwan.

A comprehensive review of the literature is presented with a summary and interpretation of the literature review. The discussion of the review includes the summary, interpretation, conclusions, and recommendations for future areas of scholarly inquiry. The conclusion is divided into a discussion of theoretical and empirical frameworks, showing the major research and studies cited in this critical analysis of the literature. Recommendations place greater emphasis on three major areas: theoretical reformulation, critical or analytic review, and empirical studies.
Summary and Interpretations

The purpose of this analysis is to develop a state-of-the-art review of the theoretical literature and empirical studies on the relationships between e-commerce and customer purchasing behavior, and to identify areas of future scholarly inquiry. The major findings of this literature review are that there has been an increase in sales worldwide conducted via e-commerce, as well as an increase in the number of people who purchase over the Internet; and e-retailers may analyze customer purchasing behavior via buyer purchase behavior models to gain competitive advantages.

The next two areas discuss the theoretical and empirical literature. The purpose of this discussion is to present a synopsis of the state-of-the-art theoretical and empirical literature on the topic and to establish what is known and unknown.

Theoretical Literature

Definition and principles of e-commerce. E-commerce is customers and sellers utilizing computer networks (primarily the Internet) to buy and sell goods and services. In e-commerce, the whole purchasing process is computerized from product information, specification, and sales transactions to confirmation of the delivery of goods and services (Bontis & Castro, 2000; Egan et al., 2003; Elifoglu, 2002; Weippl, 2001). E-commerce is no longer limited to information technology companies, but is being applied in all industries, from banking to automotive and travel. In addition, e-commerce has also changed the features of competition, the nature of the market, the market’s value, and the role of financial trade (Bontis & Castro, 2000).

Customer relationship management (CRM). The definition of CRM is to realize the needs and wants of individual customers by recognizing and providing
services conforming to their preferences (Hamid, & Kassim, 2000). In addition, some experts define CRM as the employment of information technology in learning more about each customer, and the ability to reply one-on-one (Kotler, 2003). Kolesar and Galbraith (2000) asserted that since consumers utilize Websites to retrieve different kinds of information on a variety of products, the companies must urge the potential purchaser to regard the Website as both an information facility and a purchase channel.

**The security of e-commerce.** The issue of e-commerce security is a most important matter to customers and suppliers. Typical risk components of e-commerce security included stealing, destroying, intercepting, and changing financial data (Elifoglu, 2002). The needs of e-commerce security included access control, privacy, confidentiality, vulnerability, data integrity, authentication, non-repudiation, and availability (Elifoglu, 2002; Kesh et al., 2002). Bond and Whiteley (1998) claimed a secure e-commerce system needed the application of cryptography, which was the principle of keeping a message secure.

**The models of consumer purchase behavior.** The Buyer Decision Process model contains five developing stages: (a) need recognition; (b) information search; (c) alternatives evaluation; (d) purchase decision; and (e) post-purchase decision (Kotler & Armstrong, 1997). Blosch (2000) also suggested a related model concerning customer interactions with companies. The author found that the following activities were consistently associated with customer behavior and their e-commerce purchasing pattern: (a) negotiating the price; (b) placing an order; (c) inquiring about services; (d) seeking technical support; and (e) paying the invoice.
Chen and Dubinsky (2003) proposed to employ perceived customer value, valence of experience, perceived product quality, and perceived risk to measure perceived consumer value in e-commerce. Beckett et al. (2000) suggested using a two-dimensional matrix of consumer choices, involvement and uncertainty, to better understand customer behavior. Lee (2002) proposed a model to classify the behavioral aspects of an online purchaser into three groups. The three stages were: (a) building trust and confidence, (b) online purchase experience, and, (c) after-purchase needs.

Li et al. (1999) presented a model of consumer online purchase behavior. The model assumed that buyer online purchase behavior and purchase frequency were influenced by demographics, understanding of channels and channel utilities, and purchase orientations. Sindhav and Balzas (1999) proposed a model of factors influencing the growth of retailing on the Internet: consumer characteristics, firm-related factors, and environmental factors.

**Customer satisfaction and customer loyalty.** If retailers want to effectively manage customer purchasing behavior, vendors must realize that improving customer satisfaction is essential (Sandalidou, Baourakis, & Siskos, 2002). McKinney et al. (2002) suggested that in order to stay competitive in the digital market, marketing executives of e-companies have to manage the satisfaction of customers with Websites. Measuring customers’ expectations and the disconfirmation of expectations was useful in analyzing Internet customer satisfaction. Consequently, e-companies were able to examine whether their Websites met consumers’ expectations by examining customers’ expectations and disconfirmation.
Critical factors of the Buyer Decision Process. How consumers make purchasing decisions is an important factor in analyzing consumer purchasing behavior. Analyzing consumer favorites was particularly important for product policy, such as pricing, promoting, and placing (Butler & Peppard, 1998; Hamid & Kassim, 2000). The critical factors included free trials, internet advertisements, search engines, online shopping malls, auction Websites, convenience, price, brand, security, promotion, refund, satisfaction, customized information, and discount.

Empirical Literature

E-commerce. Daniel et al. (2002) explored how small and medium-sized enterprises (SMEs) were applying e-commerce in the UK. The authors found that the developing process of e-commerce was a set of sequential stages for small and medium-sized enterprises; and the stages of the developing process relied on contextual variables.

Egan et al. (2003) examined the integration of e-commerce tools into the transactions of SMEs. The purpose of this study was to explore the impact of e-commerce on SMEs. The authors concluded that e-commerce development of SMEs was at the beginning stage in Ireland, and most SMEs did not have the ability to develop e-commerce. SMEs had not been able to convert businesses into e-commerce or to utilize e-commerce to gain competitive advantages. The main reasons SMEs did not take advantage of e-commerce were Internet costs, the perceived need for Internet technology, poor information skills, and executives lacking an understanding of e-commerce. Lacking technological ability was the main reason for SMEs not investing
in e-commerce. To gain any advantage from e-commerce, companies should therefore redesign business processes to be simple enough for everyone to use.

Doherty et al. (1999) found that there were only a limited number of high-quality Websites which provided various e-commerce functions and services. However, the “typical” UK retailers had built very basic Websites. In addition, these basic Websites had generally been established in response to competitor pressure and customer expectations rather than as part of a strategic plan. Therefore, retailers should evaluate their competitive position and establish strategies that would help achieve company goals.

Udo (2001) found that two-thirds of the participants in his study had experience with online purchasing. The majority of respondents worried about misuse of credit cards and other personal information when shopping online. Most participants indicated that if their worries about privacy and security were eliminated, they would purchase online. The participants thought privacy concerns were the most important, followed by security and threats. Two-thirds of Udo’s (2001) respondents believed the current technical security precautions were not sufficient, and most thought the present laws and regulations did not protect the Internet user enough. Around half of the participants believed individual information should not be revealed under any condition. Some thought online shopping was less safe than mail shopping. Only a few of the participants believed online shopping was safe. Half of the respondents agreed that impersonation was a serious problem on the Internet. Finally, two-thirds supported the idea that privacy and security concerns served as barriers to e-commerce.
Miyazaki and Fernandez (2001) investigated customer awareness of privacy and security risks for online purchasing. The authors found that Internet experience was negatively associated with the awareness of risks in conducting online purchases, and the presence of interests regarding the privacy and security of conducting online purchases.

The application of existing methods for remote retail shopping transactions was negatively associated with the awareness of risks in conducting online shopping, and the presence of consumer interests regarding the privacy and security of conducting online shopping. The awareness of the risk of conducting online shopping was negatively associated with the rate of online shopping. The presence of concerns regarding the security of online shopping was negatively associated with the rate of online shopping, and privacy was not significantly associated with the rate of online shopping (Miyazaki & Fernandez, 2001).

The results indicated that customers were concerned with both privacy and security issues. Although privacy issues and possible deceitful action by online retailers were recognized as critical concerns for online shoppers, these concerns were not predictive of online purchasing rates. In addition, these concerns were less popular for Internet users with higher levels of education and for users of other remote purchasing methods. Online retailer dishonesty, with respect to Internet knowledge, had analogous results. The disclosure of privacy and security information was associated with higher levels of purchasing online (Miyazaki & Fernandez, 2001). These results need more studies to support the findings. However, the findings regarding system security concerns seemed to influence customer purchasing behavior, while those regarding privacy did not.
Customer purchasing behavior. Soderlund et al. (2001) explored predicting customer purchasing behavior on B2B markets. The purpose of this study was to explore how customer repurchasing intentions and past purchasing behavior were associated with future purchasing behavior in industrial markets. The authors found that repurchase intentions were not significantly related to future purchasing behavior. In addition, the authors found that past behavior was a strong predictor of future behavior (Soderlund et al., 2001).

Lee (2002) conducted a quantitative study on the behavioral model of consumers when making an online purchase. With the results, the author suggested a behavioral model of an online shopper, which could help e-companies concentrate on the interested customers. The author found that two-fifths of respondents worried about the risk of transacting business with a fake company. Half of the participants were concerned about the risk of stolen credit cards. The psychological factors of online shopping customers were important and should be considered in any documentation and analysis of customers' purchasing behavior. Lee found that among the several customers' shopping behaviors, the most frequently purchased products were movies/concert tickets, books/stationery, CDs, food, airplane tickets, stocks/shares, groceries, household furniture, toys, clothes/shoes, electronic appliances, computer products, jewelry/accessories, and cosmetics. The types of payment options were cash on delivery, credit cards, personal checks, cash cards, money orders/cashier orders, and bank drafts.

Doyle (2002) conducted a study about the relationship between activity based costing and database marketing, and found that many companies spent large portions of
their dollars trying to find an effective way to create a competitive advantage to gain more customers, such as by mailing advertisements and TV commercials. This can change the product cost structure dramatically. The effectiveness of information processing technology could lower the costs and can even become a valuable asset. However, if information cannot help managers to reduce costs and enhance the revenues, the data is superfluous.

Ellis-Chadwick et al. (2002) explored Website-based customer relationships in financial services sectors in different countries. The purposes of this study were to examine: (a) e-commerce application of the financial services sector and varied current customer relationships; (b) recognition of customer relationships as rational or irrational; and (c) the extent to which e-commerce strategies were influenced by activity, custom, and company size.

This study found obvious changes in the corporate channel strategy associated with the degree of involvement of either current customer relationships or Website-based technology. For high-tech/low-touch companies, e-commerce was applied to produce efficient delivery. On the other hand, high-touch/low-tech companies had emotional qualities in the supplier/customer relationships. There was some evidence to indicate that culture had an influence on future channel strategies (Ellis-Chadwick et al., 2002).

Li et al. (1999) examined what factors determine whether customers select “to purchase” or “not to purchase” online, and how frequently they make such purchases. The authors found that online shoppers recognized that the Websites had superior advantages in communication, distribution, and accessibility than those non-online
shoppers, and regular online shoppers realized higher utility than infrequent online shoppers.

The authors found that online shoppers tended to believe they were more knowledgeable about Websites than non-online shoppers, and frequent online shoppers thought themselves more knowledgeable than infrequent online shoppers. Online shoppers were more convenience-oriented than non-online shoppers, and regular online shoppers were more highly convenience-oriented than infrequent online shoppers. Online shoppers were lower experience-oriented than non-online shoppers, and regular online shoppers were lower experience-oriented than infrequent online shoppers. Recreation orientation was not a factor for online shopping. Price orientation was not a factor for online shopping. Online shoppers were more highly educated than non-online shoppers, and frequent online shoppers were more highly educated than infrequent online shoppers. More men shopped online than women, and more men were regular online shoppers than women. Online shoppers had higher income than non-online shoppers, and regular online shoppers had higher income than infrequent online shoppers. Finally, age was not found to be a factor for online shopping (Li et al., 1999).

McKinney et al. (2002) conducted a study to explore the measurement of customer satisfaction on the Internet during the information-search stage, and the findings suggested that marketing executives of e-companies had to supervise the satisfaction of customers with Websites to compete in the digital market. To that end, these executives should perceive the singular characters of information content and Website performance in accessing and delivering product information. Accordingly, measuring customers’ expectations and the confirmations or disconfirmations of expectations was useful in
analyzing Internet customer satisfaction. Consequently, e-companies were able to examine whether Websites met consumers’ expectations by examining customers’ confirmations and disconfirmations (McKinney et al., 2002).

Heim and Sinha (2001) conducted a study to explore operational drivers of customer loyalty in retail e-commerce. The authors found that Website navigation, product information, and price had a positive relationship with customer loyalty. Available product, instant delivery, and easy return were positive factors related to online customer loyalty. The above six variables, concerning the improvement of customer loyalty, could be organized in a descending/hierarchical order as follows: easy return, instant delivery, Website navigation, product availability, price, and product information. Website aesthetics, product selection, and customer support were not statistically significant.

Heim and Sinha (2001) indicated that the flexibility of the retailer’s product design, the competence to convert similar segments of customer needs into the targeted digital market, was positively related to customer loyalty. In addition, marketing managers should prioritize the determination associated with order procurement and finishing procedure in a way which will lead to improved customer loyalty.

Hallowell (1996) conducted a quantitative study to explore the relationships of customer satisfaction, customer loyalty, and profitability in the banking industry. The author found that customer satisfaction was associated with customer loyalty and customer loyalty with profitability. Hallowell (1996) pointed out that the study neither supported nor rejected the relationship between customer satisfaction and profitability. From these results, if a reader concluded customer satisfaction was related to profit, this
interpretation could be an error. Further research was necessary to draw an informed conclusion on this topic.

Conclusions

Theoretical

E-retailers may analyze customer purchasing behavior via various models of consumer purchase behavior and gain competitive market advantages. In this review, the researcher summarized several consumer purchase behavior models. These models all present a behavioral framework of the online shopper, which could help e-retailers concentrate on the potential purchasers. How consumers make purchasing decisions is critical in analyzing consumer purchasing behavior.

The Buyer Decision Process model was the most well-developed model, which was adopted widely by traditional markets to analyze customer purchasing behavior. However, only a few studies applied this model to retail e-commerce. Based on this model, the researcher identified several critical factors for consumer purchasing decisions from current literature, including free trials, Internet advertisements, search engines, online shopping malls, auction Websites, convenience, price, brand, security, promotion, refund, satisfaction, customized information, and discount.

Empirical

Gaertner and Smith (2001) found that SMEs withdrew from implementing e-commerce due to not realizing the advantages of e-commerce and the lack of sufficient funds from e-commerce service providers. These results indicated there is a promising marketing opportunity for these service providers to offer advanced Website tools to SMEs. Doherty et al. (1999) also found the “typical” UK retailers had built only very
basic Websites. The same situation also happened in many countries, in which e-commerce was at the “startup” stage, such as Taiwan and China.

Online security issues were widely discussed in the literature. Kesh et al. (2002) argued that security was a critical success factor for e-commerce. Lacking a great degree of confidence by Internet users, retail e-commerce will fail. Lee (2002) claimed security was a main fear for online purchasers. Security concerns are the critical reason Internet users do not shop online. Rao (2000) stated that most buyers who did not shop online indicated the primary reason was being afraid of revealing credit card information to retailers. Wohlers (2001) suggested that e-retailers have to apply the latest security technology, such as 128-bit encryption, into Websites and transactions to convince consumers that online shopping is safe.

Several researchers explored customer online purchase behavior. Lee (2002) indicated the rank of important factors from the view of customers were: effective product description, company background information, speed of Website, currency of data, and ease of navigation. Li et al. (1999) found online shoppers were more convenience-oriented than non-online shoppers, and regular online shoppers were more highly convenience-oriented than infrequent online shoppers. Price orientation was not a factor for online shopping. McKinney et al. (2002) found that measuring customers’ expectations and the confirmations and disconfirmations of expectations was useful in analyzing Internet customer satisfaction. Ranaweera and Prabhu (2003) concluded that trust was found to be a weaker predictor of retention than satisfaction in the B2C setting. Bowen and Chen (2001) found that customer satisfaction did not equal customer loyalty. Heim and Sinha (2001) found ease of return, timeliness of delivery, Website navigation,
product availability, price, and product information were six of the most important factors concerning improving customer loyalty. These findings are worth understanding for e-retailers. Based on these findings, e-retailers may examine and adjust e-commerce strategies to meet their customers’ needs.

**Recommendations**

*Theoretical Reformulations*

Expanding the theoretical formulations proposed by the Kotler and Armstrong’s (1997) Buyer Decision Process model into retail e-commerce is an area for future scholarly inquiry. There is a need to further develop theoretical formulations of consumer online behavior to explore critical purchase decisions. The Buyer Decision Process model can generate propositions related to consumer need recognition, information search, alternatives evaluation, and to explain how consumers make purchase decisions and post-purchase decisions (Kotler & Armstrong, 1997). For future research, researchers may identify more critical factors related to each stage of the Buyer Decision Process model in a different category of e-commerce.

*Critical or Analytic Reviews*

Future scholarly inquiries using critical analyses of the theoretical and empirical literature are needed in the areas of customer satisfaction and loyalty, as well as service quality in e-commerce. Analytical reviews of theoretical literature and empirical studies measured customer online purchasing behavior alone. Although the purpose of this critical analysis is to examine the relationship between e-commerce and customer purchasing behavior, there is a need to critically review literature and provide support as to how CRM can enhance e-commerce performance and functionality.
Empirical Studies

Empirical studies are needed in retail e-commerce. There are few empirical studies available regarding online consumer need recognition, information, and alternatives evaluation. Most of the studies were focused on security issues, purchase decisions, customer satisfaction, and loyalty. Based on literature, this review had identified several critical factors including free trials, internet advertisements, search engines, online shopping malls, auction Websites, convenience, price, brand, security, promotion, refund, satisfaction, customized information, and discount. For future research studies, there is a need to explore these factors to support their importance in consumer purchase decisions, and to find more critical factors influencing consumer online behavior.

Theoretical Framework for the Study

There are many problems in this research area, such as: (a) retail e-commerce is very competitive because retail e-commerce is an open market for every e-retailer (Aitchison & Stone, 2002), which means almost everyone can do business online; (b) online shoppers have different characteristics from traditional shoppers (Fong, 2004), which means traditional marketing methods may not be appropriately applied in the B2C e-commerce setting; (c) most retail Websites provide only shopping functions and promotional themes, with limited information about products (McCusker, 2001); (d) about 0.04% of retail Websites were visited by 80% of all Internet users (Braddock, 2001), which means most of the B2C Websites were ignored by Internet users; and (e) online shoppers are unable to touch, feel, or see real products to evaluate quality, which is one of the main reasons that Internet users are hesitant to shop online (Miyazaki &
Fernandez, 2001). Therefore, how to analyze and understand consumer preferences is a challenge for global e-retailers in the fast-changing digital marketing; and how to attract worldwide potential customers to Websites is a challenge for global e-retailers as well.

The theoretical foundation for this research study was established through the literature review of relevant research. This study presented a framework that was grounded in the classic Buyer Decision Process model, developed by Kotler and Armstrong (1997), to investigate online consumer behavior for e-retailers and to identify the critical factors which influence online shoppers making purchase decisions and becoming loyal customers. The model consisted of five stages:

1. Need Recognition: The purchasing process starts with the customers perceiving their needs. The marketers have to decide the factors and situations that may appeal to consumers’ need recognition (Kotler & Armstrong, 1997). Therefore, e-retailers should explore consumer needs, the types of needs, and the reasons causing needs. Furthermore, e-retailers should understand how to appeal to consumers making purchases, such as free trials, in order to create an environment of consumer need recognition;

2. Information Search: If the consumers are not satisfied with the current products or are unfamiliar with current products, online shoppers will undertake an information search bearing on their needs (Kotler & Armstrong, 1997). Therefore, e-retailers should realize how consumers search for information, such as search engines and online shopping malls, and how these search channels influence purchase decisions. Thus, e-retailers can make
more efforts on these particular channels to attract more Internet users visiting their Websites;

3. Alternatives Evaluation: Purchasers often use the information gained online to assess the selections and make a brand choice (Kotler & Armstrong, 1997). Therefore, e-retailers should realize consumers' attitudes toward alternatives and which ones are of importance to customers. For example, between price and brand, whether or not shoppers tend to be price-oriented or brand-oriented when shopping online;

4. Purchase Decision: Buyers make purchase decisions based on the preferred brands, attitudes of others, or unexpected situations (Kotler & Armstrong, 1997). Therefore, e-retailers should identify the critical factors to reduce buyers' anxiety and encourage consumers to purchase on Websites by inducements such as promotions; and

5. Post-Purchase Decision: After purchasing products, the shoppers make an assessment of the shopping experience according to satisfaction or dissatisfaction (Kotler & Armstrong, 1997). Therefore, e-retailers should explore which factors can help retain existing consumers, such as customized information and discounts.

Figure 2 presents the theoretical framework of this study. The researcher believes this model might be suitable to serve as a theoretical model to analyze consumer online behavior, because online shoppers need to go through the same purchase decision process as on-site purchasers when making their purchase decisions. The purpose of adopting the Buyer Decision Process model is to explore the perceived consumer value
through the entire consumption process.

Figure 2. The theoretical framework of this study based on the Buyer Decision Process Model.

The Buyer Decision Process model provides an effective way to keep track of consumer purchasing behavior in traditional markets. However, a search of ProQuest Database, ProQuest Digital Dissertation, LexisNexis, Yahoo, and Google, using the themes of "buyer decision process" and "online shopper behavior" revealed no relevant studies that applied this model to e-commerce settings to investigate online shopper
behavior. In this study, critical factors of online shopper purchase decisions were identified based on each stage of the Buyer Decision Process model.

In order to answer the five research questions, the researcher had identified 14 critical factors for consumer online purchase decisions based on the five stages. These critical factors include: Free Trials, Internet Advertisements, Search Engines, Online Shopping Malls, Auction Websites, Convenience, Price, Brand, Security, Promotion, Refund, Satisfaction, Customized Information, and Discount.

Retail e-commerce has implications for all stages in the Buyer Decision Process model. The central problem to be addressed by this research was how e-retailers can create functional Websites which might attract online consumers and meet shopper expectations. This research attempted to highlight the importance of analyzing online consumers’ behaviors and attitudes.
Chapter III

RESEARCH METHODOLOGY

Overview

Chapter Three presents a description of the methodology for this study, which focused on identifying the critical factors of online consumer purchasing behavior via the Buyer Decision Process model, developed by Kotler and Armstrong (1997). The methodological concern was sampling and measurement of variables. The focus on methodology is another area of future scholarly inquiry where design, sample size, populations studied, and measurement of variables are needed. The main purpose of this chapter is to develop an empirical study identifying critical factors of the Buyer Decision Process model through an analysis of online shoppers' consciousness, requirements, and attitudes toward retail e-commerce in Taiwan.

The research design employed a quantitative, non-experimental, correlational, and explanatory method approach to answer the research questions and test hypotheses in this study. Participants answered the questions based on a closed-ended 1-to-7 Likert scale format. The purpose of employing the 1-to-7 Likert scale format was to make the independent variables and the dependent variable continuous in order to conduct a statistical analysis.

This survey had been approved and assisted by Dr. Hsu, chairman of the Department of Information Management, Aletheia University, Taipei, Taiwan. The survey was distributed by the researcher to students at Aletheia University who had previous experience with either browsing or shopping online in Taiwan. A non-probability sampling (convenience sampling) method was used. This sampling
method was the most economical and practical way to conduct this study. Further, Chen and Dubinsky (2003) indicated that college students were more likely to be online purchasers because this population used the Internet more frequently than other consumers. This study sample consisted of 309 participants, due to the rule of thumb that a survey research would need about 12 to 15 responses per variable for the sample size. The statistical techniques for data analysis included descriptive statistics, correlation analysis, independent samples t-test, one-way ANOVA analysis, and multiple regression analysis, which were completed by SPSS Windows Version 12.0. The level of statistical significance of this study was set at $p \leq .05$.

Chapter Three introduces the theoretical framework of this study. A discussion of the research questions and hypotheses, research design, the instruments, sampling plan and setting, procedures, data collection methods, evaluation of ethical aspects, and methods of data analyses will follow. This study investigated the differences in the dimensions of consumer purchasing behavior in the e-retailing industry of Taiwan. This study intended to improve the amount of quantitative data focusing on Taiwan’s consumer online purchasing behavior. The results of this survey might help e-retailers to make important strategy, quality, and operational decisions that are necessary for effective retail e-commerce implementation. By understanding what, where, how, when, and why online purchases are made, e-retailers might enhance services to provide and improve the quality of B2C e-commerce.

**Research Hypotheses**

The purpose of this study is to identify the critical factors involved in each stage of the Buyer Decision Process model related to online retail shopping in Taiwan. This
study explored whether these factors influenced consumers making online purchase
decisions. There were the five research questions investigated by the 19 related
directional hypotheses in this study.

In order to answer the five research questions, the study focused on fourteen
independent variables, one dependent variable, and four demographic and marketing
variables. The independent variables consisted of Free Trials, Internet Advertisements,
Search Engines, Online Shopping Malls, Auction Websites, Convenience, Price, Brand,
Security, Promotion, Refund, Satisfaction, Customized Information, and Discounts.
The dependent variable was Receptivity to Online Shopping. The four demographic
and marketing variables were Gender, Internet Experience, Online Shopping Experience,
and Other Purchase Experiences. The answers to these five research questions were
expected to provide vital information related to the Buyer Decision Process model for
consumers’ attitudes toward online shopping in Taiwan. The following research
hypotheses were examined:

Directional Hypotheses (Two-Tailed) Related to Research Question 1

What are the critical factors in the need recognition stage of the Buyer Decision
Process model for consumer online purchase decisions in Taiwan? Are these factors
influenced by demographic and marketing variables (Gender, Internet Experience, Online
Shopping Experience, and Other Purchase Experiences)?

1. Free Trials is significantly related to consumer online Receptivity to Online
   Shopping in the needs recognition stage.

Variables:

Independent variable: Free Trials.
Dependent variable: Receptivity to Online Shopping.

2. Internet Advertisements is significantly related to consumer online Receptivity to Online Shopping in the needs recognition stage.

Variables:
- Independent variable: Internet Advertisements.
- Dependent variable: Receptivity to Online Shopping.

3. The demographic and marketing variables have different tendencies in relation to Free Trials and Internet Advertisements during the needs recognition stage.

Variables:
- Independent variables: Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences.
- Dependent variables: Free Trials and Internet Advertisements.

*Directional Hypotheses (Two-Tailed) Related to Research Question 2*

What are the critical factors in the information search stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?

4. Search Engines is significantly related to consumer Receptivity to Online Shopping in the information search stage.

Variables:
- Independent variable: Search Engines.
- Dependent variable: Receptivity to Online Shopping.
5. Online Shopping Malls is significantly related to consumer Receptivity to Online Shopping in the information search stage.

Variables:

Independent variable: Online Shopping Malls.
Dependent variable: Receptivity to Online Shopping.

6. Auction Websites is significantly related to consumer Receptivity to Online Shopping in the information search stage.

Variables:

Independent variable: Auction Websites.
Dependent variable: Receptivity to Online Shopping.

7. The demographic and marketing variables have different tendencies in relation to Search Engines, Online Shopping Malls, and Auction Websites in the information search stage.

Variables:

Independent variables: Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences.
Dependent variables: Search Engines, Online Shopping Malls, and Auction Websites.

**Directional Hypotheses (Two-Tailed) Related to Research Question 3**

What are the critical factors in the alternatives evaluation stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?
8. Convenience is significantly related to Receptivity to Online Shopping in the alternatives evaluation stage.

Variables:

Independent variable: Convenience.
Dependent variable: Receptivity to Online Shopping.

9. Price is significantly related to Receptivity to Online Shopping in the alternatives evaluation stage.

Variables:

Independent variable: Price.
Dependent variable: Receptivity to Online Shopping.

10. Brand is significantly related to Receptivity to Online Shopping in the alternatives evaluation stage.

Variables:

Independent variable: Brand.
Dependent variable: Receptivity to Online Shopping.

11. The demographic and marketing variables have different tendencies in relation to Convenience, Price and Brand in the alternatives evaluation stage.

Variables:

Independent variables: Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences.
Dependent variables: Convenience, Price and Brand.
Directional Hypotheses (Two-Tailed) Related to Research Question 4

What are the critical factors in the purchase decision stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?

12. Security is significantly related to Receptivity to Online Shopping in the purchase decision stage.

Variables:

Independent variable: Security.

Dependent variable: Receptivity to Online Shopping.

13. Promotion is significantly related to Receptivity to Online Shopping in the purchase decision stage.

Variables:

Independent variable: Promotion.

Dependent variable: Receptivity to Online Shopping.

14. Refund is significantly related to Receptivity to Online Shopping in the purchase decision stage.

Variables:

Independent variable: Refund.

Dependent variable: Receptivity to Online Shopping.
15. The demographic and marketing variables have different tendencies in relation to Security, Promotion and Refund in the purchase decision stage.

Variables:

Independent variables: Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences.

Dependent variables: Security, Promotion and Refund.

**Directional Hypotheses (Two-Tailed) Related to Research Question 5**

What are the critical factors in the post-purchase decision stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?

16. Satisfaction is significantly related to Receptivity to Online Shopping in the post-purchase decision stage.

Variables:

Independent variable: Satisfaction.

Dependent variable: Receptivity to Online Shopping.

17. Customized Information is significantly related to Receptivity to Online Shopping in the post-purchase decision stage.

Variables:

Independent variable: Customized Information.

Dependent variable: Receptivity to Online Shopping.
18. Discount is significantly related to Receptivity to Online Shopping in the post-purchase decision stage.

Variables:

Independent variable: Discount.

Dependent variable: Receptivity to Online Shopping.

19. The demographic and marketing variables have different tendencies in relation to Satisfaction, Customized Information, and Discount in the post-purchase decision stage.

Variables:

Independent variables: Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences.

Dependent variables: Satisfaction, Customized Information and Discount.

Research Design

Quantitative Method Approaches

The five research questions guided the development of the survey of this research study with descriptive and exploratory purposes. The design primarily used non-experimental, causal-comparative, quantitative methods. Gall, Gall, and Borg (2003) declared that quantitative research is characteristic of the social environment, establishing independent truths and were correlatively regular across time and settings. Furthermore, quantitative researchers gained knowledge by gathering numerical data on the visible behavior of samples and then managed the data through numerical analysis. Creswell (2003) defined a quantitative approach as one in which the researchers
employed post-positivist claims to evolve learning, applied strategies of inquiry, i.e., surveys and experiments, and gathered data on pre-designed instruments that produced statistical findings.

**Procedure**

All procedures of the study were defined in specific terms so that other researchers may duplicate this study. Respondents relied on previous experiences of either browsing or shopping online to answer the questionnaire. The criteria for selection in this study meant only the respondents who had previous experience with either browsing or shopping online in Taiwan would participate in the study. A printed instrument was employed in a survey to be conducted face-to-face. Participation in this survey was completely voluntary. Participants could withdraw from the survey at any time without specifying the reasons. The aim of this survey was to help the researcher to identify the critical factors that might explain consumer purchasing behavior in the e-retailing industry in Taiwan.

The research study employed the following procedures to conduct this investigation:

1. The survey for this study was based on the Buyer Decision Process model. The questionnaire, Critical Factors of the Buyer Decision Process Model in Consumers’ Online Purchasing Behavior Questionnaire (Chou, 2005) (see Appendix A), was developed by the researcher. This research study employed closed-ended questions with replies on a 1-to-7 Likert scale, where 1 represented “strongly disagree;” 2 represented “disagree;” 3 represented “slightly disagree;” 4 represented “neither agree nor disagree;” 5 represented
2. As all respondents were Chinese, the questionnaire was translated from English into Chinese by using the reverse-translation method, with an official endorsement from an expert who was fluent in both Chinese and English language to ensure the consistency of the questionnaire;

3. After the study was approved by the Lynn University Institutional Review Board (IRB), this survey was conducted at Aletheia University, Taipei, Taiwan. Dr. Hsu, chairman of the Department of Information Management, Aletheia University, assisted in conducting this survey, including a pilot test;

4. No compensation was offered to participants. This questionnaire collected quantitative data from students who had experience with either browsing or shopping online. The potential participants were provided a brief explanation of the dissertation research. If they were interested in participating, students were provided a written informed consent letter (see Appendix C);

5. The entire procedure of responding to this survey was totally anonymous. The survey was expected to draw 309 respondents for this study, according to the rule of thumb that a survey research needed about 12 to 15 responses per variable for the sample size. There was no way to identify these respondents because the survey did not require participants to reveal their individual name, e-mail, citizenship identification, student identification, driver’s license number, telephone number, or address. Furthermore, a cardboard box with a slot was placed at the entrance of the classroom, and then the investigator left the room. Participants dropped the questionnaire in the box upon completion. The
investigator was in close proximity in case questions arose. In this way, even the researcher could not identify the participants. The results of this study were analyzed in aggregate form, and no individual data were presented in this research analysis. The entire procedure was to ensure participants' anonymity;

6. The data collection process took approximately two weeks to complete. The start date was April 15, 2005, and data collection was completed by May 3, 2005. At the completion of data collection, the researcher had submitted the Lynn University IRB Report of Termination of Project;

7. After collecting all responses from participants, the researcher created a database structure to integrate the data for this study. The researcher kept all the data provided by respondents completely confidential;

8. The statistical techniques for data analysis contained descriptive statistics, correlation analysis, independent samples t-test, one-way ANOVA analysis, and multiple regression analysis, which was undertaken by SPSS Windows Version 12.0. The level of statistical significance was set at $p \leq .05$. The steps were as follows: (a) the data was analyzed through statistical and descriptive analyses, (b) correlation analysis was used to explore the relationships between variables, and (c) multiple regression analysis was used to interpret relationships among variables; and

9. Finally, the researcher interpreted and discussed the results of all the data analyses, and formed conclusions and recommendations for the study.
Instrumentation

One instrument was employed for the gathering of quantitative data: Critical Factors of the Buyer Decision Process in Consumers' Online Purchasing Behavior Questionnaire, which included a demographic profile (see Appendix A), developed by the researcher. A written informed consent letter (see Appendix C) also clarified the intention of the study and the objective of this survey to possible respondents. The researcher carried out this survey through a sample of consumers who had experience with either browsing or shopping online in Taiwan.

The demographic profile section of the questionnaire was created by the researcher, and was proposed to offer general background information on each participant in the study. The demographic statistics enabled the researcher to make descriptive statistics and to determine whether there were any correlations between the demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences) and the dependent variable (Receptivity to Online Shopping). A survey with a closed-ended 1-to-7 Likert scale questionnaire was employed to rate the online consumers' attitude toward retail e-commerce.

Rationale of Selecting Instrument

A survey design provides a quantitative or numeric description of attitudes, opinions, or trends of a population by investigating a sample of the population. The objective of a survey is to employ questionnaires or interviews to gather data from a sample that has been chosen to demonstrate a population to which the findings of the data analysis may be generalized (Creswell, 2003; Gall et al., 2003).
This study chose a non-experimental, causal-comparative, quantitative research method to guarantee validity and accurate assessment. This study employed the traditional method of face-to-face survey. Although this design incurred a higher cost, the resulting sample might be generalized to the overall population with greater confidence than an Internet-survey sample. The researcher employed a non-probability sample, also called a convenience sample, in which the sample was chosen because of availability, economy, and convenience.

Before beginning the survey, a pilot study was administered to examine the questionnaire and the results. The survey questionnaire was pre-tested by 10 selected respondents at Aletheia University. The pre-test was anticipated to generate valuable suggestions regarding extra factors and clarity of statements. These suggestions were incorporated into the final survey questionnaire.

**Development of the Questionnaire**

Questionnaires are employed widely in educational research to gather data about phenomena that are not easily observable. Questionnaires may also be applied to assemble data about observable phenomena, which can be accomplished more conveniently than by direct observation. Questionnaire methodology is to ask the same questions to all participants in the sample, with participants to write down a response to each questionnaire item (Gall et al., 2003). In this study, the questionnaire method was adopted for several reasons:

1. The cost of sampling respondents over a specific geographic area was relatively lower than through a one-to-one interview process;
2. The time required to gather the data typically was relatively much less using
the questionnaire than resorting to the interview technique;

3. Standardized questions could help this study make precise measurements and results which were easy to interpret by statistical analysis; and

4. A large sample size was possible.

This research followed four procedures, proposed by Fong (2004), to build a valid questionnaire instrument:

1. Determine the Questions to Ask: The aim of this study was to identify the critical factors in each stage of the Buyer Decision Process model of retail e-commerce in Taiwan. This research study was interested in analyzing online consumer attitudes and perceptions about the e-retailing industry through the Buyer Decision Process model. The questions helped this study successfully gain the answers for research inquiries. In addition, questions were designed to be specific and not uncertain in order to obtain accurate feedback from respondents. Therefore, this questionnaire was expected to fulfill the purpose of this study;

2. Select the Question Format: A questionnaire item can be either closed form or open form. Which form to adopt depends on the objective of the question. Studies on the relative advantages of closed and open-ended questions indicate that the two methodologies generate similar information (Creswell, 2003). The advantage of designing questions in closed form is that results are quantified and analyzed more easily (Gall et al., 2003). Therefore, the method of closed-ended questions with 1-to-7 Likert scale responses was adopted for this study. The questionnaire displayed a range of responses using a Likert
scale technique. The participants were asked to select response options from the ranking scale, from which numerical data could be collected. Thus, all variables could be statistically analyzed by the methods of descriptive statistics, correlation analysis, independent sample $t$-test, one-way ANOVA analysis, and multiple regression analysis;

3. Design the Wording of Questions: The general rule was to keep questions as simple and straightforward as possible (Fong, 2004). Other considerations were: (a) avoided questions involving personal privacy, or which were negative in tone, (b) avoided questions that were ambiguous, and confusing, (c) avoided questions which were beyond the scope of the study, (d) avoided biased or leading questions, (e) did not use technical terms, “jargon,” or complex terms that respondents might not understand, and (f) designed relevant Website pictures to demonstrate terms used in the questions, such as Internet Advertisements, to help participants easily understand the meanings; and

4. Determine the Order of Questions: The questionnaire was kept logical, short, and easy for respondents to use when arranging the order of questions. The purpose was to promote high response rates through participant-friendly questionnaires, and easy-to-answer responses. Grouping related questions together helped participants give a reasonable response (Fong, 2004). The order of closed-ended questions of the questionnaire followed each stage of the Buyer Decision Process model.

The order of the research procedure was as follows:

1. An information statement and informed consent for participants in the
face-to-face survey;

2. A survey instruction;

3. A set of closed-ended questions;

4. The participants' demographic and marketing information; and

5. An expression of appreciation for participating in the study.

**Construction of the Questionnaire**

The survey for this study was based on the Buyer Decision Process model. The questionnaire included a Written and Informed Consent Letter (see Appendix C) and Critical Factors of the Buyer Decision Process in Consumers' Online Purchasing Behavior Questionnaire (see Appendix A), which was developed by the researcher. Information and Informed Consent for Participants consisted of a brief explanation of the objective of the survey, the confidentiality of individual information about the respondent, and instructions on completing the survey. The researcher's personal contact information was presented to assure respondents may ask questions or request further information about this research study after the survey.

The questionnaire was composed of 24 questions. Questions 1 to 14 were designed to measure the 14 independent variables. The questions were divided as follows:

1. Questions 1 to 2 were related to the stage of need recognition;

2. Questions 3 to 5 were related to the stage of information search;

3. Questions 6 to 8 were related to the stage of alternatives evaluation;

4. Questions 9 to 11 were related to the stage of purchase decision;

5. Questions 12 to 14 were related to the stage of post-purchase decision;
6. Questions 15 to 17 were designed to measure the dependent variable, Receptivity to Online Shopping; and

7. Questions 18 to 24 were related to the participants’ demographic and marketing information, including: Gender, Internet Experience, Online Shopping Experience, Other Purchase Experiences, Age, Student Status, and Payments.

Response Rate

If a research study produces a high respondent rate in a sample selected from a population, the possibility of bias is less likely (Fong, 2004). The following strategies were employed to enhance the participation rate for the study:

1. Conducted a pilot test to improve the validity of the questionnaire;
2. Ensured questions which were easy and clear to understand by respondents;
3. Adopted the convenience sampling method to choose the sample; and
4. Requested permission from the instructors of the selected classes to explain to the participants about their contribution to the study.

Reliability and Validity

Reliability

The issue of reliability deals with the question of whether this instrument will create the same findings each time the survey is administered to the same participant in the same condition. Instruments employed in the social sciences are commonly thought reliable if similar findings are created regardless of who administers the survey and regardless of which forms are employed (George & Mallery, 2003).

In this study, reliability estimates were determined using Cronbach’s alpha (\( \alpha \)) as a measure of internal consistency. That meant all items of the instrument were used
to measure the same matter. Chronbach’s alpha ($\alpha$) generally varies from 0 to 1. The closer the value of alpha is to 1.00, the greater the internal consistency of items in the instrument being evaluated. Generally, $\alpha > .9$ is excellent, $\alpha > .8$ is good, $\alpha > .7$ is acceptable, $\alpha > .6$ is questionable, $\alpha > .5$ is poor, and $\alpha < .5$ is unacceptable (George & Mallery, 2003). Chronbach’s alpha ($\alpha$) is often used to measure the participants’ attitude along with the Likert scale. Therefore, Chronbach’s alpha was appropriately used in this research study.

**Validity**

The validity issue is frequently decided by non-statistical means. An instrument is valid only when the scores permit suitable corollaries to be administered to a particular group of population for special objectives. There are three general categories of instrument validity:

1. Content-related evidence: To address content validity, researcher should judge the appropriateness of the items on the instrument. The purpose is to understand whether the measure can reach the anticipated content;

2. Criterion-related evidence: Criterion-related evidence is gathered via comparing the instrument with other existing criteria. The higher relationship, the higher validity; and

3. Construct-related evidence: Construct validity is the degree to which a measure employed in a research study accurately conducts the concepts being studied (Gall et al., 2003).
This research study employed the following strategies to ensure the validity of the instrument:

1. All variables were derived from the relevant literature;
2. The researcher consulted the dissertation committee chair and members, other professors and experts to verify the emerged themes to address the issues of internal validity;
3. The research reviewed other relevant instruments, such as Fong (2004), Keeney (1999), Kim and Larose (2004), and Torkzadeh and Dhillon (2002);
4. The researcher designed relevant Website pictures to accompany the questions, such as Internet Advertisements, to help participants easily understand the meanings of terms used in the questionnaire; and
5. A pilot test was administered to ensure the content validity of the instrument.

The researcher tested the study questionnaire by inviting 10 students at Aletheia University to participate in a pilot test prior to the survey.

Population and Sample

Overview

Researchers have found investigating an entire population of individuals who are associated to a study to be almost impossible. Instead, researchers tend to choose a sample of individuals to study (Gall et al., 2003). The sample is selected with the purpose of representing a larger population. That is to say, researchers concentrate on the composition of the sample population, not the specific sample selected. When using intentioned sampling, the objective is to choose samples that are likely to be represented with respect to the aim of the study (Gall et al., 2003).
Particular sampling methods are practiced to enhance the validity of study findings. For maximum validity, researchers should assure that a large percent of the chosen sample population will respond. That is to say, the statistical significance of the relationships among the variables may be advanced if the research study produces a high response rate in a sample chosen from a particular population (Fong, 2004).

External validity concerns the extent to which the results of a study can be applied to persons and settings beyond those that were studied. External validity consists of population validity and ecological validity. Population validity is related to the degree to which the findings of a research study may be generalized to and across targeted populations of persons. Ecological validity is associated with the degree to which the findings of a research study may be generalized from the setting created by the researcher to different settings (Gall et al., 2003). Chen and Dubinsky (2003) indicated that students were more likely to be online purchasers because students used the Internet more frequently than other consumers. Chen (2002) stated that the main shopping Websites browsers in Taiwan were students (33%), and that 37% of all Website browsers were less than 25 years old, and 32% were between 25 to 34 years old. Fong (2004) conducted a Web survey about consumers’ attitudes toward online shopping in the United States, and found that 56% of online shoppers were between 18 to 30 years old. Thus, the participants, who were between the ages of 18-24 were among those most responsive to online shopping.

In this study, the population was Internet users in Taiwan. Although this study adopted the convenience sampling method to select the sample, this sampling method was the most economical, time-efficient, and feasible method for the researcher.
Furthermore, randomly choosing a sample would confine the sample size, influence the competence to conduct statistics demanding a sufficient sample size.

In this study, the participants had to have experience with either browsing or shopping online in Taiwan. Furthermore, the participants were recruited from both daytime students (their ages were from 18 to 24) and adult learners (their ages were older than 24 with careers in all trades and professions) at Aletheia University. Although the students were homogeneous, the students at Aletheia University came from all over Taiwan, which would enhance the geographic diversity of the sample. However, employing the convenience sampling method was still a weakness of this research study, calling into question the external validity (structure of population sample).

Employing a student sample takes the risk of bias by common culture rather than by online purchase experience. In other words, if the sample is biased, such bias is probably the result of fewer differences between participants than in the general population (Gould, 2004). That is to say, this study might risk underestimating the differences between Internet users and Taiwan’s college students. Another shortcoming was that the results of this study may not be generalized to any larger population outside of Taiwan.

**Inclusion and Exclusion Criteria**

The main purpose of this study was to analyze online consumers’ purchasing behavior in Taiwan. For that reason, inclusion factors were subjects who were familiar with browsing the Internet, who had experience with either browsing or shopping online, who were older than 18 years old, who could read, write, and speak Chinese, and who were willing to fill out a questionnaire based on Internet experience. People who did
not live in Taiwan, did not study at Aletheia University, and did not have the Internet for consumer transactions were excluded in this study.

**Data Collection**

**Overview**

A questionnaire was employed to gather data from the students at Aletheia University who had previous experience with either browsing or shopping online. Before conducting the survey, a pilot test was carried out to improve the reliability and validity of the questionnaire. This study recruited 309 respondents to participate in the survey. After gaining replies from the respondents, the researcher created a database file which integrated the variables for the study, and then entered the collected data into a SPSS statistical program.

**Pilot Test**

The purpose of a pilot study is to develop and test data-collection methods and other processes. A pilot study involves small-scale testing of the processes to be employed in the main survey, and revising the processes based on what the testing discovered. Following a pilot test, problems may be recognized and settled more easily than when the main survey is conducted (Gall et al., 2003).

The researcher carried out a pilot test to improve the validity of the questionnaire. The pilot test was conducted with the same sampling procedures and techniques as in the survey. Dr. Hsu assisted the researcher to invite 10 students from Aletheia University to participate in the pilot test. Those students had to have experience with either browsing or shopping online in Taiwan. The students were given an information and informed consent letter before the pilot test. The researcher answered any questions about this
The purpose of the pilot test was to discover any flaws in the questionnaire, revised any ambiguous statements, and solved these problems before the survey was implemented. Feedback taken from the sample of the pilot test helped the researcher make changes to the questionnaire so the respondents could easily read, understand, and reply to all questions.

The changing contents of questionnaire were as follows:

1. Questions had been revised in Chinese for better understanding and easier achievement by survey takers in Taiwan;

2. Demographic and marketing questions had been changed and added, such as “Student Status” and “Preferred Payment Method;”

3. The rating scale had been changed. The original Likert scale format was 1-to-9 (Fong, 2004). However, many respondents reacted that 1-to-7 scale might be much better than 1-to-9 scale. The researcher decided to adopt 1-to-7 Likert scale instead of 1-to-9 Likert scale to make easier and simpler rating-decision for respondents;

4. Online shopping experience, one of inclusion factors, had been changed into “the experience with either browsing or shopping online” because Taiwan’s e-retailing industry is still at the start-up stage and not every Internet user has online shopping experience;

5. Some pictures showed in the questionnaire were changed into Taiwan’s local pictures. The purpose was to let participants be familiar with those pictures; and

6. Open-ended question had been deleted.
Data Analysis

Overview

This study used statistical methods to analyze consumer online purchasing behavior in Taiwan. In the data analysis phase, this research followed five major steps, proposed by Fong (2004), in the conduct of this study:

1. Classifying the data for analysis and validity measurement;
2. Checking the data;
3. Describing the variables (descriptive statistics);
4. Testing the hypotheses (correlation analysis, independent samples t-test analysis, one-way ANOVA analysis); and
5. Exploring the relationships between the independent variables and dependent variable (multiple regression analysis).

Following administration and completion of survey forms, data was collected and entered into an SPSS program for statistical analysis. Reliability estimates were determined using Cronbach’s Alpha ($\alpha$) Reliability. Criterion-related validity was established using a Pearson $r$ correlation. The characteristics of the sample were summarized using descriptive statistics. The research questions were analyzed through both descriptive and inferential statistics. These included measures of central tendency (mean and median), frequency distribution, and range.

To determine whether there was improvement in customer purchase decisions as a result of customer satisfaction, descriptive statistics were employed to analyze the frequency distributions of the independent, dependent, and demographic and marketing variables. To explore differences in groups based on the variables of the study,
independent sample \( t \)-tests (for two-group comparisons) and ANOVA with post-hoc tests (for 4-group comparisons) were used. To investigate relationships among the variables, a correlational coefficients analysis was used. Finally, this study employed multiple regression analysis to determine relationships among the variables. Multiple regression analysis may measure the degree of influence of two or more independent variables on the dependent variable of the study.

**Methods of Data Analysis**

1. Descriptive statistics: Descriptive statistics were designed to obtain information concerning the distribution of variables. Descriptive statistics were employed to obtain the information of standard deviation, central tendency, size of the distribution, Kurtosis, and standard errors of independent variables and dependent variable (George & Mallery, 2003). In this study, descriptive statistics were employed to analyze the frequency distributions of discrete demographic and marketing variables (Gender, Internet experience, Online Shopping Experience, and Other Purchase Experiences). Further, descriptive statistics were employed to analyze the frequency distributions of continuous independent and dependent variables with histograms;

2. Correlation analysis: Correlation analysis was adopted to explore a simple correlation between two continuous variables. A correlation was also frequently called the Pearson \( r \) (George & Mallery, 2003). This study employed correlation analysis to examine the relationships between the independent variables and the dependent variable. That meant correlation
analysis was employed to measure whether the research hypothesis in each research question was supported;

3. Independent samples t-test analysis: The independent sample t-test is employed to compare the means from two different samples. The two samples share certain variables of mutual interest, but there is no overlap between members of the two groups. A t-test will determine if the means of the two sample distributions vary significantly from each other (George & Mallery, 2003). In this study, the independent sample t-test analysis was adopted to explore the independent and dependent variables to determine whether there was a different tendency among participants according to the demographic and marketing variables (Gender, Online Shopping Experience, and Other Purchase Experiences);

4. One-way ANOVA analysis: Since t-tests analyses compare only two distributions, analysis of variation may compare many. One-way ANOVA analysis is designed to measure the relationship between one dependent variable, and two or more independent variables (George & Mallery, 2003). In this study, one-way ANOVA analysis was employed to explore whether there were any statistical differences between the Internet Experience groups, one of demographic and marketing variables, in the independent variables and the dependent variable. “Internet Experience” was divided into four groups: (a) two year’s or less experience, (b) three to four years’ experience, (c) five to six years’ experience, and (d) seven years’ or more experience. In one-way ANOVA analysis, the researcher intended to explore whether there were
significant differences within any of the comparisons of the five groups in the sample. To sum up, the researcher employed independent samples t-test analysis and one-way ANOVA analysis to explore the research questions designed to find out “Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?”; and

5. Multiple regression analysis: Regression analysis (simple or multiple) is designed to measure a linear relationship between the independent variable(s) and dependent variable (George & Mallery, 2003). Furthermore, multiple regression analysis may allow the researchers to realize the unique influence of each independent variable on the dependent variable. This method may also examine which independent variable is more significant and which is less important in the study (Fong, 2004). The results produced by multiple regression analysis are four main values:

\[ R^2: \] The \( R \) value indicates the strength of relationship between the dependent variable and the independent variables. The value of \( R^2 \), the square of \( R \), is the proportion of variance in the dependent variable explained by the other independent variables. The value range of \( R^2 \) is from 0.0 to 1.0. In general, the larger value of \( R^2 \) is the better (George & Mallery, 2003).

\[ F \text{ statistic:} \] The \( F \) statistic represents a probability value, \( p \), related to \( R \) to reveal the significance of the relationship between the dependent variable and the independent variables (George & Mallery, 2003).
Beta weight: The Beta weight indicates the unique contribution of each independent variable to explain the dependent variable. Beta weight varies from -1 to +1. A positive Beta value means a higher score on an independent variable will increase the value of the dependent variable. Conversely, a negative value on an independent variable would decrease the value of the dependent variable. The greater the Beta weight, the greater the effect between the independent variable and the dependent variable. The smaller the Beta weight, the smaller the effect between the independent variable and the dependent variable (George & Mallery, 2003).

$t$ statistic: The $t$ statistic reveals the degree of probability of the relationship between each independent variable and the dependent variable (George & Mallery, 2003).

In this study, multiple regression analysis was employed to measure the relationships between the independent variables and the dependent variable. The multiple regression equation was presented as below:

$$Y = f(X_1 + X_2 + X_3 + X_4 + X_5 + X_6 + \ldots + X_{14}) + e$$

Where $Y =$ Receptivity to Online Shopping;

$X_1 =$ Free Trials;

$X_2 =$ Internet Advertisements;

$X_3 =$ Search Engines;

$X_4 =$ Online Shopping Malls;

$X_5 =$ Auction Websites;

$X_6 =$ Convenience;
\[ X_7 = \text{Price}; \]
\[ X_8 = \text{Brand}; \]
\[ X_9 = \text{Security}; \]
\[ X_{10} = \text{Promotion}; \]
\[ X_{11} = \text{Refund}; \]
\[ X_{12} = \text{Satisfaction}; \]
\[ X_{13} = \text{Customized information}; \]
\[ X_{14} = \text{Discount}; \text{ and} \]
\[ e = \text{error term}. \]

**Ethics**

Ethical behavior in conducting educational research is in large part a personal matter (Gall et al., 2003). In this study, the privacy of the respondents was the most important concern of this research. There was no subject identifier in the data analyses. Information and Informed Consent for Participants was contained in front of the questionnaire, which described the objective of this study and the rights of the respondents.

This survey was administered with the assistance of Dr. Hsu, chairman of the Department of Information Management, Aletheia University. The survey was distributed by the researcher to Aletheia University students who had previous experience with either browsing or shopping online in Taiwan. The whole process of participation in this survey was totally anonymous and voluntary. There was no way of identifying how each of these participants answered the survey questions, because this survey did not
ask participants to reveal their individual name, e-mail, citizenship identification, student identification, driver's license number, telephone number, or address.

The survey took place after the selected classes were dismissed regularly. Therefore, the participating students did not miss any regularly scheduled classes. The students could choose whether to participate or not. If the students did not want to participate, they could leave the classroom. Participation or non-participation would not influence the students' grading in the class, because the survey was not part of the regular curriculum of the selected class. The researcher explained the availability of the information statement and informed consent for participants before the survey starting.

The survey was administered one class after another. After one class's participants finish the paper questionnaires, all the questionnaires were combined with previous questionnaires. All of the data was analyzed in aggregate form, and no individual data could be identified in this research data. The whole procedure was designed to guarantee participants' anonymity. There was no way for the researcher to know who sent back the responses.

Confidentiality of survey data was maintained and stored on the researcher's personal laptop with personal identification number (PIN). The data will be deleted no longer than five years following completion of data collection to allow finalization of the study.

**Summary**

This chapter presents a description of the methodology for this study, which focused on exploring consumer online purchase behavior in Taiwan. This research presents a framework that was grounded in the classic Buyer Decision Process model,
developed by Kotler and Armstrong (1997), to investigate consumers' consciousness, requirements, and attitudes for e-retailers and to identify the critical factors which influenced online shoppers making purchase decisions and becoming loyal consumers.

The five research questions guided the development of the survey of this research study, with descriptive and exploratory purposes. In applied research, the independent and dependent variables work in conjunction, when developing the persuasive power required influencing consumer purchasing behaviors. There were 14 independent variables, 1 dependent variable, and 4 demographic and marketing variables in this study.

The research design employed a non-experimental, causal-comparative, quantitative method approach, using closed-ended questions on a survey instrument. The survey was distributed by the researcher to consumers who had previous experience with either browsing or shopping online in Taiwan. A non-probability sampling (convenience sampling) method was used at Aletheia University. The statistical techniques for data analysis included descriptive statistics, correlation analysis, independent samples t-test, one-way ANOVA analysis, and multiple regression analysis, which were completed on SPSS Windows Version 12.0. The level of statistical significance of this study was set at $p \leq .05$. Finally, reliability and validity of this study were discussed. Ethics issues were described in this chapter as well.
CHAPTER IV
RESULTS
Overview

The purpose of this study is to identify the critical factors in each stage of the Buyer Decision Process model in Taiwan’s Business-to-Customer (B2C) e-commerce. Further, this study explored whether these factors influenced consumers making online purchase decisions. The basic assumption underlying this approach was that Taiwan’s consumers can accept online shopping and that these critical factors may influence their online purchase decision. This research study explored the online consumers’ critical decision factors, and the findings of this study suggested that analyzing consumer online behavior may be possible for any e-retailer that attempts to understand consumers’ purchase decision factors and to provide the best products and services to online shoppers.

Fourteen independent variables, one dependent variable, and four demographic variables were used in this study. The independent variables included Free Trials, Internet Advertisements, Search Engines, Online Shopping Malls, Auction Websites, Convenience, Price, Brand, Security, Promotion, Refund, Satisfaction, Customized Information, and Discount. The dependent variable was Receptivity to Online Shopping. The demographic and marketing variables were Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experience.

The research design employed a quantitative, non-experimental method approach, using 24 closed-ended questions on survey instruments. Participants rated the questions based on a closed-ended 1-to-7 Likert scale format, where 1 represented “strongly disagree;” 2 represented “disagree;” 3 represented “slightly disagree;” 4 represented
"neither agree nor disagree;" 5 represented "slightly agree;" 6 represented "agree;" and 7 represented "strongly agree" (see Questionnaire in Appendix A). The survey was distributed by the researcher to Aletheia University students who had previous experience with either browsing or shopping online in Taiwan. The data collection process took approximately two weeks to complete. The start date was April 15, 2005, and data collection was completed by May 3, 2005. A total of 309 respondents participated in this survey. In general, the study results supported the inference of relationships between the critical factors and consumer online purchase decisions.

Chapter Four presents the major findings assessed from the data collection. This chapter begins with descriptive characteristics of the demographic and marketing variables and other participants' profile. Then, this chapter shows findings about the relationships among the independent variables and dependent variable. Finally, results are reported in sufficient detail to justify the conclusion.

The statistical skills for data analysis comprised: descriptive statistics, correlation analysis, independent samples t-test, one-way ANOVA analysis, and multiple regression analysis, which were completed through the use of SPSS Windows Version 12.0. The level of statistical significance was set at $p \leq .05$.

**Descriptive Characteristics of Demographic Variables**

A sample in Taiwan was obtained with an "N" count of 309. Of the respondents, gender was divided into 139 (45%) males, and 170 (55%) females. The mean age for those respondents in the study was 28.67 years of age, with a standard deviation of 6.42. The median age was 28. The ages ranged from 18 to 52 years. The normal curve for
participants' age was close to normal with a Skewness of .506 and a Kurtosis of -.099.

Figure 3 shows the age distribution of samples in this study.

![Age Distribution]

Figure 3. The age distribution of samples.

In this study, 96 participants (31.1%) were daytime students (their ages were from 18 to 28), and 213 participants (68.9%) were adult learners (their ages were from 24 to 52 with careers in all trades and professions). A total of 216 respondents (70%) had online shopping experience, 149 (69%) were less than 31 years old, and 45 (20.8%) were between 31 to 35 years old. Although responses from students cannot represent the rest of the population, the demographics confirm that most online shoppers in Taiwan were between the ages of 18-34 years (Chen, 2002), and students are more likely to be online purchasers (Chen & Dubinsky, 2003).

The mean of Internet experience for those respondents in the study was 4.6 years, with a standard deviation of 2.22. The median of Internet experience was 5 years.
The experience ranged from 1 to 12 years. The normal curve for Internet experience was skewed to the left with a Skewness of .671 and a Kurtosis of .586. Figure 4 shows the Internet Experience distribution of samples in this study.

![Internet Experience Diagram](image)

*Figure 4. Internet experience distribution of samples.*

As to payments, 149 respondents (48.2%) preferred using “Cash on Delivery,” 71 respondents (23%) liked to use “Credit Card,” 50 respondents (16.2%) selected “Pick Up and Pay at Convenience Stores,” and 39 respondents (12.6%) tended to use “Wire Transfer.” Furthermore, a total of 218 respondents (70.6%) had other purchase experience (not including real store purchases), such as mail purchase and cable TV purchase.

**Reliability**

In this study, reliability estimates were determined using Chronbach’s alpha (α) as a measure of internal consistency. That means all items of the instrument were used
to measure the same matter. Chronbach’s alpha ($\alpha$) generally varies from 0 to 1. The closer the value of alpha is to 1.00, the greater the internal consistency of items in the instrument being evaluated. Generally, $\alpha > .9$ is excellent, $\alpha > .8$ is good, $\alpha > .7$ is acceptable, $\alpha > .6$ is questionable, $\alpha > .5$ is poor, and $\alpha < .5$ is unacceptable (George & Mallery, 2003). Chronbach’s alpha ($\alpha$) is often used to measure the participants’ attitude along with the Likert scale. Therefore, Chronbach’s alpha ($\alpha$) was appropriately used in this research study. As shown in Table 2, all Chronbach’s alpha ($\alpha$) values were higher than .7 in this study, which means the survey instrument was acceptable.

Table 2

Reliability Statistics

<table>
<thead>
<tr>
<th>Category</th>
<th>N of Items</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need Recognition</td>
<td>2</td>
<td>.784</td>
</tr>
<tr>
<td>Information Search</td>
<td>3</td>
<td>.778</td>
</tr>
<tr>
<td>Alternatives Evaluation</td>
<td>3</td>
<td>.798</td>
</tr>
<tr>
<td>Purchase Decision</td>
<td>3</td>
<td>.812</td>
</tr>
<tr>
<td>Post-purchase Decision</td>
<td>3</td>
<td>.803</td>
</tr>
<tr>
<td>Receptivity to Online Shopping</td>
<td>3</td>
<td>.815</td>
</tr>
</tbody>
</table>

Research Question 1

What are the critical factors in the need recognition stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?
Descriptive Analysis for Research Question 1

The report of frequencies count for the independent variables (Free Trials and Internet Advertisement) showed that Free Trials had a mean ($M$) score of 4.95 and standard deviation ($SD$) was 1.000. Internet Advertisement had an $M = 5.00$ and $SD = 0.979$. The dependent variable (Receptivity to Online Shopping) had an $M = 6.1629$ and $SD = 0.67292$. Table 3 presents the basic descriptive data of Free Trials, Internet Advertisement, and Receptivity to Online Shopping.

Table 3

The Result of Frequencies Count for Dependent Variable (Receptivity to Online Shopping) and Two Independent Variables (Free Trials and Internet Advertisement) ($N = 309$)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Error of Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Trials</td>
<td>4.95</td>
<td>0.057</td>
<td>5.00</td>
<td>4.00</td>
<td>1.000</td>
</tr>
<tr>
<td>Internet Advertisements</td>
<td>5.00</td>
<td>0.056</td>
<td>5.00</td>
<td>4.00</td>
<td>0.979</td>
</tr>
<tr>
<td>Receptivity to Online Shopping</td>
<td>6.14</td>
<td>0.383</td>
<td>6.33</td>
<td>6.00</td>
<td>0.673</td>
</tr>
</tbody>
</table>

Correlation Analysis for Research Question 1

Correlation analysis is adopted to explore a simple correlation between two continuous variables. A correlation coefficient is also frequently called the Pearson $r$, which indicates the degree of relationship between two measured variables. The value of the Pearson $r$ varies from -1.0 to +1.0. If the Pearson $r$ is negative (-1 < $r$ < 0), it means two variables have a negative relationship. If the Pearson $r$ is positive (0 < $r$ < 1), it means two variables have a positive relationship (George & Mallery, 2003). If the absolute value of Pearson $r$ is between .0 and .2, it means two variables have a weak
relationship. If the absolute value of Pearson $r$ is between .21 and .4, it means two variables have a moderate relationship. If the absolute value of Pearson $r$ is between .41 and .84, it means two variables have a strong relationship. If the absolute value of Pearson $r$ is higher than .85, it means the relation between two variables is too high.

In Research Question 1, correlation analysis was employed to examine the relationships between two independent variables and the dependent variable. That means that correlation analysis was employed to measure whether Hypotheses 1 and 2 were supported. As shown in Table 4, the coefficients were positive ($1 > r > 0$) and had a statistically significant difference at the $p \leq .01$ level between independent variables (Free Trials and Internet Advertisements) and the dependent variable (Receptivity to Online Shopping).

Table 4

*The Results of Correlation Analysis for the Dependent Variable (Receptivity to Online Shopping) and the Two Independent Variables (Free Trials and Internet Advertisements) (N = 309)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Free Trials</th>
<th>Internet Advertisements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptivity to Online Shopping</td>
<td>.377</td>
<td>.305</td>
</tr>
<tr>
<td>(Pearson $r$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (two-tailed)</td>
<td>.000**</td>
<td>.000**</td>
</tr>
</tbody>
</table>

**$p \leq .01$**

The most statistically significant correlations with Receptivity to Online Shopping from highest to lowest were:

1. Free Trials: The score of correlation between Free Trials and Receptivity to Online Shopping was $r = .377$, and the relationship was statistically significant
at the $p \leq .01$ level ($p = .000$). That means that there was a 99% probability that these relationship scores were not produced by chance. Among the independent variables, Free Trials had the strongest relationship to Receptivity to Online Shopping in Research Question 1. Therefore, the findings supported Hypothesis 1; and

2. Internet Advertisements: The score of correlation between Internet Advertisements and Receptivity to Online Shopping was $r = .305$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$). This indicated that Internet Advertisements was the second critical factor to Receptivity to Online Shopping in Research Question 1. Therefore, the findings supported Hypothesis 2.

The correlation between Receptivity to Online Shopping and the independent variables was statistically significant at the $p \leq .01$ level ($p = .000$), which means they had a moderately positive correlation. The value of Pearson $r$ indicates that as the value of the two independent variable (Free Trials and Internet Advertisements) increases, the value of the dependent variable (Receptivity to Online Shopping) tends to increase as well.

**Independent Samples t-Test Analysis for Research Question 1**

In Research Question 1, the independent sample $t$-test analysis was adopted to explore independent variables and the dependent variable, specifically, whether there were different tendencies among Gender, Online Shopping Experience, and Other Purchase Experience. Among the participants, there were 139 males and 170 females. Two hundred and sixteen participants had online shopping experience before the survey.
Furthermore, 218 participants had other purchase experience (not including real store purchase), such as cable TV purchase and mail order purchase. Gender, Online Shopping Experience, and Other Purchase Experience were nominal variables. Gender was taken on two values, males and females, which were coded numerically as 1 and 2. Online Shopping Experience was taken on two values, "Having" and "Not Having," which were coded numerically as 1 and 2. In addition, Other Purchase Experience was taken on two values, "Having" and "Not Having," which were coded numerically as 1 and 2.

Table 5 presents the mean scores for Gender on the independent variables (Free Trials and Internet Advertisements) and the dependent variable (Receptivity to Online Shopping). The table also displays the results of the two-tailed significant differences between males and females.

Table 5

The Result of Independent Samples t-Test for Gender

<table>
<thead>
<tr>
<th>Variable</th>
<th>Males (N=139)</th>
<th>Females (N=170)</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
<td></td>
</tr>
<tr>
<td>Free Trials</td>
<td>4.94</td>
<td>4.96</td>
<td>.859</td>
</tr>
<tr>
<td>Internet Advertisements</td>
<td>4.81</td>
<td>5.08</td>
<td>.025*</td>
</tr>
<tr>
<td>Receptivity to Online Shopping</td>
<td>6.12</td>
<td>6.17</td>
<td>.504</td>
</tr>
</tbody>
</table>

*p ≤ .05

The final result indicates that among the two independent variables and the dependent variables only Internet Advertisement showed a significant difference between
males and females. The independent samples t-test analysis indicated that the 139 males had a mean of 4.81; the 170 females had a mean of 5.08 in this study, which had the score of a mean difference of -0.27. The means differed significantly at the \( p < .05 \) level \( (p = .025) \).

Table 6 presents the mean scores for Online Shopping Experience on the variables, Free Trials, Internet Advertisements, and Receptivity to Online Shopping. The table also displays the results of the two-tailed significant difference between “Having Online Shopping Experience” and “Not Having Online Shopping Experience.”

Table 6

*The Result of Independent Samples t-Test for Online Shopping Experience*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Having Experience (N=216) Mean</th>
<th>Not Having Experience (N=93) Mean</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Trials</td>
<td>5.05</td>
<td>4.72</td>
<td>.008**</td>
</tr>
<tr>
<td>Internet Advertisements</td>
<td>5.05</td>
<td>4.88</td>
<td>.176</td>
</tr>
<tr>
<td>Receptivity to Online Shopping</td>
<td>6.23</td>
<td>6.02</td>
<td>.013*</td>
</tr>
</tbody>
</table>

*\( p \leq .05 \)  **\( p \leq .01 \)

The final result indicates that among the two independent variables and the dependent variable, only Free Trials and Receptivity to Online Shopping had significant difference with Online Shopping Experience. In Free Trials, the independent samples t-test analysis indicated that the 216 participants with online shopping experience had a mean of 5.05; the 93 participants without online shopping experience had a mean of 4.72 in this study, which had the score of mean difference .33 (differed significantly at the \( p \)
In Receptivity to Online Shopping, the independent samples t-test analysis indicated that the 216 participants with online shopping experience had a mean of 6.23; the 93 participants without online shopping experience had a mean of 6.02 in this study, which had the score of mean difference .21. The means differed significantly at the $p < .05$ ($p = .013$).

Table 7 presents the mean scores for Other Purchase Experience related to the variables, Free Trials, Internet Advertisements, and Receptivity to Online Shopping. The table also displays the results of the two-tailed significant difference between “Having Other Purchase Experience” and “Not Having Other Purchase Experience.”

<table>
<thead>
<tr>
<th>Variable</th>
<th>Having Experience (N=218)</th>
<th>Not Having Experience (N=91)</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Trials</td>
<td>4.99</td>
<td>4.86</td>
<td>.285</td>
</tr>
<tr>
<td>Internet Advertisement</td>
<td>5.02</td>
<td>4.93</td>
<td>.468</td>
</tr>
<tr>
<td>Receptivity to Online Shopping</td>
<td>6.19</td>
<td>6.10</td>
<td>.254</td>
</tr>
</tbody>
</table>

*p ≤ .05

The final result indicates that among the two independent variables and dependent variables, no variable had significant difference between “Having Online Shopping Experience” and “Not Having Online Shopping Experience.”
One-way ANOVA Analysis for Research Question 1

In this study, one-way ANOVA analysis was employed to explore whether there were any statistical differences among the Internet Experience groups related to the independent and dependent variables. “Experience” was divided into four groups: (a) two years’ or less experience, (b) three to four years’ experience, (c) five to six years’ experience, and (d) seven years’ or more experience. In one-way ANOVA analysis, this study intended to explore whether there were significant differences within any of the comparisons of the four groups in the sample. Post Hoc tests comprised a least significant difference (LSD) test to distinguish between which differ significantly from each other.

Table 8 presents the result of ANOVA analysis related to Internet Experience and Free Trials. There was no significant difference that existed among the four groups at the .05 level. According to the descriptive data analysis, Internet Experience Group 1 had the highest $M = 4.99$ than other groups in Free Trials. Internet Experience Group 2 had the lowest $M = 4.88$ than other groups in Free Trials.

The result indicated that all five Internet Experience groups tended to “slightly agree” with “Free Trials” effect because all means were less than “5” where “5” represented “slightly agree” based on the survey scale format.
Table 8

ANOVA and Post Hoc Comparisons of Significant Differences for Free Trials

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>.440</td>
<td>3</td>
<td>.147</td>
<td>.145</td>
<td>.933</td>
</tr>
<tr>
<td>Within Groups</td>
<td>307.831</td>
<td>305</td>
<td>1.009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>308.272</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Multiple Comparisons

Dependent Variable: Free Trials

LSD

<table>
<thead>
<tr>
<th>(I) Experience Group</th>
<th>(J) Experience Group</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>.103</td>
<td>.171</td>
<td>.546</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.017</td>
<td>.158</td>
<td>.913</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>.025</td>
<td>.166</td>
<td>.880</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>-.103</td>
<td>.171</td>
<td>.546</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-.086</td>
<td>.160</td>
<td>.590</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>-.078</td>
<td>.168</td>
<td>.641</td>
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<td>3</td>
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<td>-.017</td>
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<td>.913</td>
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<td>.008</td>
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<td>.959</td>
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<td>-.025</td>
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<tr>
<td></td>
<td>2</td>
<td>.078</td>
<td>.168</td>
<td>.641</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-.008</td>
<td>.155</td>
<td>.959</td>
</tr>
</tbody>
</table>

"1" = 2 years or less  "2" = 3-4 years  "3" = 5-6 years  "4" = 7 years or more

*p ≤ .05

Table 9 presents the result of ANOVA analysis related to Internet Experience and Internet Advertisements. There was no significant difference exited among the four groups at the p = .05 level.
Table 9

ANOVA and Post Hoc Comparisons of Significant Differences for Internet Advertisements

<table>
<thead>
<tr>
<th>Internet Advertisements</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1.028</td>
<td>3</td>
<td>.343</td>
<td>.356</td>
<td>.785</td>
</tr>
<tr>
<td>Within Groups</td>
<td>293.968</td>
<td>305</td>
<td>.964</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>294.997</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Multiple Comparisons

Dependent Variable: Internet Advertisements

LSD

<table>
<thead>
<tr>
<th>(I) Experience Group</th>
<th>(J) Experience Group</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>.000</td>
<td>.167</td>
<td>.998</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>.098</td>
<td>.155</td>
<td>.525</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>-.052</td>
<td>.163</td>
<td>.752</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>.000</td>
<td>.167</td>
<td>.998</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>.099</td>
<td>.156</td>
<td>.526</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>-.051</td>
<td>.164</td>
<td>.755</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>-.098</td>
<td>.155</td>
<td>.525</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>-.099</td>
<td>.156</td>
<td>.526</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>-.150</td>
<td>.151</td>
<td>.322</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>.052</td>
<td>.163</td>
<td>.752</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>.051</td>
<td>.164</td>
<td>.755</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>.150</td>
<td>.151</td>
<td>.322</td>
</tr>
</tbody>
</table>

*“1” = 2 years or less  “2” = 3~4 years  “3” = 5~6 years  “4” = 7 years or more
*p ≤ .05

According to the descriptive data analysis, Internet Experience Group 4 had the highest M = 5.07 than other groups in Internet Advertisements. Internet Experience Group 3 had the lowest M = 4.92 than other groups in Internet Advertisements. The result indicated that all four Internet Experience groups tended to “slightly agree” with
the "Free Trials" effect because all means were less than "5" where "5" represented "slightly agree."

Table 10 presents the result of ANOVA analysis related to Internet Experience and Receptivity to Online Shopping.

Table 10

ANOVA and Post Hoc Comparisons of Significant Differences for Receptivity to Online Shopping

<table>
<thead>
<tr>
<th>Receptivity to Online Shopping</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>3.529</td>
<td>3</td>
<td>1.176</td>
<td>2.639</td>
<td>.050</td>
</tr>
<tr>
<td>Within Groups</td>
<td>135.939</td>
<td>305</td>
<td>.446</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>139.468</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Multiple Comparisons

Dependent Variable: Receptivity to Online Shopping

LSD

<table>
<thead>
<tr>
<th>(I) Experience Group</th>
<th>(J) Experience Group</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>-.26877*</td>
<td>.11367</td>
<td>.019</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>-.26717*</td>
<td>.10516</td>
<td>.012</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>-.20401</td>
<td>.11060</td>
<td>.066</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>.26877*</td>
<td>.11367</td>
<td>.019</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>-.00160</td>
<td>.10605</td>
<td>.988</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>.06476</td>
<td>.11144</td>
<td>.562</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>.26717*</td>
<td>.10516</td>
<td>.012</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>-.00160</td>
<td>.10605</td>
<td>.988</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>.06316</td>
<td>.10274</td>
<td>.539</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>.20401</td>
<td>.11060</td>
<td>.066</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>-.06476</td>
<td>.11144</td>
<td>.562</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>-.06316</td>
<td>.10274</td>
<td>.539</td>
</tr>
</tbody>
</table>

*p < .05

"1" = 2 years or less  "2" = 3-4 years  "3" = 5-6 years  "4" = 7 years or more

163
There were significant differences among the four groups at the $p = .05$ level. The asterisks (*) indicate there were two pairs of groups (Group 1 and Group 2, Group 1 and Group 3) whose means differed significantly ($p \leq .05$) from each other. According to the descriptive data analysis, Internet Experience Group 4 had the highest $M = 6.2402$ than other groups in Receptivity to Online Shopping. Internet Experience group 1 had the lowest $M = 5.9714$ than other groups in Receptivity to Online Shopping. The result indicated that all four Internet Experience groups tended to accept online shopping.

**Summary for Research Question 1**

Results of Research Question 1 indicate that the two independent variables, Free Trials and Internet Advertisements, had a moderately positive correlation with the dependent variable, Receptivity to Online Shopping. Therefore, Hypotheses 1 and 2 were supported. As to Hypothesis 3, a significant difference between males and females was found in their responses to Internet Advertisements; Free Trials and Receptivity to Online Shopping had significant differences with Online Shopping Experience. For Free Trials, Internet Advertisements, and Receptivity to Online Shopping, no significant difference existed among Internet Experience groups. Therefore, Hypothesis 3 was partly supported. These findings indicate that e-retailers employing Free Trials and Internet Advertisements policies may facilitate consumer need recognition and influence their online purchase decisions.

**Research Question 2**

What are the critical factors in the information search stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors
influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?

**Descriptive Analysis for Research Question 2**

The report of frequencies count for independent variables (Search Engines, Shopping Mall of Portal Websites, and Auction Websites) showed that Search Engines had the highest $M = 6.14$ ($SD = .954$). Online Shopping Malls had the second highest $M = 6.05$ ($SD = .883$). Auction Websites had the lowest $M = 5.81$ ($SD = .998$). Table 11 presents the basic descriptive data of Search Engines, Online Shopping Malls, and Auction Websites.

Table 11

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Error of Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search Engines</td>
<td>6.14</td>
<td>.054</td>
<td>6.00</td>
<td>7</td>
<td>.954</td>
</tr>
<tr>
<td>Online Shopping Malls</td>
<td>6.05</td>
<td>.050</td>
<td>6.00</td>
<td>6</td>
<td>.883</td>
</tr>
<tr>
<td>Auction Websites</td>
<td>5.81</td>
<td>.057</td>
<td>6.00</td>
<td>6</td>
<td>.998</td>
</tr>
</tbody>
</table>

**Correlation Analysis for Research Question 2**

In Research Question 2, correlation analysis was employed to examine the relationships between the three independent variables (Search Engines, Online Shopping Malls, and Auction Websites) and the dependent variable (Receptivity to Online Shopping). That means correlation analysis was employed to measure whether research Hypotheses 4, 5, and 6 were supported. As shown in Table 12, the coefficients were
positive $(1 > r > 0)$, and a statistically significant difference at $p \leq .01$ level was between the three independent variables and the dependent variable.

The most statistically significant correlations with Receptivity to Online Shopping from highest to lowest were:

1. Online Shopping Malls: The score of correlation between Online Shopping Malls and Receptivity to Online Shopping was $r = .518$ and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$). Among the independent variables, Online Shopping Malls had the strongest relationship to Receptivity to Online Shopping in Research Question 2. Therefore, the findings supported Hypothesis 5.

2. Search Engines: The score of correlation between Search Engines and Receptivity to Online Shopping was $r = .408$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$). This indicated Search Engines was the second critical factor to Receptivity to Online Shopping in Research Question 2. Therefore, the findings supported Hypothesis 4.

3. Auction Websites: The score of correlation between Auction Websites and Receptivity to Online Shopping was $r = .398$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$). This indicated Auction Websites was the third critical factor to Receptivity to Online Shopping in Research Question 2. Therefore, the findings supported Hypothesis 6.
Table 12

The Results of Correlation Analysis for the Dependent Variable (Receptivity to Online Shopping) and the Three Independent Variables (Search Engines, Online Shopping Malls, and Auction Websites) (N=309)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Search Engines</th>
<th>Online Shopping Malls</th>
<th>Auction Websites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptivity to Online Shopping (Pearson r)</td>
<td>.408</td>
<td>.518</td>
<td>.398</td>
</tr>
<tr>
<td>Sig. (two-tailed)</td>
<td>.000**</td>
<td>.000**</td>
<td>.000**</td>
</tr>
</tbody>
</table>

**p ≤ .01

The findings reveal that Search Engines and Online Shopping Malls had strong positive relationship to Receptivity to Online Shopping. Auction Websites had a moderate correlation with Receptivity to Online Shopping. The correlation between the three independent variables and Receptivity to Online Shopping was statistically significant at the p ≤ .01 level (p = .000).

Independent Samples t-Test Analysis for Question 2

In Research Question 2, the independent sample t-test analysis was adopted to explore the variables (Search Engines, Online Shopping Malls, and Auction Websites) and to determine whether there were different tendencies among Gender, Online Shopping Experience, and Other Purchase Experience. Table 13 presents the mean scores for Gender on the variables. The table also presents the results of the two-tailed significant differences between males and females. The final results reveal that there was no significant difference among the independent variables as to Gender.
Table 13

The Result of Independent Samples t-Test for Gender

<table>
<thead>
<tr>
<th>Variable</th>
<th>Males (N=139)</th>
<th>Females (N=170)</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search Engines</td>
<td>6.05</td>
<td>6.17</td>
<td>.314</td>
</tr>
<tr>
<td>Online Shopping Malls</td>
<td>5.94</td>
<td>6.10</td>
<td>.139</td>
</tr>
<tr>
<td>Auction Websites</td>
<td>5.71</td>
<td>5.85</td>
<td>.280</td>
</tr>
</tbody>
</table>

*p ≤ .05

Table 14 displays the mean scores for Online Shopping Experience on the variables (Search Engines, Online Shopping Malls, and Auction Websites). The table also displays the results of the two-tailed significant difference between “Having Online Shopping Experience” and “Not Having Online Shopping Experience.”

The final result indicates that among the three variables, Online Shopping Malls and Auction Websites had significant differences with Online Shopping Experience. In Online Shopping Malls, the independent samples t-test analysis indicates that the 216 participants with online shopping experience had an $M = 6.17$; the 93 participants without online shopping experience had an $M = 5.76$ in this study, which had the score of mean difference .41. The means differed significantly at the $p < .01$ ($p = .000$). In Auction Websites, the independent samples t-test analysis indicated that the 216 participants with online shopping experience had an $M = 5.89$; the 93 participants without online shopping experience had an $M = 5.60$ in this study, which had the score of mean difference .29. The means differed significantly at the $p < .05$ ($p = .019$).
### Table 14

*The Result of Independent Samples t-Test for Online Shopping Experience*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Having Experience (N=216) Mean</th>
<th>Not Having Experience (N=93) Mean</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search Engines</td>
<td>6.15</td>
<td>6.10</td>
<td>.637</td>
</tr>
<tr>
<td>Online Shopping Malls</td>
<td>6.17</td>
<td>5.76</td>
<td>.000**</td>
</tr>
<tr>
<td>Auction Websites</td>
<td>5.89</td>
<td>5.60</td>
<td>.019*</td>
</tr>
</tbody>
</table>

*p ≤ .05  **p ≤ .01

The table also displays the results of the two-tailed significant difference between “Having Experience” and “Not Having Experience.”

### Table 15

*The Result of Independent Samples t-Test for Other Purchase Experience*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Having Experience (N=218) Mean</th>
<th>Not Having Experience (N=91) Mean</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search Engines</td>
<td>6.22</td>
<td>6.10</td>
<td>.319</td>
</tr>
<tr>
<td>Online Shopping Malls</td>
<td>6.09</td>
<td>6.03</td>
<td>.613</td>
</tr>
<tr>
<td>Auction Websites</td>
<td>5.82</td>
<td>5.78</td>
<td>.772</td>
</tr>
</tbody>
</table>

*p ≤ .05

The table also displays the results of the two-tailed significant difference between “Having Other Purchase Experience” and “Not Having Other Purchase Experience.”
The final results reveal that there was no significant difference among the independent variables with Other Purchase Experience.

**One-way ANOVA Analysis for Research Question 2**

In this study, one-way ANOVA analysis was employed to explore whether there were any statistically differences among the Internet Experience groups related to the variables (Search Engines, Online Shopping Malls, and Auction Websites). Table 16 below presents the result of ANOVA analysis related to Internet Experience and Search Engines. There was no significant difference among the four groups at the $p \leq .01$ level. However, Group 2 and Group 3 differed significantly from each other at $p \leq .05$ ($p = 0.043$) and Group 2 and Group 4 had a marginally significant difference at $p = .092$. According to the descriptive data analysis, Internet Experience Group 3 had the highest $M = 6.26$ than other groups in Search Engines. Internet Experience Group 2 had the lowest $M = 5.96$ than other groups in Search Engines. The result indicated that all four Internet Experience groups tended to think Search Engines was a critical factor for information search.

Table 16

*ANOVA and Post Hoc Comparisons of Significant Differences for Search Engines*

<table>
<thead>
<tr>
<th>Search Engines</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4.934</td>
<td>3</td>
<td>1.645</td>
<td>1.822</td>
<td>.143</td>
</tr>
<tr>
<td>Within Groups</td>
<td>275.357</td>
<td>305</td>
<td>.903</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>280.291</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 16 (continued)

Multiple Comparisons

Dependent Variable: Search Engines

LSD

<table>
<thead>
<tr>
<th>(I) Experience Group</th>
<th>(J) Experience Group</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>.087</td>
<td>.162</td>
<td>.591</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>-.220</td>
<td>.150</td>
<td>.142</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>-.181</td>
<td>.157</td>
<td>.252</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>-.087</td>
<td>.162</td>
<td>.591</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>-.307*</td>
<td>.151</td>
<td>.043</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>-.268</td>
<td>.159</td>
<td>.092</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>.220</td>
<td>.150</td>
<td>.142</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>.307*</td>
<td>.151</td>
<td>.043</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>.039</td>
<td>.146</td>
<td>.787</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>.181</td>
<td>.157</td>
<td>.252</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>.268</td>
<td>.159</td>
<td>.092</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>.039</td>
<td>.146</td>
<td>.787</td>
</tr>
</tbody>
</table>

“1” = 2 year or less  “2” = 3~4 years  “3” = 5~6 years  “4” = 7 years or more  *p ≤ .05

Table 17 displays the result of ANOVA analysis related to Internet Experience and Online Shopping Malls. There were significant differences among the four groups at the .014 level. In Table 16, the asterisks (*) indicated there were three pairs of groups (Group 1 and Group 2, Group 1 and Group 3, Group 1 and Group 4) whose means differed significantly (p ≤ .05) from each other. According to the descriptive data analysis, Internet Experience Group 3 had the highest $M = 6.19$ than other groups in Online Shopping Malls. Internet Experience Group 1 had the lowest $M = 5.76$ than other groups in Online Shopping Malls. The result indicated that Group 3 paid much attention to Online Shopping Malls, and all four groups tended to "agree" Online Shopping Malls was a critical factor in the information search stage (Group 1 was close to "agree").
Table 17

ANOVA and Post Hoc Comparisons of Significant Differences for Online Shopping Malls

<table>
<thead>
<tr>
<th>Online Shopping Malls</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>8.244</td>
<td>3</td>
<td>2.748</td>
<td>3.612</td>
<td>.014</td>
</tr>
<tr>
<td>Within Groups</td>
<td>232.027</td>
<td>305</td>
<td>.761</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>240.272</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Multiple Comparisons

Dependent Variable: Online Shopping Malls

LSD

<table>
<thead>
<tr>
<th>(I) Experience Group</th>
<th>(J) Experience Group</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>-.316*</td>
<td>.149</td>
<td>.034</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>-.432**</td>
<td>.137</td>
<td>.002</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>-.361*</td>
<td>.144</td>
<td>.013</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>.316*</td>
<td>.149</td>
<td>.034</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>-.116</td>
<td>.139</td>
<td>.403</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>-.045</td>
<td>.146</td>
<td>.758</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>.432**</td>
<td>.137</td>
<td>.002</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>.116</td>
<td>.139</td>
<td>.403</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>.071</td>
<td>.134</td>
<td>.597</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>.361*</td>
<td>.144</td>
<td>.013</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>.045</td>
<td>.146</td>
<td>.758</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>-.071</td>
<td>.134</td>
<td>.597</td>
</tr>
</tbody>
</table>

*p<.05   **p<.01

Table 18 presents the result of ANOVA analysis related to Internet Experience and Auction Websites. There was no significant difference among the four groups at the .01 level. However, Group 1 and Group 3 differed significantly from each other at
\[ p \leq .05 \ (p = 0.034) \], and Group 1 and Group 4 had a marginally significant difference at \( p = .051 \).

Table 18

ANOVA and Post Hoc Comparisons of Significant Differences for Auction Websites

<table>
<thead>
<tr>
<th>Auction Websites</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>5.387</td>
<td>3</td>
<td>1.796</td>
<td>1.808</td>
<td>.146</td>
</tr>
<tr>
<td>Within Groups</td>
<td>302.963</td>
<td>305</td>
<td>.993</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>308.350</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Multiple Comparisons

Dependent Variable: Auction Websites

LSD

<table>
<thead>
<tr>
<th>(I) Experience Group</th>
<th>(J) Experience Group</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>-.237</td>
<td>.170</td>
<td>.163</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-.334*</td>
<td>.157</td>
<td>.034</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>-.323</td>
<td>.165</td>
<td>.051</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>.237</td>
<td>.170</td>
<td>.163</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-.096</td>
<td>.158</td>
<td>.543</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>-.086</td>
<td>.166</td>
<td>.606</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>.334*</td>
<td>.157</td>
<td>.034</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.096</td>
<td>.158</td>
<td>.543</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>.011</td>
<td>.153</td>
<td>.945</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>.323</td>
<td>.165</td>
<td>.051</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.086</td>
<td>.166</td>
<td>.606</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-.011</td>
<td>.153</td>
<td>.945</td>
</tr>
</tbody>
</table>

“1” = 2 year or less  “2” = 3–4 years  “3” = 5–6 years  “4” = 7 years or more
*p \leq .05

According to the descriptive data analysis, Internet Experience Group 3 had the highest \( M = 5.91 \) than other groups in Auction Websites. Internet Experience Group 1
had the lowest $M = 5.57$ than other groups in Auction Websites. The result indicated that all Internet Experience groups nearly unanimously agreed that Auction Websites was a critical factor for an information search.

**Summary for Research Question 2**

Results of Research Question 2 indicated that Search Engines and Online Shopping Malls had a strong positive correlation to Receptivity to Online Shopping; and Auction Websites had a moderately positive correlation to Receptivity to Online Shopping. Therefore, hypotheses 4, 5 and 6 were supported. As to Hypothesis 7, only Online Shopping Malls and Auction Websites had significant differences with Online Shopping Experience; and Online Shopping Malls had significant difference among the four Internet Experience groups. Therefore, Hypothesis 7 was partly supported. These findings indicated that Search Engines, Online Shopping Malls, and Auction Websites serve as information search channels and may facilitate consumers making online purchase decisions.

**Research Question 3**

What are the critical factors in the alternatives evaluation stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?

**Descriptive Analysis for Research Question 3**

The report of frequencies count about in the variables (Convenience, Price and Brand) showed that Convenience had the highest $M = 5.93$ ($SD = 1.065$). Brand had the
second highest \(M = 5.76\) (\(SD = 1.067\)). Price had the lowest \(M = 5.72\) (\(SD = 1.036\)).

Table 19 presents the basic descriptive data of Convenience, Price, and Brand.

**Table 19**

*The Result of Frequencies Count for Convenience, Price and Brand (\(N=309\))*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Error of Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>5.93</td>
<td>.061</td>
<td>6.00</td>
<td>7</td>
<td>1.065</td>
</tr>
<tr>
<td>Price</td>
<td>5.72</td>
<td>.059</td>
<td>6.00</td>
<td>6</td>
<td>1.036</td>
</tr>
<tr>
<td>Brand</td>
<td>5.76</td>
<td>.061</td>
<td>6.00</td>
<td>6</td>
<td>1.067</td>
</tr>
</tbody>
</table>

**Correlation Analysis for Research Question 3**

In Research Question 3, correlation analysis was employed to examine the relationships among the three independent variables (Convenience, Price, and Brand) and the dependent variable (Receptivity to Online Shopping). That means correlation analysis was employed to measure Hypotheses 8, 9, and 10 whether were supported. As shown in Table 20, the coefficients were positive (\(1 > r > 0\)) and had a statistical significantly difference at \(p \leq .01\) level between the independent variables and the dependent variable.

The most statistically significant correlations with Receptivity to Online Shopping from highest to lowest were:

1. Convenience: The score of correlation between Convenience and Receptivity to Online Shopping was \(r = .562\), and the relationship was statistically significant at the \(p \leq .01\) level (\(p = .000\)). Among the independent variables, Convenience had the strongest relationship to Receptivity to Online Shopping.
in Research Question 3. Therefore, the findings supported Hypothesis 8;  

2. Price: The score of correlation between Price and Receptivity to Online Shopping was $r = .515$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$). This indicated Price was the second critical factor to Receptivity to Online Shopping in Research Question 3. Therefore, the findings supported Hypothesis 9; and  

3. Brand: The score of correlation between Brand and Receptivity to Online Shopping was $r = .354$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$). This indicated Brand was the third critical factor to Receptivity to Online Shopping in Research Question 3. Therefore, the findings supported Hypothesis 10.  

Table 20  

*The Results of Correlation Analysis for the Dependent Variable (Receptivity to Online Shopping) and the Three Independent Variables (Convenience, Price, and Brand) (N=309)*  

<table>
<thead>
<tr>
<th>Variables</th>
<th>Convenience</th>
<th>Price</th>
<th>Brand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptivity to Online Shopping (Pearson $r$)</td>
<td>.562</td>
<td>.515</td>
<td>.354</td>
</tr>
<tr>
<td>Sig. (two-tailed)</td>
<td>.000**</td>
<td>.000**</td>
<td>.000**</td>
</tr>
</tbody>
</table>

**$p \leq .01$**  

The findings reveal that Convenience and Price had a strong positive relationship with Receptivity to Online Shopping. Brand had a moderate correlation with Receptivity to Online Shopping. The correlation between the three independent
variables and Receptivity to Online Shopping was statistically significant at the $p \leq .01$ level ($p = .000$).

**Independent Samples t-Test Analysis for Question 3**

In Research Question 3, the independent sample $t$-test analysis was adopted to explore the variables (Convenience, Price, and Brand) and to ascertain whether there were different tendencies among Gender, Online Shopping Experience, and Other Purchase Experience. Table 21 presents the mean scores for Gender on the variables. The table also presents the results of the two-tailed significant difference between males and females.

The final results reveal that there were no significant differences among the independent variables with Gender. However, Price had a marginally significant difference with Gender at $p = .084$, which meant males were higher than females at the level of believing Price was a critical factor in the stage of alternatives evaluation.

**Table 21**

*The Result of Independent Samples t-Test for Gender*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Males (N=139) Mean</th>
<th>Females (N=170) Mean</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>5.89</td>
<td>5.95</td>
<td>.676</td>
</tr>
<tr>
<td>Price</td>
<td>5.87</td>
<td>5.65</td>
<td>.084</td>
</tr>
<tr>
<td>Brand</td>
<td>5.7</td>
<td>5.78</td>
<td>.549</td>
</tr>
</tbody>
</table>

* $p \leq .05$

Table 22 presents the mean scores for Online Shopping Experience on the variables (Convenience, Price, and Brand). The table also presents the results of the
two-tailed significant difference between “Having Online Shopping Experience” and “Not Having Online Shopping Experience.”

Table 22

The Result of Independent Samples t-Test for Online Shopping Experience

<table>
<thead>
<tr>
<th>Variable</th>
<th>Having Experience (N=216) Mean</th>
<th>Not Having Experience (N=93) Mean</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>6.15</td>
<td>5.42</td>
<td>.000**</td>
</tr>
<tr>
<td>Price</td>
<td>5.84</td>
<td>5.41</td>
<td>.001**</td>
</tr>
<tr>
<td>Brand</td>
<td>5.75</td>
<td>5.78</td>
<td>.765</td>
</tr>
</tbody>
</table>

**p ≤ .01

The final result indicated that among the variables, Convenience and Price had significant difference with Online Shopping Experience, which meant online shoppers tended to agree that convenience and price were critical factors for online shopping. However, brand had no significant difference with Online Shopping Experience.

Table 23 presents the mean scores for Other Purchase Experience related to the variables (Convenience, Price, and Brand). The table also presents the results of the two-tailed significant difference between “Having Other Purchase Experience” and “Not Having Other Purchase Experience.”

The final result indicated that among the variables, Convenience, Price, and Brand had significant differences with Other Purchase Experience at \( p \leq .05 \) levels, which meant online shoppers tended to agree that convenience, price, and brand were critical factors for online shopping.
Table 23

The Result of Independent Samples t-Test for Other Purchase Experience

<table>
<thead>
<tr>
<th>Variable</th>
<th>Having Experience (N=218) Mean</th>
<th>Not Having Experience (N=91) Mean</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>6.03</td>
<td>5.69</td>
<td>.010**</td>
</tr>
<tr>
<td>Price</td>
<td>5.83</td>
<td>5.69</td>
<td>.025*</td>
</tr>
<tr>
<td>Brand</td>
<td>5.84</td>
<td>5.56</td>
<td>.036*</td>
</tr>
</tbody>
</table>

*p ≤ .05    **p ≤ .01

One-way ANOVA Analysis for Research Question 3

In this study, one-way ANOVA analysis was employed to explore whether there were any statistical differences among the Internet Experience groups related to the variables (Convenience, Price, and Brand). Table 24 presents the result of ANOVA analysis related to Internet Experience and Convenience. There were significant differences among the four groups at the \( p \leq .05 \) level. The asterisk (*) indicated there were three pairs of groups (Group 1 and Group 2, Group 1 and Group 3, Group 1 and Group 4) whose means differed significantly from each other.

According to the descriptive data analysis, Internet Experience Group 3 had the highest \( M = 6.13 \) than other groups in Convenience. Internet Experience Group 1 had the lowest \( M = 5.59 \) than other groups in Convenience. The result indicated that among four Internet Experience groups, Group 3 tended to think Convenience was a critical factor in alternatives evaluation stage. However, Group 1 nearly unanimously "agreed" that Convenience was a critical factor in the alternatives evaluation stage.
Table 24

ANOVA and Post Hoc Comparisons of Significant Differences for Convenience

<table>
<thead>
<tr>
<th>Convenience</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>12.248</td>
<td>3</td>
<td>4.083</td>
<td>3.692</td>
<td>.012*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>337.324</td>
<td>305</td>
<td>1.106</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>349.573</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Multiple Comparisons

Dependent Variable: Convenience

LSD

<table>
<thead>
<tr>
<th>(I) Experience Group</th>
<th>(J) Experience Group</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>-.370*</td>
<td>.179</td>
<td>.040</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>-.541**</td>
<td>.166</td>
<td>.001</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>-.401*</td>
<td>.174</td>
<td>.022</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>.370*</td>
<td>.179</td>
<td>.040</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>-.170</td>
<td>.167</td>
<td>.308</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>-.031</td>
<td>.176</td>
<td>.860</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>.541**</td>
<td>.166</td>
<td>.001</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>.170</td>
<td>.167</td>
<td>.308</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>.139</td>
<td>.162</td>
<td>.389</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>.401</td>
<td>.174</td>
<td>.022</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>.031</td>
<td>.176</td>
<td>.860</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>-1.39</td>
<td>.162</td>
<td>.389</td>
</tr>
</tbody>
</table>

*1” = 2 year or less  “2” = 3~4 years  “3” = 5~6 years  “4” = 7 years or more
*p ≤ .05  **p ≤ .01

Table 25 displays the result of ANOVA analysis related to Internet Experience

and Price. There were significant differences among the four groups at the .05 level.

The asterisks (*) indicated there were two pairs of groups (Group 1 and Group 3, Group 3

180
and Group 4) whose means differed significantly \( (p \leq .05) \). Furthermore, Group 1 and Group 2, Group 2 and Group 4 had a marginally significant difference.

Table 25

*ANOVA and Post Hoc Comparisons of Significant Differences for Price*

<table>
<thead>
<tr>
<th>Price</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>9.683</td>
<td>3</td>
<td>3.228</td>
<td>3.068</td>
<td>.028*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>320.822</td>
<td>305</td>
<td>1.052</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>330.505</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Multiple Comparisons*

Dependent Variable: Price

LSD

```
(I) Experience Group  (J) Experience Group  Mean Difference (I-J)  Std. Error  Sig.
1  2  -.324  .175  .065
1  3  -.402*  .162  .013
1  4  -.038  .170  .822
2  1  .324  .175  .065
2  3  -.078  .163  .634
2  4  .286  .171  .096
3  1  .402*  .162  .013
3  2  .078  .163  .634
3  4  .363  .158  .022
4  1  .038  .170  .822
4  2  -.286  .171  .096
4  3  -.363*  .158  .022
```

"1" = 2 year or less  "2" = 3-4 years  "3" = 5-6 years  "4" = 7 years or more

*  \( p \leq .05 \)

According to the descriptive data analysis, Internet Experience Group 3 had the highest \( M = 5.92 \) than other groups in Price. Internet Experience group 1 had the lowest
$M = 5.51$ than other groups in Price. The result indicated that among four Internet Experience groups, Group 3 tended to think Price was a critical factor in the alternatives evaluation stage. However, Group 1 tended to "slightly agree" that Price was a critical factor.

Table 26 displays the result of ANOVA analysis related to Internet Experience and Brand. There was no significant difference among the four groups at the .05 level. However, Group 1 and Group 2, Group 1 and Group 3, and Group 1 and Group 4 had a marginally significant difference. According to the descriptive data analysis, Internet Experience Group 2 had the highest $M = 5.85$ than other groups in Brand. Internet Experience Group 1 had the lowest $M = 5.51$ than other groups in Brand. The result indicated that all four Internet Experience groups tended to "slightly agree" that Brand was a critical factor in the alternatives evaluation stage.

Table 26

**ANOVA and Post Hoc Comparisons of Significant Differences for Brand**

<table>
<thead>
<tr>
<th>Brand</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>5.402</td>
<td>3</td>
<td>1.801</td>
<td>1.590</td>
<td>.192</td>
</tr>
<tr>
<td>Within Groups</td>
<td>345.394</td>
<td>305</td>
<td>1.132</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>350.796</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Multiple Comparisons

Dependent Variable: Brand

LSD

<table>
<thead>
<tr>
<th>(I) Experience Group</th>
<th>(J) Experience Group</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>-.339</td>
<td>.181</td>
<td>.063</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>-.307</td>
<td>.168</td>
<td>.068</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>-.302</td>
<td>.176</td>
<td>.088</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>.339</td>
<td>.181</td>
<td>.063</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>.032</td>
<td>.169</td>
<td>.850</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>.037</td>
<td>.178</td>
<td>.834</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>.307</td>
<td>.168</td>
<td>.068</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>-.032</td>
<td>.169</td>
<td>.850</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>.005</td>
<td>.164</td>
<td>.974</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>.302</td>
<td>.176</td>
<td>.088</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>-.037</td>
<td>.178</td>
<td>.834</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>-.005</td>
<td>.164</td>
<td>.974</td>
</tr>
</tbody>
</table>

*1* = 2 year or less  
*2* = 3-4 years  
*3* = 5-6 years  
*4* = 7 years or more  

*p* ≤ .05

Summary for Research Question 3

Results of Research Question 3 indicated that Convenience and Price both had a strong positive correlation to Receptivity to Online Shopping; and Brand had a moderately positive correlation to Receptivity to Online Shopping. Therefore, Hypotheses 8, 9 and 10 were supported. As to Hypothesis 11, only Convenience and Price had significant differences with Online Shopping Experience; Convenience, Price and Brand had significant difference with Other Purchase Experience; Internet Experience and Convenience were significantly different among the four groups (three pairs): Group 1 and Group 2, Group 1 and Group 3, Group 1 and Group 4; and Internet Experience and Price were significantly different among the four groups (two pairs):
Group 1 and Group 3, Group 3 and Group 4. Therefore, Hypothesis 11 was partly supported. These findings indicated that Convenience, Price and Brand were critical factors in the alternatives evaluation stage and may facilitate the consumer making online purchase decisions.

**Research Question 4**

What are the critical factors in the purchase decision stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?

**Descriptive Analysis for Question 4**

The report of frequencies count about in the variables (Security, Promotion, and Refund) showed that Security had the highest $M = 6.71$ ($SD = .624$). Refund had the second highest $M = 6.14$ ($SD = .992$). Promotion had the lowest $M = 4.94$ ($SD = 1.029$). Table 27 presents the basic descriptive data of Security, Promotion, and Refund.

**Table 27**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Error of Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security</td>
<td>6.71</td>
<td>.035</td>
<td>7.00</td>
<td>7</td>
<td>.624</td>
</tr>
<tr>
<td>Promotion</td>
<td>4.94</td>
<td>.059</td>
<td>5.00</td>
<td>4</td>
<td>1.029</td>
</tr>
<tr>
<td>Refund</td>
<td>6.14</td>
<td>.056</td>
<td>6.00</td>
<td>7</td>
<td>.992</td>
</tr>
</tbody>
</table>

184
In Research Question 4, correlation analysis was employed to examine the relationships among the three independent variables (Security, Promotion, and Refund) and the dependent variable (Receptivity to Online Shopping). That means correlation analysis was employed to measure whether Hypotheses 12, 13, and 14 were supported. As shown in Table 28, the coefficients are positive ($1 > r > 0$) and are statistically significant difference at the $p \leq .01$ level between the independent variables and the dependent variable.

Table 28

*The Results of Correlation Analysis for the Dependent Variable (Purchase Decision) and the Three Independent Variables (Security, Promotion, and Refund) (N=309)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Security</th>
<th>Promotion</th>
<th>Refund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptivity to Online Shopping (Pearson $r$)</td>
<td>.594</td>
<td>.332</td>
<td>.413</td>
</tr>
<tr>
<td>Sig. (two- tailed)</td>
<td>.000**</td>
<td>.000**</td>
<td>.000**</td>
</tr>
</tbody>
</table>

**$p \leq .01$**

The most statistically significant correlations with Receptivity to Online Shopping from highest to lowest were:

1. Security: The score of correlation between Security and Receptivity to Online Shopping was $r = .594$ and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$). Among the independent variables, Security had the strongest relationship to Receptivity to Online Shopping in Research Question 4. Therefore, the findings supported Hypothesis 12;

2. Refund: The score of correlation between Refund and Receptivity to Online Shopping was $r = .413$ and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$).
Shopping was \( r = .413 \), and the relationship was statistically significant at the \( p \leq .01 \) level \( (p = .000) \). This indicated Refund was the second critical factor to Receptivity to Online Shopping in Research Question 4. Therefore, the findings supported Hypothesis 14; and

3. Promotion: The score of correlation between Promotion and Receptivity to Online Shopping was \( r = .332 \), and the relationship was statistically significant at the \( p \leq .01 \) level \( (p = .000) \). This indicated Promotion was the third critical factor to Receptivity to Online Shopping in Research Question 4. Therefore, the findings supported Hypothesis 13.

The findings reveal that Security and Refund had a strong positive relationship with Receptivity to Online Shopping. Brand had a moderate correlation with Receptivity to Online Shopping. The correlation between the three independent variables and Receptivity to Online Shopping was statistically significant at the \( p \leq .01 \) level \( (p = .000) \).

**Independent Samples t-Test Analysis for Research Question 4**

In Research Question 4, the independent sample \( t \)-test analysis was adopted to explore the three independent variables (Security, Promotion, and Refund) and to determine whether there were different tendencies among Gender, Online Shopping Experience, and Other Purchase Experience. Table 29 presents the mean scores for Gender on the variables. The table also presents the results of the two-tailed significant difference between males and females. The final results reveal that there was no significant difference among the independent variables with Gender.
### Table 29

**The Result of Independent Samples t-Test for Gender**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Males (N=139) Mean</th>
<th>Females (N=170) Mean</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security</td>
<td>6.71</td>
<td>6.71</td>
<td>.940</td>
</tr>
<tr>
<td>Promotion</td>
<td>4.82</td>
<td>4.99</td>
<td>.178</td>
</tr>
<tr>
<td>Refund</td>
<td>6.11</td>
<td>6.15</td>
<td>.702</td>
</tr>
</tbody>
</table>

* $p \leq .05$

Table 30 presents the mean scores for Online Shopping Experience on the variables (Security, Promotion, and Refund). The table also presents the results of the two-tailed significant difference between “Having Online Shopping Experience” and “Not Having Online Shopping Experience.”

### Table 30

**The Result of Independent Samples t-Test for Online Shopping Experience**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Having Experience (N=216) Mean</th>
<th>Not Having Experience (N=93) Mean</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security</td>
<td>6.71</td>
<td>6.71</td>
<td>.986</td>
</tr>
<tr>
<td>Promotion</td>
<td>5.02</td>
<td>4.75</td>
<td>.037*</td>
</tr>
<tr>
<td>Refund</td>
<td>6.11</td>
<td>6.22</td>
<td>.378</td>
</tr>
</tbody>
</table>

* $p \leq .05$
The final result indicated that among the variables, only Promotion had a significant difference with Online Shopping Experience, which meant online shoppers tended to think Promotion was a critical factor for online shopping.

Table 31 presents the mean scores for Other Purchase Experience related to the variables (Security, Promotion, and Refund). The table also presents the results of the two-tailed significant difference between “Having Other Purchase Experience” and “Not Having Other Purchase Experience.”

Table 31

<table>
<thead>
<tr>
<th>Variable</th>
<th>Having Experience (N=218) Mean</th>
<th>Not Having Experience (N=91) Mean</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security</td>
<td>6.70</td>
<td>6.73</td>
<td>.764</td>
</tr>
<tr>
<td>Promotion</td>
<td>5.02</td>
<td>4.74</td>
<td>.025*</td>
</tr>
<tr>
<td>Refund</td>
<td>6.23</td>
<td>5.91</td>
<td>.009**</td>
</tr>
</tbody>
</table>

*p ≤ .05    *p ≤ .05

The final result indicated that among the variables, Promotion and Refund had a significant difference with Other Purchase Experience. However, Security had no significant difference with Other Purchase Experience, which meant all participants thought Security was a crucial factor for online shopping.

One-way ANOVA Analysis for Research Question 4

In this study, one-way ANOVA analysis was employed to explore whether there were any statistical differences among the Internet Experience groups related to the
variables (Security, Promotion, and Refund). Table 32 presents the result of ANOVA analysis related to Internet Experience and Security.

Table 32

ANOVA and Post Hoc Comparisons of Significant Differences for Security

<table>
<thead>
<tr>
<th>Security</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2.704</td>
<td>3</td>
<td>.901</td>
<td>2.348</td>
<td>.073</td>
</tr>
<tr>
<td>Within Groups</td>
<td>117.083</td>
<td>305</td>
<td>.384</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>119.786</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Multiple Comparisons

Dependent Variable: Security

LSD

<table>
<thead>
<tr>
<th>(I) Experience Group</th>
<th>(J) Experience Group</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>-.018</td>
<td>.105</td>
<td>.861</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>-.056</td>
<td>.098</td>
<td>.569</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>-.240*</td>
<td>.103</td>
<td>.020</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>.018</td>
<td>.105</td>
<td>.861</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>-.037</td>
<td>.098</td>
<td>.706</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>-.221*</td>
<td>.103</td>
<td>.033</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>.056</td>
<td>.098</td>
<td>.569</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>.037</td>
<td>.098</td>
<td>.706</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>-.184</td>
<td>.095</td>
<td>.054</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>.240*</td>
<td>.103</td>
<td>.020</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>.221*</td>
<td>.103</td>
<td>.033</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>.184</td>
<td>.095</td>
<td>.054</td>
</tr>
</tbody>
</table>

“1” = 2 year or less “2” = 3-4 years “3” = 5-6 years “4” = 7 years or more
* p <= .05

There was a marginally significant difference among the four groups at the .073 level. The asterisks (*) indicates two pairs of groups (Group 1 and Group 4, Group 2...
and Group 4) whose means differed significantly ($p \leq .05$) from each other. According to the descriptive data analysis, Internet Experience Group 4 had the highest $M = 6.87$ than other groups in Security. Internet Experience Group 1 had the lowest $M = 6.63$ than other groups in Security. The result indicated that all four Internet Experience groups tended to believe Security was a critical factor in the purchase decision stage.

Table 33 displays the result of ANOVA analysis related to Internet Experience and Promotion. There was no significant difference among the four groups at the $p \leq .05$ level. According to the descriptive data analysis, Internet Experience Group 2 had the highest $M = 5.01$ than other groups in Promotion. Internet Experience Group 1 had the lowest $M = 4.77$ than other groups in Promotion. The total mean was 4.94, which indicated that all four Internet Experience groups tended to “slightly agree” that Promotion was a critical factor for purchase decisions.

Table 33

ANOVA and Post Hoc Comparisons of Significant Differences for Promotion

<table>
<thead>
<tr>
<th>Promotion</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>4.812</td>
<td>3</td>
<td>1.604</td>
<td>1.524</td>
<td>.208</td>
</tr>
<tr>
<td>Within Groups</td>
<td>321.020</td>
<td>305</td>
<td>1.053</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>325.832</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Multiple Comparisons

Dependent Variable: Promotion

LSD

<table>
<thead>
<tr>
<th>(I) Experience Group</th>
<th>(J) Experience Group</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>-.332</td>
<td>.175</td>
<td>.059</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>-.239</td>
<td>.162</td>
<td>.140</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>-.084</td>
<td>.170</td>
<td>.622</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>.332</td>
<td>.175</td>
<td>.059</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>.092</td>
<td>.163</td>
<td>.571</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>.248</td>
<td>.171</td>
<td>.149</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>.239</td>
<td>.162</td>
<td>.140</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>-.092</td>
<td>.163</td>
<td>.571</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>.155</td>
<td>.158</td>
<td>.326</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>.084</td>
<td>.170</td>
<td>.622</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>-.248</td>
<td>.171</td>
<td>.149</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>-.155</td>
<td>.158</td>
<td>.326</td>
</tr>
</tbody>
</table>

"1" = 2 year or less "2" = 3-4 years "3" = 5-6 years "4" = 7 years or more
*p ≤ .05

Table 34 displays the result of ANOVA analysis related to Internet Experience and Refund. There was significant difference among the four groups at the *p ≤ .05 level.

According to the descriptive data analysis, Internet Experience Group 4 had the highest $M = 6.18$ than other groups in Refund. Internet Experience Group 3 had the lowest $M = 6.08$ than other groups in Refund. The total mean was 6.14, which indicated that all four Internet Experience groups tended to agree that Refund was a critical factor for purchase decision.
Table 34

**ANOVA and Post Hoc Comparisons of Significant Differences for Refund**

<table>
<thead>
<tr>
<th>Refund</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>.468</td>
<td>3</td>
<td>.156</td>
<td>.157</td>
<td>.925</td>
</tr>
<tr>
<td>Within Groups</td>
<td>302.548</td>
<td>305</td>
<td>.992</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>303.016</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Multiple Comparisons**

Dependent Variable: Refund

LSD

<table>
<thead>
<tr>
<th>(I) Experience Group</th>
<th>(J) Experience Group</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>.010</td>
<td>.170</td>
<td>.953</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>.073</td>
<td>.157</td>
<td>.642</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>-.027</td>
<td>.165</td>
<td>.870</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>-.010</td>
<td>.170</td>
<td>.953</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>.063</td>
<td>.158</td>
<td>.691</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>-.037</td>
<td>.166</td>
<td>.823</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>-.073</td>
<td>.157</td>
<td>.642</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>-.063</td>
<td>.158</td>
<td>.691</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>-.100</td>
<td>.153</td>
<td>.515</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>.027</td>
<td>.165</td>
<td>.870</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>.037</td>
<td>.166</td>
<td>.823</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>.100</td>
<td>.153</td>
<td>.515</td>
</tr>
</tbody>
</table>

“1” = 2 year or less  “2” = 3-4 years  “3” = 5-6 years  “4” = 7 years or more
*p ≤ .05

**Summary for Research Question 4**

Results of Research Question 4 indicated that Security and Refund both had a strong positive correlation to Receptivity to Online Shopping; and Promotion had a moderately positive correlation to Receptivity to Online Shopping. Therefore,
Hypotheses 12, 13 and 14 were supported. As to Hypothesis 15, Promotion had significant difference with Online Shopping Experience; Promotion and Refund had significant differences with Other Purchase Experience; and Internet Experience and Security was significantly different among the groups (Group 1 and Group 4, Group 2 and Group 4). Therefore, Hypothesis 15 was partly supported. These findings indicated that Security, Promotion, and Refund were critical factors in the purchase decision stage and may facilitate consumers making online purchase decisions.

**Research Question 5**

What are the critical factors in the post-purchase decision stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?

**Descriptive Analysis for Research Question 5**

The report of frequencies count about in the variables (Satisfaction, Customized Information, and Discount) showed that Satisfaction had the highest $M = 5.94$ ($SD = 1.052$). Customized Information had the second highest $M = 5.75$ ($SD = .575$). Discount had the lowest mean score of 5.6 ($SD = 1.057$). Table 35 presents the basic descriptive data of Satisfaction, Customized Information, and Discount.
Table 35

The Result of Frequencies Count for Satisfaction, Customized Information, and Discount (N=309)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Error of Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>5.94</td>
<td>.060</td>
<td>6.00</td>
<td>6</td>
<td>1.052</td>
</tr>
<tr>
<td>Customized</td>
<td>5.75</td>
<td>.058</td>
<td>6.00</td>
<td>6</td>
<td>1.012</td>
</tr>
<tr>
<td>Information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discount</td>
<td>5.60</td>
<td>.060</td>
<td>6.00</td>
<td>6</td>
<td>1.057</td>
</tr>
</tbody>
</table>

Correlation Analysis for Research Question 5

In Research Question 5, correlation analysis was employed to examine the relationships among the three independent variables (Satisfaction, Customized Information, and Discount) and the dependent variable (Receptivity to Online Shopping). That means correlation analysis was employed to measure whether Hypotheses 16, 17, and 18 were supported. As shown in Table 36, the coefficients were positive (1 > r > 0) with a statistical significant difference at p ≤ .01 level between the independent variables and the dependent variable.

The most statistically significant correlations with Purchase Decision from highest to lowest were:

1. Satisfaction: The score of correlation between Satisfaction and Receptivity to Online Shopping was r = .572 and the relationship was statistically significant at the p ≤ .01 level (p = .000). Among the independent variables, Satisfaction had the strongest relationship to Receptivity to Online Shopping in Research Question 5. Therefore, the findings supported Hypothesis 16;
2. Discount: The score of correlation between Discount and Receptivity to Online Shopping was $r = .522$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$). This indicated Discount was the second critical factor to Receptivity to Online Shopping in Research Question 5. Therefore, the findings supported Hypothesis 18; and

3. Customized Information: The score of correlation between Customized Information and Receptivity to Online Shopping was $r = .479$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$). This indicated Customized Information was the third critical factor to Receptivity to Online Shopping in Research Question 5. Therefore, the findings supported Hypothesis 17.

Table 36

*The Results of Correlation Analysis for the Dependent Variable (Receptivity to Online Shopping) and the Three Independent Variables (Satisfaction, Customized Information, and Discount) (N=309)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Satisfaction</th>
<th>Customized Information</th>
<th>Discount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptivity to Online Shopping (Pearson $r$)</td>
<td>.572</td>
<td>.479</td>
<td>.522</td>
</tr>
<tr>
<td>Sig. (two-tailed)</td>
<td>.000**</td>
<td>.000**</td>
<td>.000**</td>
</tr>
</tbody>
</table>

**$p \leq .01$**

The findings reveal that Satisfaction, Customized Information, and Discount had a strong relationship with Receptivity to Online Shopping. The correlation between the three independent variables and Receptivity to Online Shopping was statistically significant at the $p \leq .01$ level ($p = .000$).

195
Independent Samples t-Test Analysis for Research Question 5

In Research Question 5, the independent sample t-test analysis was adopted to explore the variables (Satisfaction, Customized Information, and Discount) and to ascertain whether there were different tendencies among Gender, Online Shopping Experience, and Other Purchase Experience. Table 37 presents the mean scores for Gender on the variables. The table also presents the results of the two-tailed significant difference between males and females. The final results reveal that there was no significant difference among the independent variables with Gender.

Table 37
The Result of Independent-samples t-Test for Gender

<table>
<thead>
<tr>
<th>Variable</th>
<th>Males (N=139) Mean</th>
<th>Females (N=170) Mean</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>5.98</td>
<td>5.93</td>
<td>.684</td>
</tr>
<tr>
<td>Customized Information</td>
<td>5.83</td>
<td>5.72</td>
<td>.385</td>
</tr>
<tr>
<td>Discount</td>
<td>5.56</td>
<td>5.62</td>
<td>.676</td>
</tr>
</tbody>
</table>

*p ≤ .05

Table 38 presents the mean scores for Online Shopping Experience on the variables (Satisfaction, Customized Information, and Discount). The table also presents the results of the two-tailed significant difference between “Having Online Shopping Experience” and “Not Having Online Shopping Experience.”
### Table 38

*The Result of Independent Samples t-Test for Online Shopping Experience*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Having Experience (N=216) Mean</th>
<th>Not Having Experience (N=93) Mean</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>6.06</td>
<td>5.68</td>
<td>.004**</td>
</tr>
<tr>
<td>Customized Information</td>
<td>5.86</td>
<td>5.52</td>
<td>.006**</td>
</tr>
<tr>
<td>Discount</td>
<td>5.70</td>
<td>5.37</td>
<td>.010**</td>
</tr>
</tbody>
</table>

**p ≤ .01

The final result indicated that among the variables, Satisfaction, Customized Information, and Discount had significant difference with Online Shopping Experience, which meant online shoppers tended to think Satisfaction, Customized Information, and Discount were critical factors for online shopping.

Table 39 presents the mean scores for Other Purchase Experience related to the variables (Satisfaction, Customized Information, and Discount). The table also presents the results of the two-tailed significant difference between “Having Other Purchase Experience” and “Not Having Other Purchase Experience.” The final results reveal that there was no significant difference among the independent variables with Other Purchase Experience.
Table 39

The Result of Independent Samples t-Test for Other Purchase Experience

<table>
<thead>
<tr>
<th>Variable</th>
<th>Having Experience (N=154) Mean</th>
<th>Not Having Experience (N=153) Mean</th>
<th>Sig. (Two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>5.95</td>
<td>5.91</td>
<td>.749</td>
</tr>
<tr>
<td>Customized Information</td>
<td>5.73</td>
<td>5.81</td>
<td>.508</td>
</tr>
<tr>
<td>Discount</td>
<td>5.61</td>
<td>5.59</td>
<td>.927</td>
</tr>
</tbody>
</table>

*p ≤ .05

One-way ANOVA Analysis for Research Question 5

In this study, one-way ANOVA analysis was employed to explore whether there were any statistically differences among the Internet Experience groups related to the variables (Satisfaction, Customized Information, and Discount). Table 40 presents the result of ANOVA analysis related to Internet Experience and Satisfaction. There was no significant difference among the four groups at the .01 level.

According to the descriptive data analysis, Internet Experience Group 3 had the highest $M = 6.03$ than other groups in Satisfaction. Internet Experience Group 1 had the lowest $M = 5.8$ than other groups in Satisfaction. The total mean was 5.94, which indicated that all four Internet Experience groups tended to “agree” that Satisfaction was a critical factor in the post-purchase decision stage.
Table 40

*ANOVA and Post Hoc Comparisons of Significant Differences for Satisfaction*

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2.200</td>
<td>3</td>
<td>.733</td>
<td>.660</td>
<td>.577</td>
</tr>
<tr>
<td>Within Groups</td>
<td>338.752</td>
<td>305</td>
<td>1.111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>340.951</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Multiple Comparisons**

Dependent Variable: Satisfaction

LSD

<table>
<thead>
<tr>
<th>(I) Experience Group</th>
<th>(J) Experience Group</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>-.141</td>
<td>.179</td>
<td>.432</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-.232</td>
<td>.166</td>
<td>.164</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>-.161</td>
<td>.175</td>
<td>.359</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>.141</td>
<td>.179</td>
<td>.432</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-.090</td>
<td>.167</td>
<td>.590</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>-.019</td>
<td>.176</td>
<td>.912</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>.232</td>
<td>.166</td>
<td>.164</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.090</td>
<td>.167</td>
<td>.590</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>.071</td>
<td>.162</td>
<td>.662</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>.161</td>
<td>.175</td>
<td>.359</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.019</td>
<td>.176</td>
<td>.912</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>-.071</td>
<td>.162</td>
<td>.662</td>
</tr>
</tbody>
</table>

"1" = 2 year or less  "2" = 3-4 years  "3" = 5-6 years  "4" = 7 years or more

*p ≤ .05

Table 41 displays the result of ANOVA analysis related to Internet Experience and Customized Information. There was no significant difference among the four groups at the .01 level.
Table 41

ANOVA and Post Hoc Comparisons of Significant Differences for Customized Information

<table>
<thead>
<tr>
<th>Customized Information</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>3.833</td>
<td>3</td>
<td>1.278</td>
<td>1.251</td>
<td>.291</td>
</tr>
<tr>
<td>Within Groups</td>
<td>311.474</td>
<td>305</td>
<td>1.021</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>315.307</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Multiple Comparisons

Dependent Variable: Customized Information

LSD

<table>
<thead>
<tr>
<th>(I) Experience Group</th>
<th>(J) Experience Group</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>.023</td>
<td>.172</td>
<td>.893</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>.041</td>
<td>.159</td>
<td>.799</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>-.233</td>
<td>.167</td>
<td>.165</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>-.023</td>
<td>.172</td>
<td>.893</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>.017</td>
<td>.161</td>
<td>.913</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>-.256</td>
<td>.169</td>
<td>.130</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>-.041</td>
<td>.159</td>
<td>.799</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>-.017</td>
<td>.161</td>
<td>.913</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>-.274</td>
<td>.156</td>
<td>.079</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>.233</td>
<td>.167</td>
<td>.165</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>.256</td>
<td>.169</td>
<td>.130</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>.274</td>
<td>.156</td>
<td>.079</td>
</tr>
</tbody>
</table>

“1” = 2 year or less  “2” = 3-4 years  “3” = 5-6 years  “4” = 7 years or more
*p≤.05

According to the descriptive data analysis, Internet Experience Group 4 had the highest $M = 5.95$ than other groups in Customized Information. Internet Experience Group 2 had the lowest $M = 5.69$ than other groups in Customized Information. The
total mean was 5.75, which indicated that all four Internet Experience groups tended to “agree” Customized Information was a critical factor in the post-purchase decision stage.

Table 42 displays the result of ANOVA analysis related to Internet Experience and Discount.

Table 42

ANOVA and Post Hoc Comparisons of Significant Differences for Discount

<table>
<thead>
<tr>
<th>Discount</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1.967</td>
<td>3</td>
<td>.656</td>
<td>.585</td>
<td>.626</td>
</tr>
<tr>
<td>Within Groups</td>
<td>342.072</td>
<td>305</td>
<td>1.122</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>344.039</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Multiple Comparisons

Dependent Variable: Discount

LSD

<table>
<thead>
<tr>
<th>(I) Experience Group</th>
<th>(J) Experience Group</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>-.074</td>
<td>.180</td>
<td>.682</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>-.202</td>
<td>.167</td>
<td>.228</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>-.038</td>
<td>.175</td>
<td>.827</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>.074</td>
<td>.180</td>
<td>.682</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>-.128</td>
<td>.168</td>
<td>.449</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>.036</td>
<td>.177</td>
<td>.841</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>.202</td>
<td>.167</td>
<td>.228</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>.128</td>
<td>.168</td>
<td>.449</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>.163</td>
<td>.163</td>
<td>.318</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>.038</td>
<td>.175</td>
<td>.827</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>-.036</td>
<td>.177</td>
<td>.841</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>-.163</td>
<td>.163</td>
<td>.318</td>
</tr>
</tbody>
</table>

“1” = 2 year or less  “2” = 3-4 years  “3” = 5-6 years  “4” = 7 years or more

*p ≤ .05
There was no significant difference among the four groups at the .01 level. According to the descriptive data analysis, Internet Experience Group 3 had the highest $M = 5.72$ than other groups in Discount. Internet Experience Group 1 had the lowest $M = 5.51$ than other groups in Discount. The total mean was 5.60, which indicated that all four Internet Experience groups tended to “agree” that Discount was a critical factor in the post-purchase decision stage.

**Summary for Research Question 5**

Results of Research Question 5 indicated that Satisfaction and Customized Information and Discount had a strong positive correlation to Receptivity to Online Shopping. Therefore, Hypotheses 16, 17 and 18 were supported. As to Hypothesis 19, only Satisfaction, Customized Information, and Discount had significant differences with Online Shopping Experience. Therefore, Hypothesis 19 was partly supported. These findings indicated that Satisfaction, Customized Information, and Discount were critical factors in the post-purchase decision stage and may facilitate consumers making online purchase decisions.

**The Relationship between the Five Stages of Online Shopping**

In this section, correlation analysis was employed to examine the relationships between each stage of the Buyer Decision Process model and the dependent variable (Receptivity to Online Shopping). As shown in Table 43, the coefficients were positive ($1 > r > 0$) and were statistically significant difference at $p \leq .01$ ($p = .000$) level between the five stages and the dependent variable. The need recognition stage consists of Free Trials and Internet Advertisements. The information search stage includes of Search Engines, Online Shopping Malls, and Auction Websites. The alternatives evaluation
stage consists of Convenience, Price, and Brand. The purchase decision stage includes Security, Promotion, and Refund. Lastly, the post-purchase decision stage consists of Satisfaction, Customized Information, and Discount.

Table 43

*The Results of Correlation Analysis for the Dependent Variable (Receptivity to Online Shopping) and the Five Stages of the Buyer Decision Process Model (N=309)*

<table>
<thead>
<tr>
<th>Stages</th>
<th>Receptivity to Online Shopping (Pearson r)</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need Recognition</td>
<td>.408</td>
<td>.000**</td>
</tr>
<tr>
<td>Information Search</td>
<td>.512</td>
<td>.000**</td>
</tr>
<tr>
<td>Alternatives Evaluation</td>
<td>.638</td>
<td>.000**</td>
</tr>
<tr>
<td>Purchase Decision</td>
<td>.500</td>
<td>.000**</td>
</tr>
<tr>
<td>Post-Purchase Decision</td>
<td>.652</td>
<td>.000**</td>
</tr>
</tbody>
</table>

**p ≤ .01

The most statistically significant correlations with Receptivity to Online Shopping from highest to lowest were:

1. Post-Purchase Decision: The score of correlation between the post-purchase decision stage and Receptivity to Online Shopping was $r = .652$, and the relationship was statistically significant at the $p ≤ .01$ level ($p = .000$). Among the five stages, the post-purchase decision stage had the strongest relationship to Receptivity to Online Shopping in this study. This indicates the post-purchase decision stage was the most important stage to Internet users' inclination to shop online;
2. Alternatives Evaluation: The score of correlation between the alternatives evaluation stage and Receptivity to Online Shopping was $r = .638$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$). This indicated the alternatives evaluation stage was the second most important stage to Internet users’ inclination to shop online;

3. Information Search: The score of correlation between the information search stage and Receptivity to Online Shopping was $r = .512$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$). This indicated the information search stage was the third most important stage to Internet users’ inclination to shop online;

4. Purchase Decision: The score of correlation between the purchase decision stage and Receptivity to Online Shopping was $r = .500$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$). This indicated the purchase decision stage was the fourth most important stage to Internet users’ inclination to shop online; and

5. Need Recognition: The score of correlation between the need recognition stage and Receptivity to Online Shopping was $r = .408$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$). This indicated the need recognition stage was the fifth most important stage to Internet users’ inclination to shop online.

**Multiple Regression Analysis**

Regression analysis (simple or multiple) is designed to measure a linear relationship between the independent variable(s) and dependent variable (George &
Mallery, 2003). Furthermore, multiple regression analysis may allow the researchers to realize the unique influence of each independent variable on the dependent variable. This method may also examine which independent variable is more significant and which is less important in the study (Fong, 2004). In this study, the multiple regression analysis was employed to measure the relationships between 5 stages of the Buyer Decision Process model and Receptivity to Online Shopping, and the relationships between the 14 independent variables and Receptivity to Online Shopping. Table 44 presents the results of regression analysis for the independent variables (Need Recognition, Information Search, Alternatives Evaluation, Purchase Decision, and Post-Purchase Decision), and the dependent variable (Receptivity to Online Shopping).

Table 44
The Result of Regression Analysis for the Five Stages and the Dependent Variable

<table>
<thead>
<tr>
<th>Dependent Variable: Receptivity to Online Shopping</th>
</tr>
</thead>
<tbody>
<tr>
<td>( R^2 ) Square: .567</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Beta weight</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need Recognition</td>
<td>.170</td>
<td>.075</td>
</tr>
<tr>
<td>Information Search</td>
<td>.255</td>
<td>.003**</td>
</tr>
<tr>
<td>Alternatives Evaluation</td>
<td>.373</td>
<td>.000**</td>
</tr>
<tr>
<td>Purchase Decision</td>
<td>.247</td>
<td>.005**</td>
</tr>
<tr>
<td>Post-Purchase Decision</td>
<td>.381</td>
<td>.000**</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Need Recognition, Information Search, Alternatives Evaluation, Purchase Decision, and Post-Purchase Decision
b. Dependent Variable: Receptivity to Online Shopping

\( N = 309 \)  \( *p \leq .05 \)  \( **p \leq .01 \)
The $R$ square value varied from 0.0 to 1.0, identifying the proportion of variance in the dependent variable (Receptivity to Online Shopping), which was explained by the set of independent variables (14 critical factors). As can be seen in Table 44, the $R$ square was .567 with an overall significance at the $p \leq .01$ level, which made the results statistically sound. Overall, this set of 5 independent variables accounts for 56.7% of the variation of the dependent variable (Receptivity to Online Shopping). The remaining 43.3% of the variation of the dependent variable (Receptivity to Online Shopping) is due to other variables not explored in this research study.

The Beta weight indicates the unique contribution of each independent variable to explain the dependent variable. Beta weight varies from -1 to +1. A positive Beta value means a higher score on an independent variable will increase the value of the dependent variable. Conversely, a negative value on an independent variable would decrease the value of the dependent variable. The greater the Beta weight, the greater the effect between the independent variable and the dependent variable. The smaller the Beta weight, the smaller the effect between the independent variable and the dependent variable (George & Mallery, 2003).

The score of Beta weight indicated that the 5 stages of the Buyer Decision Process model (not including the need recognition stage) had positive statistical significant persuasive ability to predict Internet users’ likelihood to make an online purchase. As to Receptivity to Online Shopping, the strongest predictors from highest to lowest were:

1. Post-Purchase Decision: The post-purchase decision stage had a positive standardized Beta weight with Receptivity to Online Shopping with a $B = .381$ score at the .01 level of significance ($p = .000$). That means the post-purchase
decision stage \( (M = 5.77) \) was the first most important predictor for participants’ likelihood to make an online purchase;

2. Alternatives Evaluation: The alternatives evaluation stage had a positive standardized Beta weight with Receptivity to Online Shopping with a \( B = .373 \) score at the .01 level of significance \( (p = .000) \). That means the alternatives evaluation stage \( (M = 5.80) \) was the second most important predictor for participants’ likelihood to make an online purchase;

3. Information Search: The information search stage had a positive standardized Beta weight with Receptivity to Online Shopping with a \( B = .255 \) score at the .01 level of significance \( (p = .003) \). It means the information search stage \( (M = 6.00) \) was the third most important predictor for participants’ likelihood to make an online purchase;

4. Purchase Decision: The purchase decision stage had a positive standardized Beta weight with Receptivity to Online Shopping with a \( B = .247 \) score at the .01 level of significance \( (p = .003) \). It means the purchase decision stage \( (M = 5.92) \) was the fourth important predictor for participants’ likelihood to make an online purchase; and

5. Need Recognition: The need recognition stage had a positive standardized Beta weight with Receptivity to Online Shopping with a \( B = .170 \) score at the .01 level of significance \( (p = .075) \). That means that although the need recognition stage \( (M = 4.97) \) has more or less possibility to be the fifth most important predictor for participants’ likelihood to make an online purchase, it is not a statistically significant predictor of Receptivity to Online Shopping.
Table 45 presents the results of regression analysis for the 14 independent variables and the dependent variable.

Table 45

The Result of Regression Analysis for the 14 Independent Variables and the Dependent Variable

Dependent Variable: Receptivity to Online Shopping

\[ R^2 = .517 \]

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Beta weight</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Trials</td>
<td>.169</td>
<td>.022*</td>
</tr>
<tr>
<td>Internet Advertisement</td>
<td>.094</td>
<td>.045*</td>
</tr>
<tr>
<td>Search Engines</td>
<td>.122</td>
<td>.047*</td>
</tr>
<tr>
<td>Online Shopping Malls</td>
<td>.232</td>
<td>.001**</td>
</tr>
<tr>
<td>Auction Websites</td>
<td>.093</td>
<td>.046*</td>
</tr>
<tr>
<td>Convenience</td>
<td>.222</td>
<td>.000**</td>
</tr>
<tr>
<td>Price</td>
<td>.194</td>
<td>.003**</td>
</tr>
<tr>
<td>Brand</td>
<td>.153</td>
<td>.048*</td>
</tr>
<tr>
<td>Security</td>
<td>.201</td>
<td>.000**</td>
</tr>
<tr>
<td>Promotion</td>
<td>.090</td>
<td>.050*</td>
</tr>
<tr>
<td>Refund</td>
<td>.182</td>
<td>.009**</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>.237</td>
<td>.000**</td>
</tr>
<tr>
<td>Customized Information</td>
<td>.173</td>
<td>.000**</td>
</tr>
<tr>
<td>Discount</td>
<td>.172</td>
<td>.020*</td>
</tr>
</tbody>
</table>

c. Predictors: (Constant), Free Trials, Internet Advertisement, Search Engines, Online Shopping Malls, Auction Websites, Convenience, Price, Brand, Security, Promotion, Refund, Satisfaction, Customized Information, and Discount

d. Dependent Variable: Receptivity to Online Shopping

\[ N = 309 \quad *p \leq .05 \quad **p \leq .01 \]

The R square value varied from 0.0 to 1.0, identifying the proportion of variance in the dependent variable (Receptivity to Online Shopping), which was explained by the
set of independent variables (14 critical factors). As can be seen in Table 45, the R square was .517 with an overall significance at the \( p \leq .01 \) level, which made the results statistically sound. Overall, this set of 14 independent variables accounts for 51.7% of the variation of the dependent variable (Receptivity to Online Shopping). The remaining 48.3% of the variation of the dependent variable (Receptivity to Online Shopping) is due to other variables not explored in this research study.

The score of Beta weight presented that all 14 independent variables had positive statistical significant persuasive ability to Internet users to accept online shopping. As to Receptivity to Online Shopping, the strongest predictors from highest to lowest were:

1. Satisfaction: Satisfaction had a positive standardized Beta weight with Receptivity to Online Shopping. The score was .237 at the .01 level of significance \( (p = .000) \). In the questionnaire, Question 12 was related to Satisfaction \( (M = 5.94) \). The participants agreed that if they bought a product online and they felt "satisfied" with the whole experience, they would shop at the same Website when they needed to buy the same or similar products next time;

2. Online Shopping Malls: Online Shopping Malls had a positive standardized Beta weight with Receptivity to Online Shopping. The score was .232 at the .01 level of significance \( (p = .001) \). In the questionnaire, Question 4 was related to Online Shopping Malls \( (M = 6.05) \). The participants agreed that electronic shopping malls, such as Yahoo! Shopping, provide an effective way for finding purchase information, such as price, description, picture, vendor reputation, etc.;
3. Convenience: Convenience had a positive standardized Beta weight with Receptivity to Online Shopping. The score was .222 at the .01 level of significance ($p = .000$). In the questionnaire, Question 6 was related to Convenience ($M = 5.93$). The participants agreed that the convenience of online shopping is an important consideration when they shop online because online shopping removes time and space limitations;

4. Security: Security had a positive standardized Beta weight with Receptivity to Online Shopping. The score was .201 at the .01 level of significance ($p = .000$). In the questionnaire, Question 6 was related to Security ($M = 6.71$). The participants strongly agreed that security issues, such as safety of transaction and privacy, are critical considerations for them when making online purchase decisions;

5. Price: Price had a positive standardized Beta weight with Receptivity to Online Shopping. The score was .194 at the .01 level of significance ($p = .003$). In the questionnaire, Question 7 was related to Price ($M = 5.72$). The participants agreed that price consideration is crucial because online shopping can provide low prices;

6. Refund: Refund had a positive standardized Beta weight with Receptivity to Online Shopping. The score was .182 at the .01 level of significance ($p = .009$). In the questionnaire, Question 11 was related to Refund ($M = 6.14$). The participants agreed that refund policy is a critical consideration for them when making an online purchase decision;
7. Customized Information: Customized Information had a positive standardized Beta weight with Receptivity to Online Shopping. The score was .173 at the .01 level of significance \((p = .000)\). In the questionnaire, Question 13 was related to Customized Information \((M = 5.75)\). The participants agreed that if a Website provides customized information to them, they will shop at the same Website when they need to make other purchases;

8. Discount: Discount had a positive standardized Beta weight with Receptivity to Online Shopping. The score was .172 at the .05 level of significance \((p = .020)\). In the questionnaire, Question 14 was related to Discount \((M = 5.60)\). The participants moderately agreed that if a Website provides discounts according to their purchase amounts, this policy will attract them to shop at the same Website again;

9. Free Trials: Free Trials had a positive standardized Beta weight with Receptivity to Online Shopping. The score was .169 at the .05 level of significance \((p = .022)\). In the questionnaire, Question 1 was related to Free Trials \((M = 4.95)\). The participants slightly agreed that if a Website provides them a free trial sample, it may induce them to purchase the retail product;

10. Brand: Brand had a positive standardized Beta weight with Receptivity to Online Shopping. The score was .153 at the .05 level of significance \((p = .048)\). In the questionnaire, Question 8 was related to Brand \((M = 5.76)\).
The participants agreed that brand option is a critical consideration when shopping online;

11. Search Engines: Search Engines had a positive standardized Beta weight with Receptivity to Online Shopping. The score was .122 at the .05 level of significance \( p = .047 \). In the questionnaire, Question 3 was related to Search Engines \( (M = 6.14) \). The participants agreed that search engines, such as Google, provide an effective way to find information on products that they are thinking about purchasing;

12. Internet Advertisements: Internet Advertisements had a positive standardized Beta weight with Receptivity to Online Shopping. The score was .094 at the .05 level of significance \( p = .045 \). In the questionnaire, Question 2 was related to Internet Advertisements \( (M = 5.00) \). The participants slightly agreed that Internet advertisements can interest the viewer in seeing the vendor products;

13. Auction Websites: Auction Websites had a positive standardized Beta weight with Receptivity to Online Shopping. The score was .093 at the .05 level of significance \( p = .046 \). In the questionnaire, Question 5 was related to Internet Advertisements \( (M = 5.81) \). The participants agreed that auction Websites, such as eBay, provide an effective way to find information on products that they were thinking about purchasing; and

14. Promotion: Promotion had a positive standardized Beta weight with Receptivity to Online Shopping. The score was .090 at the .05 level of significance \( p = .050 \). In the questionnaire, Question 10 was related to
Internet Advertisements ($M = 4.94$). The participants slightly agreed that promotion with time-limitations can encourage them to make an online purchase decision.

**Summary**

This research study explored the online consumers' critical decision factors, and the findings of this study suggested that analyzing consumer online behavior may be possible for any e-retailer who attempts to best understand consumers' purchase decision factors and to provide the best products and services to online shoppers. There were 14 independent variables, one dependent variable, and four demographic variables in this study. In general, the study results supported the inference of relationships between the critical factors and consumer online purchase decisions.

The research design employed a quantitative, non-experimental method approach, using 24 closed-ended questions on survey instruments. Participants rated the questions based on a closed-ended 1-to-7 Likert scale format. A total of 309 respondents participated in this survey. Of the respondents, gender was divided into 139 (45%) males, and 170 (55%) females. In addition, 96 participants (31.1%) were daytime students (their ages were from 18 to 24), and 213 participants (68.9) were adult learners (their ages were older than 24 with careers in all trades and professions). A total of 216 respondents (70%) had previous online shopping experience. The mean of Internet Experience for those respondents in the study was 4.6 years with a standard deviation of 2.22. The mean age for those respondents in the study was 28.67 years of age, with a standard deviation of 6.42. The median age was 28.
In this study, reliability estimates were determined using Chronbach's alpha (\( \alpha \)) as a measure of internal consistency. Chronbach's alpha (\( \alpha \)) is often used to measure the participants' attitude along with the Likert scale (George & Mallery, 2003). The result revealed that all Chronbach’s alpha (\( \alpha \)) values were higher than .7 in this study, which means the survey instrument was acceptable.

Correlation analysis was employed to examine the relationships between each stage of the Buyer Decision Process model and the dependent variable (Receptivity to Online Shopping). The results indicate the five stages had statistical positive significant relationships with Receptivity to Online Shopping. The correlation score from highest to lowest were as follows: Post-Purchase Decision, Alternatives Evaluation, Information Search, Purchase Decision, and Need Recognition.

All the 14 independent variables had a significant correlation to dependent variable (Receptivity to Online Shopping). Among all independent variables, Security had the strongest relationship with Receptivity to Online Shopping. Table 46 presents the results of correlation analysis for the dependent variable and the 14 independent variables.
Table 46

*The Results of Correlation Analysis for the Dependent Variable (Receptivity to Online Shopping) and the 14 Independent Variables (N=309)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Receptivity to Online Shopping (Pearson r)</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Trials</td>
<td>.377</td>
<td>.000**</td>
</tr>
<tr>
<td>Internet Advertisements</td>
<td>.305</td>
<td>.000**</td>
</tr>
<tr>
<td>Search Engines</td>
<td>.408</td>
<td>.000**</td>
</tr>
<tr>
<td>Online Shopping Malls</td>
<td>.518</td>
<td>.000**</td>
</tr>
<tr>
<td>Auction Websites</td>
<td>.398</td>
<td>.000**</td>
</tr>
<tr>
<td>Convenience</td>
<td>.562</td>
<td>.000**</td>
</tr>
<tr>
<td>Price</td>
<td>.515</td>
<td>.000**</td>
</tr>
<tr>
<td>Brand</td>
<td>.354</td>
<td>.000**</td>
</tr>
<tr>
<td>Security</td>
<td>.594</td>
<td>.000**</td>
</tr>
<tr>
<td>Promotion</td>
<td>.332</td>
<td>.000**</td>
</tr>
<tr>
<td>Refund</td>
<td>.413</td>
<td>.000**</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>.572</td>
<td>.000**</td>
</tr>
<tr>
<td>Customized Information</td>
<td>.479</td>
<td>.000**</td>
</tr>
<tr>
<td>Discount</td>
<td>.522</td>
<td>.000**</td>
</tr>
</tbody>
</table>

**p ≤ .01

Table 47 presents the results of the demographic and marketing variables had different tendencies in relation to 14 critical factors and Receptivity to Online Shopping.
Table 47

The Results of the Demographic and Marketing Variables had Different Tendencies in Relation to 14 Critical Factors and Receptivity to Online Shopping (N=309)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gender</th>
<th>Online Shopping Experience</th>
<th>Other Purchase Experience</th>
<th>Internet Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Trials</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet Advertisements</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Search Engines</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Online Shopping Malls</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Auction Websites</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Convenience</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Price</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Brand</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Security</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Promotion</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refund</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customized Information</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discount</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptivity to Online Shopping</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

In this study, the multiple regression analysis was employed to measure the relationships between five stages of the Buyer Decision Process model and Receptivity to Online Shopping, and the relationships between the 14 independent variables and...
Receptivity to Online Shopping. The score of Beta weight presented that five stages and the 14 independent variables had positive statistical significant persuasive ability to Internet users to accept online shopping. Among the five stages, the strongest predictors from highest to lowest were: Post-Purchase Decision stage, Alternatives Evaluation stage, Information Search stage, Purchase Decision stage, and Need Recognition stage. Among the 14 independent variables, the strongest predictors from highest to lowest were: Satisfaction, Online Shopping Malls, Convenience, Security, Price, Refund, Customized Information, Discount, Free Trials, Brand, Search Engines, Internet Advertisements, Auction Websites, and Promotion.
CHAPTER V

DISCUSSION, RECOMMENDATIONS FUTURE RESEARCH, AND

CONCLUSIONS

Overview

Chapter Five presents a final review of this research study. The following sections touch upon the motivation of the study, the summary of findings, the discussion of results, practical implications and recommendations, recommendations for future research, and conclusions.

The purpose of this study was to identify the critical factors involved in each stage of the Buyer Decision Process model, developed by Kotler and Armstrong (1997), as this study relates to online retail shopping in the country of Taiwan. This study explored whether and to what extent these factors influence consumers making online purchase decisions. Although the Buyer Decision Process model has been applied in traditional marketing research, there is no research to demonstrate this model’s effectiveness in a retail e-commerce setting. Therefore, this research study attempted to design a framework based on this model to measure consumer online behavior in Taiwan.

The desire for understanding online consumption-related human behavior has led to a diversity of theoretical approaches. The researcher believes that the Buyer Decision Process model might be suitable to serve as a theoretical model to analyze consumer online behavior, because online shoppers need to go through the same purchase decision process as on-site purchasers when making their purchase decisions. The purpose of adopting the Buyer Decision Process model was to explore the perceived consumer value through the entire consumption process.
Understanding consumer purchasing behavior is a critical factor in the success of e-retailing. In the digital marketing era, one of the factors that will make a consumer select certain products or services is the level of customer expectation and satisfaction before and after sales and services are provided. This study was concerned with understanding consumer online behavior; gaining insights into why purchasers acted in certain consumption-related ways; and what internal and external influences impel online shoppers to act as they did.

To carry out the purpose of this proposed study, the following research questions were examined:

1. What are the critical factors in the need recognition stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?

2. What are the critical factors in the information search stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?

3. What are the critical factors in the alternatives evaluation stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?
4. What are the critical factors in the purchase decision stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?

5. What are the critical factors in the post-purchase decision stage of the Buyer Decision Process model for consumer online purchase decisions in Taiwan? Are these factors influenced by demographic and marketing variables (Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences)?

In order to answer the Research Questions of this study, the investigation focused on 14 critical independent variables, one dependent variable, and four demographic and marketing variables. Two of these independent variables (Free Trials and Internet Advertisements) were linked to the need recognition stage. Three of these independent variables (Search Engines, Online Shopping Malls, and Auction Websites) were linked to the information search stage. Three of these independent variables (Convenience, Price, and Brand) were linked to the alternatives evaluation stage. Three of these independent variables (Security, Promotion, and Refund) were linked to the purchase decision stage. Three of these independent variables (Satisfaction, Customized Information, and Discount) were linked to the post-purchase decision stage. The dependent variable was Receptivity to Online Shopping. Finally, the four demographic and marketing variables were Gender, Internet Experience, Online Shopping Experience, and Other Purchase Experiences.
The research design employed a quantitative, non-experimental method approach, using 24 closed-ended questions on survey instruments. Participants rated the questions based on a closed-ended 1-to-7 Likert scale format. The survey was distributed by the researcher to Aletheia University students who had previous experience with either browsing or shopping online in Taiwan. The data collection process took approximately two weeks to complete. The start date was April 15, 2005, and data collection was completed by May 3, 2005. A total of 309 respondents participated in this survey; 96 participants (31.1%) were daytime students (their ages were from 18 to 24), and 213 participants (68.9%) were adult learners (their ages were older than 24 with careers in all trades and professions). A total of 216 respondents (70%) had online shopping experience. In general, the study results supported the inference of relationships between the 14 critical factors and Internet users' inclination to shop online.

**Research Findings**

This section presents the answers for each research question.

**Research Question 1**

Results of Research Question 1 indicate that the two independent variables, Free Trials and Internet Advertisements, had a moderately positive correlation with the dependent variable, Receptivity to Online Shopping. Therefore, Hypotheses 1 and 2 were supported. As to Hypothesis 3, a significant difference between males and females was found in their responses to Internet Advertisements; Free Trials and Receptivity to Online Shopping had a significant difference with Online Shopping Experience. For Free Trials, Internet Advertisements, and Receptivity to Online Shopping, no significant difference existed among Internet Experience groups. Therefore, Hypothesis 3 was
partly supported. These findings indicate that e-retailers employing Free Trials and Internet Advertisements policies may facilitate consumer need recognition and influence their online purchase decisions.

**Research Question 2**

Results of Research Question 2 indicated that Search Engines and Online Shopping Malls had a strong positive correlation to Receptivity to Online Shopping; and Auction Websites had a moderately positive correlation to Receptivity to Online Shopping. Therefore, hypotheses 4, 5 and 6 were supported. As to Hypothesis 7, only Online Shopping Malls and Auction Websites had significant differences with Online Shopping Experience; and Online Shopping Malls had significant difference among the four Internet Experience groups. Therefore, Hypothesis 7 was partly supported. These findings indicated that Search Engines, Online Shopping Malls, and Auction Websites serve as information search channels and may facilitate consumers making online purchase decisions.

**Research Question 3**

Results of Research Question 3 indicated that Convenience and Price both had a strong positive correlation to Receptivity to Online Shopping; and Brand had a moderately positive correlation to Receptivity to Online Shopping. Therefore, Hypotheses 8, 9 and 10 were supported. As to Hypothesis 11, only Convenience and Price had significant differences with Online Shopping Experience; Convenience, Price and Brand had significant difference with Other Purchase Experience; Internet Experience and Convenience were significantly different among the four groups (three pairs): Group 1 and Group 2, Group 1 and Group 3, Group 1 and Group 4; and Internet
Experience and Price were significantly different among the four groups (two pairs): Group 1 and Group 3, Group 3 and Group 4. Therefore, Hypothesis 11 was partly supported. These findings indicated that Convenience, Price and Brand were critical factors in the alternatives evaluation stage and may facilitate the consumer making online purchase decisions.

**Research Question 4**

Results of Research Question 4 indicated that Security and Refund both had a strong positive correlation to Receptivity to Online Shopping; and Promotion had a moderately positive correlation to Receptivity to Online Shopping. Therefore, Hypotheses 12, 13 and 14 were supported. As to Hypothesis 15, Promotion had significant difference with Online Shopping Experience; Promotion and Refund had significant differences with Other Purchase Experience; and Internet Experience and Security was significantly different among the groups (Group 1 and Group 4, Group 2 and Group 4). Therefore, Hypothesis 15 was partly supported. These findings indicated that Security, Promotion, and Refund were critical factors in the purchase decision stage and may facilitate consumers making online purchase decisions.

**Research Question 5**

Results of Research Question 5 indicated that Satisfaction and Customized Information and Discount had a strong positive correlation to Receptivity to Online Shopping. Therefore, Hypotheses 16, 17 and 18 were supported. As to Hypothesis 19, only Satisfaction, Customized Information, and Discount had significant differences with Online Shopping Experience. Therefore, Hypothesis 19 was partly supported. These findings indicated that Satisfaction, Customized Information, and Discount were
critical factors in the post-purchase decision stage and may facilitate consumers making online purchase decisions.

**Multiple Regression Analysis**

Overall, this set of 14 independent variables accounts for 61.7% of the variation of the dependent variable (Receptivity to Online Shopping). The score of Beta weight presented that all 14 independent variables had positive statistical significant persuasive ability to Internet users to accept online shopping. As to Receptivity to Online Shopping, the strongest predictors from highest to lowest were: Satisfaction, Online Shopping Malls, Convenience, Security, Price, Refund, Customized Information, Discount, Free Trials, Brand, Search Engines, Internet Advertisements, Auction Websites, and Promotion.

**Discussion**

This section presents the statistical results of each variable within the context of each stage of the Buyer Decision Process model. Receptivity to Online Shopping was the research dependent variable. The mean score (M) of Receptivity to Online Shopping was 6.1269. Overall, Receptivity to Online Shopping between samples was moderately high. Figure 5 shows the histogram chart of Receptivity to Online Shopping.

The summary statistics for the Buyer Decision Process model was highly significant. The statistical findings indicate that respondents felt this research study had a right set of independent variables to predict the dependent variable.

In this study, the researcher attempted to identify the critical factors that predict Receptivity to Online Shopping. Among 14 critical factors, the most persuasive factor
was Satisfaction, and the least persuasive factor was Promotion. The individual results are discussed below.

Figure 5. The histogram chart of Receptivity to Online Shopping.

Need Recognition Stage

The purchasing process starts with the customers perceiving their needs. Need recognition is associated with both the actual state and the desired state of consumers, i.e., internal stimuli and external stimuli (Kotler & Armstrong, 1997). E-retailers should explore consumer needs, the types of needs, and the reasons causing needs. Furthermore, e-retailers should understand how to appeal to consumers making purchases, such as free trials, in order to create an environment of consumer need recognition.
There were two critical factors under need recognition stage: Free Trials, Internet Advertisements.

**Free Trials**

Free Trials had a positive standardized Beta weight with Receptivity to Online Shopping with a $B = .169$ score at the .05 level of significance ($p = .022$). Based on the score of Beta weight, Free Trials was the ninth most persuasive predictor among 14 critical factors for consumers’ receptivity to online shopping. Besides, the score of correlation between Free Trials and Receptivity to Online Shopping was $r = .377$ and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$).

Miyazaki and Fernandez (2001) observed that shoppers indicated the weaknesses of online shopping as being unable to touch, feel, or see real products to evaluate the quality, and possible inaccuracies concerning the products being considered. The findings of this study supported that Gong’s (2003) claim that free trials were an effective way to activate consumers’ need recognition, because the buyers could not otherwise see or touch a product before purchase unless a free trial was offered. Therefore, Free Trials was a critical factor in the Buyer Decision Process model. Furthermore, consumers would have positive attitudes toward online shopping if the e-retailers provided free trial samples.

**Internet Advertisements**

Internet Advertisements had a positive standardized Beta weight with Receptivity to Online Shopping with a $B = .094$ score at the .05 level of significance ($p = .045$). Based on the score of Beta weight, Internet Advertisements was the twelfth most persuasive predictor among 14 critical factors for consumers’ receptivity to online
shopping. Moreover, the score of correlation between Internet Advertisements and Receptivity to Online Shopping was \( r = .305 \) and the relationship was statistically significant at the \( p \leq .01 \) level (\( p = .000 \)).

Many companies invest money to advertise online. The findings supported Lohse & Spiller’s (1999) claim that Internet advertisements lead consumers to special products. Internet advertisements may serve as a reminder or motivator to the consumer to purchase online. \( M = 5.00 \) only for Internet Advertisements, which reflected Gong’s (2003) claim that many purchasers were cautious about advertising because of untruthful, inaccurate and exaggerated advertisements. This problem was related to “Trust.” Companies needed to build trust to appeal to consumers. Therefore, consumers may be attracted by the Internet advertisements and trust them.

**Information Search Stage**

If the consumers are not satisfied with the current products or are unfamiliar with current products, online shoppers will undertake an information search bearing on their needs. As more information is gained, the buyer’s awareness and learning of the obtainable brands and features increases (Kotler & Armstrong, 1997). E-retailers should realize how consumers search for information, and how these methods influence purchase decisions. There were three critical factors under the information search stage: Search Engines, Online Shopping Malls, and Auction Websites.

**Search Engines**

Search Engines had a positive standardized Beta weight with Receptivity to Online Shopping, with a \( B = .122 \) score at the .05 level of significance (\( p = .047 \)). Based on the score of Beta weight, Search Engines was the eleventh most persuasive
predictor among 14 critical factors for consumers’ receptivity to online shopping. Moreover, the score of correlation between Search Engines and Receptivity to Online Shopping was $r = .408$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$).

The findings support Haig’s (2001) statement that Internet users primarily used search engines to find needed information. $M = 6.14$ for Search Engines also reflected Norris (2003), Vark (2003), and Waters’ (2004) statement that 85% of Internet users relied on a search engine, whether for work, play, research, entertainment, or shopping. Therefore, Search Engines in this study served as an effective tool to find product information on the Internet. Consumers may have positive attitudes toward using search engines to find product information.

**Online Shopping Malls**

Online Shopping Malls had a positive standardized Beta weight with Receptivity to Online Shopping with a $B = .232$ score at the .01 level of significance ($p = .001$). Based on the score of Beta weight, Online Shopping Malls was the second most persuasive predictor among 14 critical factors for consumers’ receptivity to online shopping. The score of correlation between Online Shopping Malls and Receptivity to Online Shopping was $r = .518$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$).

Online shopping malls selling various kinds of consumer products provided an unprecedented chance for e-retailers to reach a global consumer base (Frendo, 1999). However, only about 0.04% of retail Websites were visited by 80% of all Internet users (Braddock, 2001). Therefore, many e-retailers joined online shopping malls in order to
have more consumers visit their Websites. This finding supported Dignum’s (2002) claim that Online shopping malls served as an effective tool to find product information on the Internet. In online shopping malls, e-retailers might improve relationships with customers, because the portal Website would allow retailers to handle business immediately. The e-retailers could provide information more quickly and more accurately to address customer demands. Therefore, consumers may have positive attitudes toward using the electronic shopping malls to find product information.

*Auction Websites*

Auction Websites had a positive standardized Beta weight with Receptivity to Online Shopping with a $B = .093$ score at the .05 level of significance ($p = .046$). Based on the score of Beta weight, Online Shopping Malls was the thirteenth most persuasive predictor among 14 critical factors for consumers' receptivity to online shopping. Additionally, the score of correlation between Auction Websites and Receptivity to Online Shopping was $r = .398$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$).

Auction Websites attract the interested shoppers together to evaluate product value (Liu et al., 2003). $M = 5.81$ for Auction Websites, which reflected Haig’s (2001) claim that an auction Website was a productive way for online shoppers to gain information on products or services. Auction Websites generally provided cheap prices to appeal to consumers. However, there are many reported frauds in auction Websites, causing online consumers to hesitate about whether to shop there or not. If e-retailer can establish trust with online shoppers, consumers may have more positive attitudes toward using auction Websites to find product information.
Alternatives Evaluation Stage

Purchasers often use the information gained online to assess the selections and make a brand choice. That is, buyers rank brands and develop purchase purposes (Kotler & Armstrong, 1997). E-retailers should realize consumers’ attitudes toward alternatives and which ones are of importance to customers. For example, between price and brand, will shoppers tend to be price-oriented or brand-oriented when shopping online? There were three critical factors under the alternatives evaluation stage: Convenience, Price, and Brand.

Convenience

Convenience had a positive standardized Beta weight with Receptivity to Online Shopping with a $B = .222$ score at the .01 level of significance ($p = .000$). Based on the score of Beta weight, Convenience was the third most persuasive predictor among 14 critical factors for consumers’ receptivity to online shopping. Furthermore, the score of correlation between Convenience and Receptivity to Online Shopping was $r = .562$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$).

Online shopping offered convenience and saved time, which were two motivating factors for online purchases (Lee, 2002). The findings supported Swaminathan et al.’s (1999) previous indication that convenience was the main reason that motivated consumers to shop online. Convenient access to product information could facilitate shoppers’ making an online purchase decision (Lohse & Spiller, 1999). In this study, Convenience was regarded as the removal of time/space limitations. Consumers may have positive attitudes toward online shopping due to purchase convenience.
Price

Price had a positive standardized Beta weight with Receptivity to Online Shopping with a $B = .194$ at the .01 level of significance ($p = .003$). Based on the score of Beta weight, Price was the fifth most persuasive predictor among 14 critical factors for consumers’ receptivity to online shopping. In addition, the score of correlation between Price and Receptivity to Online Shopping was $r = .515$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$).

Lee (2002) and Swaminathan et al. (1999) indicated that although online consumers could not try out merchandise, shoppers could make price comparisons by browsing other e-retailers providing similar merchandise. The finding supported that Heim and Sinha’s (2001) claim that price was a critical factor for online shopping. Consumers may have positive attitudes toward online shopping if the e-retailers provide low prices to them. However, $M = 5.72$ for Price, which reflected some online shoppers were not price-sensitive, because these consumers thought price comparisons among different e-retailers was time-consuming, and the price difference was always very small (Li et al., 1999).

Brand

Brand had a positive standardized Beta weight with Receptivity to Online Shopping, with a $B = .153$ score at the .05 level of significance ($p = .048$). Based on the score of Beta weight, Brand was the tenth most persuasive predictor among 14 critical factors for consumers’ receptivity to online shopping. Moreover, the score of correlation between Brand and Receptivity to Online Shopping was $r = .354$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$).
Haig (2001) defined brand as the quality related to the products or services the e-retailer offered. Often, brand referred to the seller’s reputation and consumer loyalty associated with the seller. Fong (2004) claimed that consumers have many selections among products and brands when shopping online. The findings reflected that Li et al.’s (1999) claim that maintaining accurate and current brand information was important when online purchasers have to make the final choices. Consumers can still have positive attitudes toward brand option when they shop online. The brand identity still played an important role in online shopping.

**Purchase Decision Stage**

Buyers make online purchase decisions based on the preferred brands, attitudes of others, or unexpected situations. The perceived risks often cause consumers’ decisions to change, be postponed, or avoided (Kotler & Armstrong, 1997). E-retailers should identify the critical factors to reduce buyers’ anxiety and encourage consumers to purchase on Websites by inducements, such as security issues and promotions. There were three critical factors under the purchase decision stage: Security, Promotion, and Refund.

**Security**

Security had a positive standardized Beta weight with Receptivity to Online Shopping, with a $B = .201$ score at the .01 level of significance ($p = .000$). Based on the score of Beta weight, Security was the fourth most persuasive predictor among 14 critical factors for consumers’ receptivity to online shopping. Besides, the score of correlation between Security and Receptivity to Online Shopping was $r = .594$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$).
\[ M = 6.71 \text{ for Security, which reflected all participants were in agreement that security was a critical success factor for e-commerce (Kesh et al., 2002).} \]

Lacking a great degree of confidence by Internet users, retail e-commerce would fail. Security concerns were the critical reason Internet users did not shop online (Lee, 2002). In this study, only 23% of participants indicated that they preferred to use “Credit Card” as a payment, which reflected to Rao’s (2000) findings that most buyers who did not shop online indicated the primary reason was being afraid to reveal personal credit card information to retailers. Security was regarded as the promise of being protected on Websites. Consumers would have positive attitudes toward online shopping if the e-retailers were to promise to provide safe and secure purchase conditions.

**Promotion**

Promotion had a positive standardized Beta weight with Receptivity to Online Shopping, with a \( B = .090 \) score at the .05 level of significance \((p = .050)\). Based on the score of Beta weight, Promotion was the fourteenth most persuasive predictor among 14 critical factors for consumers’ receptivity to online shopping. In addition, the score of correlation between Promotion and Receptivity to Online Shopping was \( r = .332 \), and the relationship was statistically significant at the \( p \leq .01 \) level \((p = .000)\).

\[ M = 4.94 \text{ for Promotion, which reflected Lohse & Spiller’s (1999) statement that promotional activities for online products were not successful for e-retailers, because there was no effective way to inform consumers of promotional activities.} \]

The participants tended to “slightly agree” with Haig’s (2001) suggestion that e-retailers might use promotions with time limits to appeal to and encourage consumers to shop on Websites. E-retailers might provide special sales that consumers could look for when
shopping online (Steinfield & Whitten, 1999). Consumers may have positive attitudes toward online shopping if the e-retailers provided promotions. The influence of promotions should be explored in more detail.

**Refund**

Refund had a positive standardized Beta weight with Receptivity to Online Shopping with a $B = .182$ score at the .01 level of significance ($p = .009$). Based on the score of Beta weight, Refund was the sixth most persuasive predictor among 14 critical factors for consumers' receptivity to online shopping. Besides, the score of correlation between Refund and Receptivity to Online Shopping was $r = .413$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$).

$M = 6.14$ for Refund, which supported Lee's (2002) claim that online consumers demanded that e-retailers provide an unconditional refund policy if the consumers were not satisfied with the products. E-retailers should have policies to convince online shoppers that they could easily return products and get refunds, or exchange products for free within a reasonable timeframe (Bishop, 1998). Therefore, consumers would have positive attitudes toward online shopping if the e-retailers provided reasonable refund policies.

**Post-Purchase Decision Stage**

After purchasing products, the shoppers make an assessment of the shopping experience according to satisfaction or dissatisfaction. Retaining existing consumers is often more critical than attracting new ones, and the effective way to fulfill this purpose is to make regular shoppers satisfied (Kotler & Armstrong, 1997). E-retailers should explore which factors can help retain existing consumers, such as offering customized
information and discounts. There were three critical factors under alternatives evaluation stage: Satisfaction, Customized Information, and Discount.

**Satisfaction**

Satisfaction had a positive standardized Beta weight with Receptivity to Online Shopping with a $B = .237$ score at the .01 level of significance ($p = .000$). Based on the score of Beta weight, Satisfaction was the most persuasive predictor among 14 critical factors for consumers’ receptivity to online shopping. Furthermore, the score of correlation between Satisfaction and Receptivity to Online Shopping was $r = .572$, and the relationship was statistically significant at the $p \leq .01$ level ($p = .000$).

The findings supported Li et al.’s (1999) claim that regular online shoppers tended to purchase the same brand and use the same retailer due to past satisfaction when needing to buy the same products. Online consumers recognized that while searching product information might be time-consuming, if the consumers were satisfied with the products, they would probably purchase from the same vendors when needing the same products in the future. Online shoppers’ purchasing experiences and repeat online shopping were reinforced by after-purchase experiences (Lee, 2002). The results suggest that consumer satisfaction could cause online shoppers to shop at the same Websites without searching for information again when the consumers needed to buy the same products.

**Customized Information**

Customized Information had a positive standardized Beta weight with Receptivity to Online Shopping, with a $B = .173$ score at the .01 level of significance ($p = .000$). Based on the score of Beta weight, Customized Information was the seventh most
persuasive predictor among 14 critical factors for consumers’ receptivity to online shopping. In addition, the score of correlation between Customized Information and Receptivity to Online Shopping was \( r = .479 \), and the relationship was statistically significant at the \( p \leq .01 \) level (\( p = .000 \)).

\[ M = 5.75 \] for Customized Information, which reflected Li et al.’s (1999) claim that as the sum of product information increased, online consumers would find searching for and identifying relevant information increasingly difficult and time-consuming, and that therefore e-retailers should regularly provide customized information to consumers. Customized Information was regarded as the provision of personalized information to online consumers with the highest interest. Consumers would have positive attitudes toward online shopping if the e-retailers regularly provided customized information to them. Furthermore, having customized information available would encourage the consumers to shop at the same Websites again.

**Discount**

Discount had a positive standardized Beta weight with Receptivity to Online Shopping, with a \( B = .172 \) score at the .05 level of significance (\( p = .020 \)). Based on the score of Beta weight, Discount was the eighth most persuasive predictor among 14 critical factors for consumers’ receptivity to online shopping. Moreover, the score of correlation between Discount and Receptivity to Online Shopping was \( r = .522 \), and the relationship was statistically significant at the \( p \leq .01 \) level (\( p = .000 \)).

The findings suggest that Discount became an important factor for online selling (Dignum, 2002). Discount policy might cause a serious “price war”, and, accordingly, how to appeal to consumers without a potentially destructive “price war” was a critical
issue for e-retailers (Harrington et al., 2004). In this study, Discount was regarded as purchase price reductions provided to consumers according to cumulative purchase amounts. The enticed discount could induce consumers to shop at the same Websites again.

Limitations of the Study

There were limitations in this research design significant enough to explain and recognize:

1. The first limitation was the time factor. The survey was completed in about three weeks. The time restraint was a critical limitation for this research study. Since consumer preferences often change, especially in the digital marketing setting, a longitudinal study might provide critical information and assurance that changes of consumer expectations over time are taken into account. However, a longitudinal study approach was not practical in this study;

2. The second limitation was the lack of financial assistance to gain a random sample in order to generalize results to the total population. The insufficiency of assistance was a restriction, since the necessary capital for a random sampling was not available for this study. Therefore, the research study employed a convenience sampling method to choose participants for the survey;

3. The third limitation was the use of a convenience sampling method. Participants were students at Aletheia University. Such a sampling method might increase the risk of bias, resulting in sampling error. In this study, the mean age for those respondents was 28.67 years of age. The ages ranged from
18 to 52 years (See Figure 3). In addition, 96 participants (31.1%) were daytime students, and 213 participants (68.9%) were adult learners. A total of 216 respondents (70%) had online shopping experience, 149 (69%) were less than 31 years old, and 45 (20.8%) were between 31 to 35 years old. Although responses from students cannot represent the rest of the population, the demographics confirm that most online shoppers in Taiwan were between the ages of 18-34 years (Chen, 2002), and students are more likely to be online purchasers (Chen & Dubinsky, 2003). Furthermore, although the students were homogeneous, the students at Aletheia University came from all over Taiwan, which would enhance the geographic diversity of the sample. This indicated that the findings of this research study might generalize to the target population, although this study employed a convenience sampling method. However, employing the convenience sampling method was still a weakness of this research study; and

4. The fourth limitation was that the results of this study can not be projected accurately to other e-commerce categories, such as Business-to-Business, Government-to-Government, Business-to-Employee, but only to Business-to-Consumer. Since the target industry was the e-retailing industry, all the results were projected only to consumers of retail e-commerce.

**Practical Implications and Recommendations**

Online shopping has gradually become a new channel enabling consumers to purchase their daily goods. If e-retailers want to survive in the e-commerce era, then e-marketers must analyze shoppers’ purchasing behavior on their Websites, and provide
suitable products or services to meet the consumers' needs. There is clearly a need for more quantitatively driven empirical research in Taiwan's B2C e-commerce, with practical recommendations for e-retailers. The practical implications and recommendations in this study follows:

1. According to correlation analysis and multiple regression analysis, the five stages of the Buyer Decision Process model had significant relationships with Receptivity to Online Shopping. The findings imply that the Buyer Decision Process model is suitable to serve as a theoretical model to analyze consumer online behavior. That means that online shoppers seem to go through the same purchase decision process as on-site purchasers when making their purchase decisions. Furthermore, each stage of online shoppers' decision influences the decision at the next stage, and visiting a Website is the first step to shopping on the Website.

Chinese consumers tend to be slow accepting new products and service (Gong, 2003). If Internet users do not have confidence with, or do not desire to try, a new product, they are not likely to buy the product. Therefore, how to convince potential consumers and stimulate their "need" for a new product is a challenge for Taiwanese e-retailers. The researcher suggests that e-retailers serving the Taiwanese market employ Internet Advertisements with free samples to attract potential consumers to try a new product. If the consumers feel satisfied with the free trial samples, they will likely buy the actual product and even share this experience with others. Although this strategy involves some costs, at the end, it will serve e-retailers well;
2. Among the five stages of the Buyer Decision Process model, the post-purchase decision stage had the most unique influence on Internet users' inclination to shop online. In other words, the post-purchase decision stage was the strongest persuasive predictor for Internet users' likelihood to make an online purchase. In this stage, consumers make an assessment of the shopping experience according to their level of satisfaction or dissatisfaction. Therefore, if e-retailers want to develop long-term relationship with their consumers and increase sales, the most important policy is to make every shopper satisfied. Satisfaction is the key to repeat customers. The researcher suggests that e-retailers in Taiwan should maintain product quality consistency, because if online shoppers do not feel satisfied with a product one time, they are not likely to shop at the same Website a second time. Therefore, the first purchase made from a first time buyer is utmost importance. Following up with emails within a few days after a purchase, making sure the product is delivered on time, answering questions or concerns, etc. are ways to enhance customers' post purchase experience;

3. According to the findings in this study, security issues such as safety of transaction and privacy are the most critical considerations for online shoppers when deciding to shop online. In this study, only 23% of participants indicated preferring to use "Credit Card" as a payment, which also reflected a situation in Taiwan where most online buyers are afraid to reveal personal credit card information to e-retailers due to security concerns. However, credit card payment is the most convenient payment for B2C e-commerce.
Therefore, how to convince consumers that online shopping is secure and confidential is a challenge for e-retailers.

To deal with these issues, the e-commerce industry in Taiwan has developed a mechanism by which a trusted Website is awarded an assurance seal. Organizations such as Secure Online Shopping Association (SOSA), Online Trust Store, HiTrust/VeriSign, and Verified by VISA provide such services. The researcher suggests e-retailers should join these credible organizations and place the assurance seals on their Websites to improve trust in the transactions;

4. Online Shopping Malls was the second most persuasive predictor among 14 critical factors for Internet users’ inclination to shop online based on the findings. That means consumers have positive attitudes toward using online shopping malls to find product information. According to the independent samples t-test in this study, Internet users with online shopping experience also tended to use online shopping malls as a shopping channel. Both imply online shopping malls can provide online consumers with an effective way to find information such as product price, description, and picture. It can also facilitate side-by-side comparison among competing stores.

The researcher suggests that small e-retailers join a prestigious online shopping mall to increase online visitors and the visibility of their products.

Furthermore, Taiwanese consumers tend to trust well-known online malls and for many, this is the first place they will go when searching for product information;
5. According to the findings of this study, online shoppers are sensitive to “low price.” Consumers tend to change e-stores when they find an e-retailer providing a lower price. Unfortunately, online malls make for easy price comparison and create a challenge when seeking loyal consumers. Many e-retailers often use “low price” policy to compete with their rivals. These e-retailers may make short-term profits, but this method may hurt e-commerce in the long run because some e-retailers may sell low quality products in order to provide low price. In the end, online consumers will likely think online shopping is “low price, low quality.” Thus, the low price method is probably an impediment to developing a sound retail strategy.

The researcher suggests that e-retailers in Taiwan sell products at a reasonable price with discount policy. For example, each time online shoppers’ cumulative purchases total $100 USD, the shoppers will automatically receive a $5 USD credit to their customer account. Once the shoppers have a “dollar credit” on file, the next time the shoppers place an order, the “dollar credit” will be deducted from the grand total. Therefore, e-retailers may create loyal online consumers by using this “discount” policy;

6. Refund was the sixth most persuasive predictor among 14 critical factors for Internet users’ inclination to shop online based on the findings. This indicates that refund policy is a critical consideration for Internet users when making an online purchase decision.

The researcher suggests that Taiwanese e-retailers should offer unconditional refund policy to online shoppers because consumers are likely to decide not to
shop online at the last minute of the decision process due to an inconvenient or limited refund policy. Many of Websites provide in Taiwan only 7-10 days evaluation period to shoppers, which is relatively short in comparison with similar Websites in the U.S. Therefore, Taiwanese e-retailers should consider extending the evaluation period up to 90 days to encourage consumers shopping online;

7. There were significant different tendencies between having and not having online shopping experience in Receptivity to Online Shopping and Satisfaction. The result implies that consumers with online shopping experience were more accepting of online shopping than consumers without online shopping experience, based on customer satisfaction. That means if consumers buy a product online and they feel “satisfied” with the whole purchase experience, they will shop at the same Website when needing to buy the same or similar products next time.

The researcher suggests that e-retailers should devote their best efforts toward consumer satisfaction to retain existing consumers, because the cost of attracting new customers is considerably more than to retain current ones. Furthermore, e-retailers should keep in mind that if consumers are not satisfied with their first-time online shopping experiences, they are not likely to shop again. Thus, giving consumers enjoyable online shopping experiences the first time may be an effective tool to win consumers’ “heart” when shopping online;
8. There were significantly different tendencies between males and females in responding to Internet Advertisements. The result implies that females were more accepting of Internet Advertisements than males. Thus, appropriate Internet advertisements may be an effective tool to win female consumers’ trust easily when shopping online.

The researcher suggests that e-retailers, who sell female products such as cosmetics, purses, clothing, shoes, and accessories, may employ Internet Advertisements and e-newsletters to keep potential female online shoppers informed;

9. Most of the 14 critical factors and Receptivity to Online Shopping had significant different tendencies on Online Shopping Experience and Internet Experience. This implies that if consumers are satisfied with online purchase experiences, with more Internet experience, such shoppers will be more inclined to become regular online shoppers.

Taiwan’s retail e-commerce is growing. However, an old Chinese saying is “success cannot be reached in one day.” The researcher suggests that e-retailers should not only care about short-term profits, but also create a long-term trusted and enjoyable online shopping environment for to their consumers; and

10. The results of the multiple regression analysis revealed that the 14 critical factors had a moderately strong influence on Receptivity to Online Shopping. This means that improving the 14 critical factors on B2C e-commerce can lead Internet users to accept online shopping.
The researcher suggests that e-retailers look at these 14 critical factors and determine which ones are more important to them depending on the price, type, and size of products. For example, free trial policy is suitable for e-retailers, who sell computer games, cosmetics, magazines, daily goods, etc. However, this policy is not applicable for e-retailers, who sell expensive products such as watch, jewel, shoes, etc.

**Recommendations for Future Research**

There are several recommendations for future research that would extend the results of this study:

1. Additional empirical studies can be conducted via random sampling in Taiwan to compare the results of this study. Such replication will help us to understand Taiwan’s B2C e-commerce more deeply;

2. According to multiple regression analysis of this study, the set of 14 independent variables accounts for 61.7% of the variation of the dependent variable (Receptivity to Online Shopping). The remaining 38.3% of the variation of the dependent variable (Receptivity to Online Shopping) is due to other variables not explored in this research study. Therefore, future research could be to identify more critical factors based on the theoretical framework of this study;

3. Additional empirical studies can be conducted in other countries to compare the results of the study, whether or not there are any cross-cultural differences between countries. Such research studies will help understand whether geographic influences play a critical role on B2C e-commerce;
4. Although this study identified 14 critical factors for Internet users’ inclination to shop online in Taiwan, the findings cannot deeply explain the “whats” and “whys” of online consumers’ attitudes toward the 14 critical factors. Therefore, qualitative research studies are needed to explore Internet users’ receptivity to online purchase through a more detailed-based inquiry into the 14 critical factors;

5. Since consumer preferences often change, especially in the digital marketing setting, some of the 14 critical factors may be removed from, or new critical factors may be moved into, the Buyer Decision Process Model. Therefore, longitudinal studies might provide critical information and assurance that changes of consumer expectations over time are taken into account; and

6. In this study, a total of 216 respondents (70%) had online shopping experience, a rate which was quite high. Future study could select participants only having online shopping experience and explore online consumer loyalty. The purpose is to examine whether the 14 critical factors can influence online consumers to shop at the same Websites.

**Conclusions**

The World Wide Web (WWW) and the Internet have been two of the most significant developments of information technology since the 1990s, which have provided companies with the ability to develop electronic commerce (e-commerce) (Aitchison & Stone, 2002). E-commerce is defined as any kind of corporate interaction or transaction in which the participants employ the Internet to transact business or conduct the deals (Alston, 2000).
Retail e-commerce is promising in Taiwan, and online shopping is being rapidly accepted by consumers. Focus on Internet News & Data (FIND) announced the total amount of retail e-commerce purchasing was US $650 million in Taiwan in 2003. Taiwan's retail e-commerce sales are continuing to increase. In 2004, the retail e-commerce sales were about US $1.02 billion in Taiwan, an increase of 57.2% from 2003. In 2005, the amount is predicted to be US $1.5 billion (Wu, 2004). In 2004, online shopping encompassed only 1.2% of overall retail sales in Taiwan. By comparison, the United States online shopping accounted for about 1.9% of its overall retail sales in 2004. This indicates Taiwan's retailing e-commerce still has room to grow.

The purpose of this study was to identify the critical factors in each stage of the Buyer Decision Process model in Taiwan's retail e-commerce. Further, this study explored whether these factors influenced those consumers making online purchase decisions. The theoretical foundation for this research study was established through the literature review of relevant research. This study presented a framework that was grounded in the classic Buyer Decision Process model, developed by Kotler and Armstrong (1997), to investigate online consumer behavior for e-retailers and to identify the critical factors which influence online shoppers making purchase decisions and becoming loyal customers. The model consisted of five stages:

1. Need Recognition: The purchasing process starts with the customers perceiving their needs. The marketers have to decide the factors and situations that may appeal to consumers' need recognition (Kotler & Armstrong, 1997). Therefore, e-retailers should explore consumer needs, the
types of needs, and the reasons causing needs. Furthermore, e-retailers should understand how to appeal to consumers making purchases, such as free trials, in order to create an environment of consumer need recognition;

2. Information Search: If the consumers are not satisfied with the current products or are unfamiliar with current products, online shoppers will undertake an information search bearing on their needs (Kotler & Armstrong, 1997). Therefore, e-retailers should realize how consumers search for information, such as search engines and online shopping malls, and how these search channels influence purchase decisions. Thus, e-retailers can make more efforts on these particular channels to attract more Internet users visiting their Websites;

3. Alternatives Evaluation: Purchasers often use the information gained online to assess the selections and make a brand choice. (Kotler & Armstrong, 1997). Therefore, e-retailers should realize consumers’ attitudes toward alternatives and which ones are of importance to customers. For example, between price and brand, whether shoppers tend to be price-oriented or brand-oriented when shopping online;

4. Purchase Decision: Buyers make purchase decisions based on the preferred brands, attitudes of others, or unexpected situations (Kotler & Armstrong, 1997). Therefore, e-retailers should identify the critical factors to reduce buyers’ anxiety and encourage consumers to purchase on Websites by inducements such as promotions; and
5. Post-Purchase Decision: After purchasing products, the shoppers make an assessment of the shopping experience according to satisfaction or dissatisfaction (Kotler & Armstrong, 1997). Therefore, e-retailers should explore which factors can help retain existing consumers, such as customized information and discounts.

There were five research questions in this research study, based on the five stages of the Buyer Decision Process model to measure consumer online behavior in Taiwan. In order to answer the five research questions, the researcher identified 14 critical factors for consumer online purchase decisions based on the five stages. These critical factors include: Free Trials, Internet Advertisements, Search Engines, Online Shopping Malls, Auction Websites, Convenience, Price, Brand, Security, Promotion, Refund, Satisfaction, Customized Information, and Discount. The findings of this study indicate that the 14 critical factors on B2C e-commerce can lead Internet users to accept online shopping. The researcher suggests that Taiwanese e-retailers practice these 14 critical factors on their online business in order to have more Internet user become online shoppers. Therefore, the Buyer Decision Process model was validated through this correlational study which provided evidence of the relative importance of the 14 critical factors.

In this study, the multiple regression analysis was employed to measure the relationships between five stages of the Buyer Decision Process model and Receptivity to Online Shopping, and the relationships between the 14 independent variables and Receptivity to Online Shopping. The score of Beta weight presented that five stages and the 14 independent variables had positive statistical significant persuasive ability to Internet users to accept online shopping. Among the five stages, the strongest predictors
from highest to lowest were: Post-Purchase Decision stage, Alternatives Evaluation stage, Information Search stage, Purchase Decision stage, and Need Recognition stage. Among the 14 independent variables, the strongest predictors from highest to lowest were: Satisfaction, Online Shopping Malls, Convenience, Security, Price, Refund, Customized Information, Discount, Free Trials, Brand, Search Engines, Internet Advertisements, Auction Websites, and Promotion.

The outcomes of the study might be significant to e-retailers, online consumers, and other researchers. E-retailers may benefit greatly by identifying the most important factors of online consumer purchasing decisions. Online consumers may benefit greatly by expressing their opinions in the survey to influence e-retailers' strategies. Other researchers may benefit by duplicating this research study or identifying other critical factors based on this research study. This study might contribute not only to a better understanding of how consumers' purchasing decisions are formed, but also to effectively manage such decisions from an e-retailer's standpoint. However, e-retailers should keep in mind that analyzing consumer online behavior carries ethical considerations.

The goal of this study was to review state-of-the-art literature and develop an empirical study about identifying critical factors of online consumer purchasing decisions in Taiwan using the Buyer Decision Process model, and to identify areas of future scholarly inquiry. The researcher hopes this study helps facilitate retail e-commerce in Taiwan.
Appendix A

Critical Factors of the Buyer Decision Process in Consumers' Online Purchasing Behavior Questionnaire
Critical Factors of the Buyer Decision Process in Consumers' Online Purchasing Behavior Questionnaire

In answering all of the questions, please use a scale from 1 to 7 where 1 means "very strongly disagree", 4 means "neither agree nor disagree", and 7 means "very strongly agree". Write a checkmark (✓) in the space provided under the number that best indicate your feelings about the question.

1. If a Website provides me a "Free Trial Sample", it may induce me to purchase the retail product.

For example:

![Free Trial Sample Ad](image)

2. An "Internet Advertisement" can interest me in seeing the vendor products.

For example:

**Christmas Sale on David.com**

3. "Search Engines", such as Google, provide an effective way to find information on products that I am thinking about purchasing.

For example:

[Google Search](http://www.google.com)
[MSN Search](http://www.msn.com)

```
Web  Images  Groups  News  more »
```

```
4. “Online Shopping Malls”, such as Yahoo-Kimo Shopping, provide an effective way for finding purchase information, such as price, description, picture, vendor reputation, etc.

For example:

**Casio Exilim EX-P700 Digital Camera**

SEE SITE FOR BETTER PRICE Casio The Casio EXILIM Pro 700 (EXP700) is one of the most advanced **digital** cameras ever...

$549.95 at B&H Photo-Video, The Professionals Source

**Mustek MDC6500Z 6.5MP Multifunction Digital Camera**

Product Description Image resolution up to 2912 x 2208 with software enhancement 3x optical and 4x **digital** zoom...

$183.49 $269.99 (32% Off) at electronics4less

5. “Auction Websites”, such as eBay, provide an effective way to find information on products that I am thinking about purchasing.

For example:

57054 items found for watch in Wristwatches Finder

<table>
<thead>
<tr>
<th>Item Title</th>
<th>PayPal</th>
<th>Price</th>
<th>Bids</th>
<th>Time Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEIKO MENS TITANIUM CHRONOGRAPH ALARM 200M WATCH SNA139</td>
<td>$129.00</td>
<td>10</td>
<td></td>
<td>&lt;1m</td>
</tr>
<tr>
<td>NEW ELEGANT PAOLO GUCCI LADIES SILVER DIAMOND WATCH HOT</td>
<td>$24.99</td>
<td>-</td>
<td></td>
<td>&lt;1m</td>
</tr>
</tbody>
</table>
6. "Convenience" is an important consideration when I shop online because it removes time and space limitations.

7. "Price" consideration is crucial because online shopping can provide low prices.

8. "Brand" is a critical consideration when I shop online.

9. "Security issues", such as, safety of transaction and privacy, are critical considerations for me when making online purchase decisions.

10. "Promotion with time-limitations" can encourage me to make an online purchase decision.

For example:

David.com Holiday Update 2005

David.COM would like to offer our customers a special opportunity. We will give you *FREE SHIPPING on any order until April 15, 2005.

11. "Refund policy" is a critical consideration for me when making an online purchase decision.

For example:

David.com Returns Policy

Your complete shopping satisfaction is our number one priority. If an item you ordered from David.com does not meet your expectations, simply return it by mail within 90 days of receiving it, unless otherwise noted below.
12. If I buy a product online and I feel “satisfied” with the whole experience, I will shop at the same Website when I need to buy the same or similar products next time.

13 If a Website provides “customized information” to me, I will shop at the same Website when I need to make other purchases.

For example:

**David.com**

Recommended for Erika Lee

Harry Potter and the Half-Blood Prince (Book 6) Our Price: $17.99
See details.

14. If a Website provides “discounts” according to my purchase amounts, this policy will attract me to shop at the same Website again.

For example:

**David.com**

Customer Loyalty Credits

Each time your cumulative purchases total $500.00 USD, you’ll automatically receive a $50.00 USD credit to your David.com customer account. Once you have a David.com Dollar credit on file, the next time you place an order, it will be deducted from your grand total, at the final checkout screen, after you have selected your shipping and payment methods. Please note that this credit cannot be earned and used within the same order. It is earned when the order which trips the $500 USD clock is completed, and is then applied to the order which follows it.

15. I will be glad to shop online if the security issues, such as safety of transaction and privacy, are guaranteed.

16. I will be glad to recommend a shopping Website to my friends if I am satisfied with the products purchased.
17. I think online shopping will become more and more popular.

18. What is your gender?
   □ Male   □ Female

19. How many years of Internet experience do you have?
   □ One year or less   □ Two years   □ Three years
   □ Four years   □ Five   □ Other ___ years

20. Have you had any online shopping experiences?
   □ Yes   □ No

21. Have you had any other purchase experiences (not including real store purchase), such as mail-order purchase or cable TV purchase?
   □ Yes   □ No

22. What is your age? ___

23. What is your student status?
   □ Daytime student   □ Adult learner

24. Which one is your preferred payment?
   □ Credit Card   □ Cash on Delivery   □ Wire Transfer
   □ Pick up and Pay at Convenience Stores   □ Other ___

Thanks for your helping in this study!
Appendix B

Permission Letter by Aletheia University
A Letter of Authorization

To Lynn University Institutional Review Board (IRB):

This is to confirm that Mr. Chou, Yu-Ho has been approved by the Department of Information Management at Aletheia University, Taipei, Taiwan, to conduct a research survey in order to complete his Ph.D. dissertation at Lynn University. The survey explores the critical factors of Buyer Decision Process in Business-to-Consumer e-commerce in Taiwan. We wish Mr. Chou, Yu-Ho much success in his endeavor.

Sincerely,

Hsu, Fang-Cheng, Ph.D.

Chairman

Department of Information Management, Aletheia University

December 2, 2004
Appendix C

Written Informed Consent Letter
Directions for the Participant:

I, Yu-Ho Chou, am a doctoral student at Lynn University. I am studying Global Leadership, with a specialization in Corporate and Organizational Management. Part of my education is to conduct a research study. You are being asked to participate in my research study.

Please read this carefully. This form provides you with information about the study. The Principal Investigator (Yu-Ho Chou) will answer all of your questions. Ask questions about anything you don’t understand before deciding whether or not to participate. You are free to ask questions at any time before, during, or after your participation in this study. Your participation is entirely voluntary and you can refuse to participate without penalty or loss of benefits to which you are otherwise entitled.

PURPOSE OF THIS RESEARCH STUDY: The study is about consumers’ attitudes toward online shopping. There will be approximately 300 number of people participating in this study. They are from Aletheia University, Taiwan.

PROCEDURES: This is a non-experimental study. You will only need to complete a questionnaire named “The Critical Factors of Buyer Decision Process in Business-to-Consumer E-commerce in Taiwan Questionnaire.” The survey will be distributed by investigator. A cardboard box with a slot will be placed at the entrance of the classroom, and then the investigator will leave the room. You should drop the questionnaire in the box upon completion. The investigator will be in close proximity. The survey should take about 10 minutes to complete. By filling out and submitting the questionnaire you are given your voluntary consent to participate in this survey.

POSSIBLE RISKS OR DISCOMFORT: This study involves minimal risk. You may find that some of the questions are sensitive in nature. In addition, participation in this study requires a minimal amount of your time and effort.
POSSIBLE BENEFITS: There may be no direct benefit to you in participating in this research. But knowledge may be gained which may help e-retailers to form their e-commerce strategies.

FINANCIAL CONSIDERATIONS: There is no financial compensation for your participation in this research. There are no costs to you as a result of your participation in this study.

ANONYMITY: The participation in this survey is anonymous and anonymity will be preserved. The survey does not ask you to fill out your identifying information, such as names, social security numbers, no driver's license numbers. You will not be identified and data will be reported as "group" responses. Participation in this survey is voluntary and return of the completed survey will constitute your informed consent to participate. After distributing the surveys, the investigator will leave the room and upon completion the participant will drop the questionnaire in a box placed in the classroom.

RIGHT TO WITHDRAW: You are free to choose whether or not to participate in this study. There will be no penalty or loss of benefits to which you are otherwise entitled if you choose not to participate.

CONTACTS FOR QUESTIONS/ACCESS TO CONSENT FORM: Any further questions you have about this study or your participation in it, either now or any time in the future, will be answered by Yu-Ho Chou who may be reached at: [redacted] and Dr. Francis, faculty advisor who may be reached at: [redacted] For any questions regarding your rights as a research subject, you may call Dr. Farmand, Chair of the Lynn University Institutional Review Board for the Protection of Human Subjects, at [redacted] If any problems arise as a result of your participation in this study, please call the Principal Investigator (Yu-Ho Chou) and the faculty advisor (Dr. Francis) immediately. A copy of this consent form will be given to you.

INVESTIGATOR'S AFFIDAVIT: I have carefully explained to the subject the nature of the above project. The person participating has represented to me that he/she is at least 18 years of age, and that he/she does not have a medical problem or language or educational barrier that precludes his/her understanding of my explanation. I hereby certify that to the best of my knowledge the person participating in this project understands clearly the nature, demands, benefits, and risks involved in his/her participation.

[Signature]

Date of IRB Approval: 04108/05 7:7

Institutional Review Board for the Protection of Human Subjects
Lynn University
3601 N. Military Trail Boca Raton, Florida 33431

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Appendix D

Institutional Review Board Approval and Consent
Principal Investigator: Yu-Ho Chou

Project Title: Critical Factors of the Buyer Decision Process Model in Business-to-Customer (B2C) E-commerce in Taiwan

IRB Project Number: 2005-021

APPLICATION AND PROTOCOL FOR REVIEW OF RESEARCH INVOLVING HUMAN SUBJECTS OF NEW PROJECT: Request for Exempt Status _ Expedited Review _ Convened Full-Board X

IRB ACTION by the IRB Chair or Another Member or Members Designed by the Chair

IRB ACTION by the CONVENED FULL BOARD

Date of IRB Review of Application and Research Protocol: 4/8/05

IRB ACTION: Approved X Approved with provision(s) __ Not Approved ___ Other ___

COMMENTS

Consent Required: No ___ Yes X ___ Not Applicable ___ Written ___ Signed ___

Consent forms must bear the research protocol expiration date of: 4/8/06

Application to Continue/Renew is due:

(1) For a Convened Full-Board Review, two months prior to the due date for renewal X

Name of IRB Chair (Print): Farideh Farazmand

Signature of IRB Chair: [Blacked out] Date: 4/8/05

Cc. Dr. Francis
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