THE IMPACT OF QUALITY ON CUSTOMER BEHAVIORAL INTENTIONS BASED ON THE CONSUMER DECISION MAKING PROCESS AS APPLIED IN E-COMMERCE

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Perceived quality in the context of e-commerce was defined and examined in numerous studies, but, to date, there are no consistent definitions and measurement scales. Instruments that measure quality in e-commerce industries primarily focus on website quality or service quality during the transaction and delivery phases. Even though some scholars have proposed instruments from different perspectives, these scales do not fully evaluate the level of quality perceived by customers during the entire decision-making process.

This dissertation purports to provide five main contributions for the e-commerce, service quality, and decision science literature: (1) development of a comprehensive instrument to measure how online customers perceive the quality of the shopping channel, website, transaction and recovery based on the customer decision making process; (2) identification of the determinants of customer satisfaction and the key dimensions of customer behavioral intentions in e-commerce; (3) examination of the relationships among perceived quality, customer satisfaction and loyalty intention using empirical data; (4) application of different statistical packages (LISREL and PLS-Graph) for data analysis and comparison of how these methods impact the results; and (5) examination of the moderating effects of control variables.

A survey was designed and distributed to a total of 1126 college students in a large southwestern university in the U.S. Exploratory factor analysis, confirmatory factor analysis, and structural equation modeling with both LISREL and PLS-Graph are used to validate the comprehensive instrument and test the research hypotheses. The results provide theoretical and normative guidelines for researchers and practitioners in the e-commerce domain. The research

results will also help e-commerce platform providers or e-retailers to improve their business and marketing strategies by providing a better understanding of the most important factors influencing customer behavioral intentions.

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CHAPTER 1

INTRODUCTION

The purpose of this chapter is to provide the general research focus of the dissertation and to introduce the dissertation via the following sections: (1) Research Background; (2) Statement of the Research Problem; (3) Identification of the Research Gaps; (4) Purpose of the Research; (5) Significance of the Research; and (6) Organization of the Dissertation.

1.1. Research Background

E-commerce websites provide one of the most important shopping channels in society today and have changed the way consumers purchase products or services. Even though some consumers still prefer to feel and touch products before buying, the convenience, efficiency, and ease of online shopping are challenging the traditional shopping channel (Nielsen, 2010). The evolution of Internet has made e-commerce one of the most effective and efficient methods to do business. Compared with the traditional face-to-face commerce mode, online shopping offers several unique advantages for the customer, such as (1) widespread selections with all types of products and brands available online; (2) plenty of available product information, so that customers can compare the quality, price, and features of products/services easily to make better decisions; and (3) no time and space limitations, so that customers can go shopping whenever and wherever they want. E-commerce, as a new channel for the delivery of products/services, also provides marketers and retailers a new opportunity to transfer their business from traditional stores to e-commerce websites. There are several advantages of using e-commerce for retailers: (1) E-commerce makes it possible to reach global customers and sell products 24/7; (2) E-commerce can save some of the costs of doing business, such as labor, renting a store, product

storage; and (3) E-commerce can save time and increase product turnover. Not surprisingly, the e-commerce market place has continuously grown during the past few years, and doing business online is a major trend in this century (Liang and Lai, 2002). According to a report by eMarketer (InternetRetailer, 2011), the number of consumers who use the Internet to search for products and buy products is growing steadily and will surpass 200 million by 2015. In fact, the brick-and-mortar marketplace is seriously challenged by the fast growth of e-commerce. With the blooming E-Market place, the competition among E-Commerce websites is also becoming more and more evident. E-commerce retailers not only need to attract more customers from the traditional brick-and-mortar marketplace, but they also need to compete with other e-commerce retailers for e-market share.

1.2. Statement of the Research Problem

Consumers are increasing in their purchase of products or services from e-commerce websites rather than from a physical store. A review of the literature generated during the last few decades demonstrates that most of the studies of E-commerce have focused on the initial adoption of IT and the factors influencing consumers' initial usage of online shopping (Szajna, 1996; Klopping and Earl, 2004; Enrique et al., 2008). These studies were conducted during the development of e-commerce and the intent of increasing e-commerce adoption. In the contemporary e-commerce environments, most Internet users have tried shopping online and are more familiar with this shopping channel than they were when that research was initiated. More than 85% of Internet users all over the world have made at least one online purchase; the segment of the world's population who had shopped online increased by approximately 40 percent within two years (Mitchell, 2008). According to a report by eMarketer (InternetRetailer,

2011), the percentage of Internet users who have shopped online continues to increase and will surpass 90% by 2015. This study is developed to address a more mature e-commerce environment.

Wen, Prybutok, and Xu (2011) state that it is important to focus on online customers' repurchase intention and loyalty because the final success of an online shopping channel relies on the users' continued usage of the website. According to the authors, the cost of retaining a customer for an e-commerce company is much cheaper than the cost of obtaining a new customer. Reichheld and Schefter's study (2000) found that it costs online retailers 20% to 40% more to attract new online customers than to serve an equivalent traditional market. In such an environment, it is important for researchers and practitioners to find methods to appreciate customer loyalty and competitive advantages.

For the reasons given above, it is imperative for researchers and online retailers to understand what factors will influence customer loyalty and their repurchase intentions. Online shopping accommodates customers with different perceptions and shopping experiences because online customers have "double identities as both a shopper and computer user" (Koufaris, 2002). Most of the services delivered by the online retailer to customers are based on online shopping websites. Factors that influence customers' repurchase behavior intention through e-commerce are complicated and different from those in traditional commerce. To that end, the research objective of this paper is to find out the most important antecedents determining customers' continued website usage as it relates to online repurchase intention.

1.3. Identifications of the Research Gaps

The study of consumer behavior is vital to business success, since by understanding the

consumer behavior better than its competitors, an online retailer can provide consumers better products and services, which in turn will motivate consumers to purchase more from the online retailer with better service quality (Lindquist and Sirgy, 2008). The study of consumers' online behaviors helps researchers and practitioners to answer the following questions: (1) why will consumers choose online shopping channel to make a purchase; (2) how will consumers finish the online shopping process; and (3) where or from which websites will consumers make an online purchase.

There are three research perspectives on consumer behavior (Mowen and Minor, 2001): (1) the decision-making perspectives, in which the researchers assume that consumers are goal oriented and will follow a rational 5-step process to make a purchase; (2) the experiential perspective, in which the researchers assume that consumers make a purchase in order to "have fun, create fantasies, or feel desired emotions" (p. 9), instead of following a rational decision making process; and (3) the behavioral influence perspective, in which the researchers assume that consumers will not make a purchase based on a rational decision making process or based on emotions, but will purchase based on the environmental forces, such as "sales promotion, cultural norms, and economic pressures" (p. 11). Most consumers' online purchasing behaviors involve some elements from all three perspectives (Mowen and Minor, 2001). However, most of the extant studies about customer purchase intention and online behavior have assumed that consumers are goal-oriented and have investigated the influence of major factors including online retailers' service performance and website functionality (Chiu et al., 2009; Parasuraman et al., 2005; Zhou, Lu, and Wang, 2011). Other researchers have studied the impact of experiential factors (such as aesthetics, website design, enjoyment and online environment) on online

consumer behavior (Bauer et al., 2006; Broekhuizen and Huizingh, 2009; Wang, Minor, and Wei, 2011). However, few studies have examined consumer behavior from all three perspectives.

Hirschman and Holbrook (1982) asserted that consumers are either "problem solvers" or shopping experience seekers. The utilitarian and hedonic motivations are the two most important categories derived from the marketing field. Utilitarian motivation shows that shopping originates from a mission or task to procure a product or service (Babin et al., 1994). Thus, it is rational, mission critical, and goal oriented (Hirschman and Holbrook, 1982). According to the utilitarian perspective, consumers are concerned with purchasing products in an efficient and effective way (Childers et al., 2001). The acquired benefits of utilitarian motivation depend on whether or not the product or service is acquired, whether the mission is completed, and if it is completed in an efficient way (Babin et al., 1994). By contrast, hedonic motivation focuses on consumers' emotional needs, which takes into consideration the non-functional benefits derived from the shopping process. These benefits included happiness, fantasy, awakening, sensuality, and enjoyment (Hirschman and Holbrook, 1982). The hedonic perspective suggests that people shop because they love the shopping process, which might not be necessarily related to the acquisition of a product or service. Surprisingly, few studies have investigated how online shopping motivation would affect customers' purchase decisions and how their motivations would moderate the relationship between customers' perceptions of quality and behavioral intentions.

Most importantly, the study of online consumer behavior can help researchers and practitioners understand what factors will influence consumers' decisions to purchase and repurchase from the same website. Koufaris (2002) suggested that researchers should consider constructs from information technology, consumer behavior, and social psychology in order to

study online consumer behavior comprehensively. Longitudinally, shopping online is a process that includes three behavioral phrases: pre-purchase, purchase and post-purchase (Kim et al., 2009). Laterally, online shopping studies should consider the influences of IT technologies (functional), marketing theory and psychological methodologies (nonfunctional). However, not much research has developed a comprehensive model, which considers both customers' nonfunctional determinants in their role as consumers and functional determinants in their role as web users.

A consumer's final decision during an online shopping process is subject to various factors. Actually, research on factors influencing online consumers' decision making processes is a cross-disciplinary area, and should include factors in decision science, information technology/information systems, marketing, sociology, and psychology, as shown in Figure 1-1. Thus, I studied online consumers' behavioral intentions focusing on both the functional factors in IS and the nonfunctional determinants in marketing and social psychology.

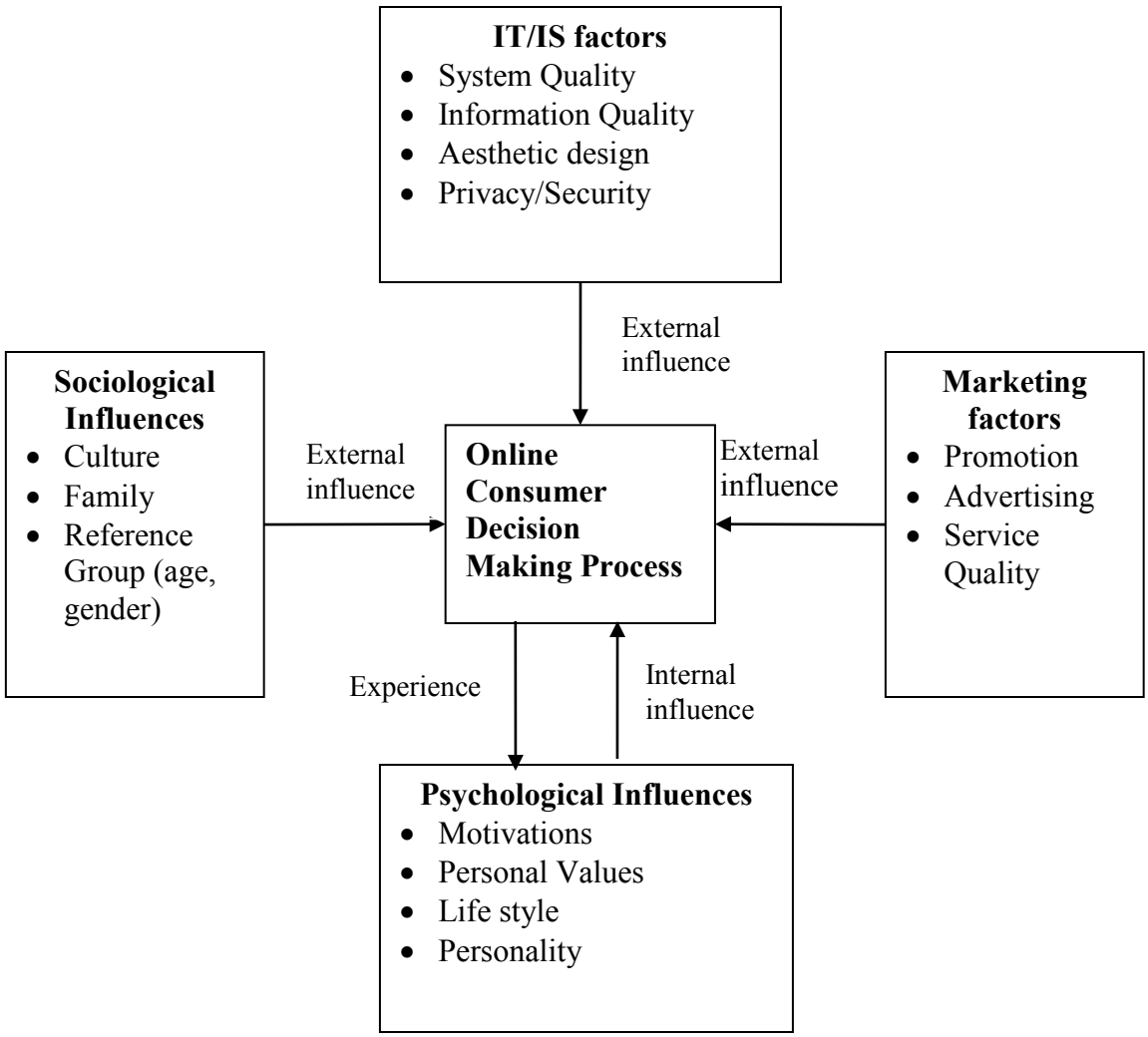


Figure 1-1. Interdisciplinary factors influencing online consumer decision-making process.

Information systems (IS) and marketing researchers have studied why and how customers adopt e-commerce websites for shopping. There are several broad research streams and one of the major streams has concentrated on how customers perceive service quality delivered by websites or online retailers (e.g. Parasuraman et al., 2005; Srinivasan et al., 2002; Bauer et al., 2006; Wolfinbarger and Gilly, 2003). In large part, these studies investigate the predictive capability of the measurement scales of service quality in the e-commerce domain by using customer satisfaction or repurchase intention as dependent variables (e.g. Ho and Lee, 2007;

Kassim and Abdullah, 2010; Parasuraman et al., 2005; Srinivasan et al., 2002; Bauer et al., 2006; Wolfinbarger and Gilly, 2003). "Quality is related to customer satisfaction, retention and loyalty in both product and services settings." (Wolfinbarger and Gilly, 2003, p. 183). Therefore, customers' perception of quality plays a vital role in determining the success of e-commerce through its influence on customer satisfaction and loyalty. It is important to investigate how customers perceive quality during their decision making process and how quality influences their satisfaction and loyalty.

Similar to traditional shopping, customers' return intention is primarily based on the satisfaction in a previous shopping experience. Satisfaction has also been tested in several academic studies as an important factor affecting repurchase intention in the context of e-commerce (Bhattacherjee, 2001; Lee and Lin, 2005; Khalifa and Liu, 2007; Kim et al., 2009). Online vendors face a significant challenge in creating an environment of mutual trust that can give customers confidence with online transactions (Gefen et al., 2003), while making the vendors' products and services appear visually attractive to consumers (Hassanein and Head, 2007). Shopping enjoyment is a crucial influence in traditional brick-and-mortar shopping environments and is also becoming more and more important for online customers (Hassanein and Head, 2007).

1.4. Purposes of the Research

Heskett et al. (1994) proposed the concept of "service-profit chain," which suggested that improving business performance by delivering high quality products/services to customers will increase customer satisfaction and customer loyalty, eventually leading to profit and growth. Therefore, a better understanding of the relationship among quality, customer satisfaction,

customer loyalty, and repurchase intention may help researchers to find out how customers make their purchase decisions. It will also help practitioners to improve their performance by focusing on the essential attributes of quality. It is necessary to investigate and develop a comprehensive measurement scale of perceived quality that incorporates all of the possible components based on the consumer decision-making process in e-commerce, which may influence online customer satisfaction and behavioral intentions. Through building a comprehensive research model that explains all of the possible factors, the purpose of this dissertation is to explain why consumers would like to continue to shop online, how they make a purchase decision when surfing online, why they choose a certain e-commerce website or e-retailer to make a purchase, and what the most important factors are that will lead to customers' loyalty. Answers to these questions will help researchers and practitioners to better understand customers' online shopping behaviors.

Thus, this study makes five main contributions to the e-commerce and service marketing literature:

1) Development of a comprehensive instrument to measure how online consumers perceive the quality of the shopping channel, website, transaction and recovery based on consumer decision making process;
2) Identification of the determinants of customer satisfaction and key dimensions of customer behavioral intentions in e-commerce;
3) Examination of the relationships among perceived quality, customer satisfaction and loyalty intention using empirical data;
4) Application of different statistical packages (LISREL and PLS-Graph) for data analysis and comparison of the results; and
5) Examination of the moderating effect of control variables, such as customers'

purchase motivation (utilitarian vs. hedonic) and gender, on these relationships.

1.5. Significance of the Research

This dissertation fills a gap in both the e-commerce and quality literature by developing a new quality scale with different categories and empirically validating that instrument. Furthermore, this research proposes to test a model of the influence of online consumers' perceptions of quality on consumer loyalty intentions through the mediation of customer satisfaction, perceived enjoyment, trust and perceived value. This study provides guidelines for researchers in the e-commerce and service quality areas about the comprehensive measurement scales of quality in e-commerce. The study also helps e-commerce platform providers or e-retailers to improve their marketing strategies by understanding the most important factors that influence customer repurchase intention, positive word of mouth, and loyalty.

1.6. Organization of the Dissertation

The remainder of the dissertation is organized into five sections, including literature review, theoretical framework and hypotheses development, research methodology, results, and discussion. In the literature review, I review and discuss existing research on quality and service related issues. Drawing upon the existing literature, I apply the Engel-Kollat-Blackwell decision making process to put forward a theoretical IS quality model and related hypotheses. I also review the existing measurement work in the IS field on those three IS quality constructs, including e-channel quality, information quality, system quality, and service quality. I build the research framework and propose the research hypotheses based on the big quality theory. In the instrument development section following this exercise, I enumerate IS quality measures for a draft instrument, which is then assessed for content validity, reliability, and construct validity. In

the model testing section, I examine the causal and structural paths in my models. I conclude this dissertation with a discussion of contributions, implications, limitations, and future research directions.

CHAPTER 2

LITERATURE REVIEW

This chapter provides a review of the literature on quality, Engel-Kollat-Blackwell decision-making model, DeLone and McLean IS success model, and quality related studies applied in e-commerce. There are four sections in this chapter. In the first section, I review the definition of quality and service quality. I discuss and then debate the importance of quality in the consumer decision making process. I also introduce the dimensions used to measure quality in different industries. In section 2, I introduce the theoretical background to support my research framework: the Engle-Kollat-Blackwell decision making model. The third section provides a review of another theoretical background used to support my research hypotheses: DeLone and McLean IS success model. In the last section, I provide an extant review of studies related to quality as applied in e-commerce. This review helps me understand the current status of the research in this area and the importance of the study.

2.1. Definition of Quality

Quality is not a new concept in business. The definition of quality has many different versions because people add their own understanding to describe quality with different criteria from different perspectives. After extensive review of the literature, Sower et al. (2001, p. 48) proposed "there is a great deal of variability and confusion in how quality is conceptualized and operationalized." Reeves and Bednar (1994) argued that there is no "universal, parsimonious, or all-encompassing definition or model of quality" (p. 436). In other words, the universal definition of quality could be perceptual, conditional, inconsistent and subjective (Bergman and Klefsjo, 2004).

Therefore, a summary of definitions of quality from different perspectives can help me understand the attributes of quality. From the literal perspective, Merriam-Webster's online dictionary defines quality as "the degree of excellence; superiority in kin; a distinguishing attribute; peculiar and essential character; and being of high quality." Wikipedia defines quality in business as "the perception of the degree to which the product or service meets the customer's expectations."

In the academic domain, quality is defined in a different context across various disciplines, such as physics, philosophy, and business (with sub-disciplines such as marketing, economics, operations management, and IS/IT). The influences of quality on key variables, such as price, value, net benefits, market share, and consumer behaviors, have been studied in the past few decades, even though inconsistent empirical results are found (Garvin, 1984). Reeves and Bednar (1994) summarized the definition of quality as (1) excellence, (2) value, (3) conformance to specifications, and (4) meeting and/or exceeding expectations, after they compared the advantages and disadvantages of each definition of quality, and proposed that there was no best definition fitting in every situation. Therefore, it is important for researchers to identify the best definition based on their research purposes in order to investigate the influences of quality on business performances and customer behaviors. A selection of important definitions of quality in the past few decades in both academic and industrial areas are summarized in Table 2-1.

Table 2-1

Summary of Definitions of Quality

Defined by	**Definition**
Juran, 1988	Quality is fitness for use.
ANSI/ASQC A3 (1978)	The totality of features and characteristics of a product or service that bears on its ability to satisfy given needs.
Crosby, 1979	"Conformance to requirements."

(table continues)

Table 2-1 (*continued*)

Defined by	Definition
Kano, 1984	"Products and services that meet or exceed customers' expectations."
David A. Garvin, 1984	5 Approaches to define quality: (1) the transcendent definition; (2) the product-based definition; (3) the user-based definition; (4) the manufacturing-based definition; and (5) value-based definition.
Deming, 1986	"Improvement of quality transfers waste of man-hours and of machine-time into the manufacture of good product and better service. The result is a chain reaction - lower costs, better competitive position, happier people on the job, jobs, and more jobs." p. 2.
Taguchi, 1993	Quality is uniformity around a target value, or outcome within certain number of standard deviations.
Bergman and Klefsjo, 2004	"The quality of a product (article or service) is its ability to satisfy the needs and expectations of the customers."
Evans and Lindsay, 2008	A customer-driven definition: "Quality is meeting or exceeding customer expectations"
ISO 9000	Degree to which a set of inherent characteristics fulfills requirements (need or expectation)
Six Sigma	Number of defects per million opportunities.
American Society for Quality (ASQ)	A subjective term for which each person has his or her own definition. In technical usage, quality can have two meanings: (a) the characteristics of a product or service that bear on its ability to satisfy stated or implied needs and (b) a product or service free of deficiencies.

Several concepts emerged from a management perspective of quality: total quality, quality assurance, and quality control. Quality control focuses on the process of producing the product or service with the intent of eliminating problems that might result in defects (Evans and Lindsay, 2008). Quality assurance is defined as "all planned and systematic activities directed toward providing the consumer with the product or service of appropriate quality, along with the confidence that the product meet consumers' requirements." (Evans and Lindsay, 2008, p. 4). Quality assurance has a wider focus than quality control; instead of "right first time," which is similar to quality control that focuses on eliminating defects, quality assurance also focuses on

"Fit for purpose," which means products or services should be suitable for the intended purpose. Total quality is defined as "a people-focused management system that aims at continual increase in customer satisfaction at continually lower real cost,"" (Evans and Lindsay, 2008, p. 18).

2.2. Definitions of Service Quality

Considering definitions of quality summarized above, the product refers to both physical goods and services. However, with the fast growth in service industries in the global market place, many service organizations seek profits and competitive advantages by focusing on improving service quality. Service business should include how organizations deliver physical products and intangible products to customers. It is more difficult to measure service quality as objective as physical product quality because "service characteristics include intangibility, heterogeneity, and inseparability of the production and consumption of services." (Sower et al. 2001, p. 49). Norman (1984) has defined services as "social acts which take place in direct contact between the customer and representatives of the service company." Increasing studies are focusing on the measurement of service quality and the impact of service quality on business success.

It is essential to note that unstable dimensionality of service quality instrument exists in different service related studies. A general scale of service quality is five-dimension SERVQUAL based on the gap theory (Parasuraman et al., 1988), and the fit of this scale has been tested in many industries. The performance-based SERVPERF instrument (Cronin and Taylor, 1992) incorporated the original five dimensions and 22 items. However, the gap scales were replaced with perceptions that measure service quality. In some studies, SERVPERF is considered as more valid, reliable and powerful than SERVQUAL (e.g., Cronin and Taylor, 1992; Jain and Gupta, 2004).

2.3. Importance of Quality in Consumer Decision Making Process

Quality is considered one of the most important constructs in marketing, manufacturing, service delivery, health care, education, and governance (Evans and Lindsay, 2008). In the marketing domain, quality affects customers' pre-purchase, purchase, and post purchase behaviors. In the manufacturing domain, quality affects the cost of the products, efficiency, and management. In the service domain, quality affects customers' perceptions, beliefs, attitudes, and intentions. It has been deemed as an important management strategy to deliver high quality products and services to customers. The literature review suggests that the concept of service quality plays a central role in understanding how to improve business performance and maintain core competitiveness. Superior quality leads to customer satisfaction and customer retention, which eventually leads to higher profits. Poor quality leads to customer dissatisfaction and reduces customer intentions to repurchase. Worse still, unsatisfied customers may make other (potential) customers refuse to visit because of word-of-mouth communication (Gilbert et al., 2004). Quality can improve organization's competitive advantage in higher perceived value of product or service and increased market share. Quality improvement in creative ways can reduce costs and increase productivity (Kondo, 2000). Quality has attracted the interests of both academic researchers and practitioners because of the essential effects on organization performance. There are various potentially predictive quality attributes/ measurements/ dimensions in the context of e-commerce; however, customers do not have to perceive all of these attributes during one transaction and these dimensions do not contribute much to enhance the overall quality. Therefore, it is necessary for the managers to know what the most crucial attributes are and focus on enhancing the overall quality efficiently (Yang et al. 2004).

2.4. Dimensions of Quality

Because of the complexity of the quality construct, researchers define and measure quality as a multi-dimensional concept (Garvin, 1984; Parasuraman et al., 1985,1988). Multi-dimensional quality requires measurement from different perspectives to assemble a comprehensive instrument of quality. The development of each dimensions of quality focuses on different resources (Mohanty et al. 2007). A number of researchers in the quality field have developed lists of dimensions that define quality for a product and/or a service for various situations in a wide range of industries. Garvin (1984) developed eight dimensions of product quality. Parasuraman, Zeithaml, and Berry (1985) proposed and described ten dimensions as criteria used by customers for evaluating service quality. These are general dimensions and serve as good starting points. However, current research indicates that in terms of service quality, the dimensions are unique in different industries, so Parasuraman et al.'s (1988) dimensions may not apply equally well to, for example, health care services and e-commerce services. Parasuraman et al. (1988) developed 5 service dimensions that they tested in 4 types of service industries. However, the applicability of these dimensions in other industries is unknown.

Mohanty et al. (2007) proposed that the components of quality could be managed from four different perspectives: (1) business perspective, which focuses on the study of quality from the strategic level; (2) management perspective, which focuses on the tactical level; (3) hands-on operational perspective, which focuses on the operations level; and (4) customer satisfaction perspective, which is based on the Kano model to divide customer satisfaction into three levels. The authors also listed and defined the dimensions belonging to each level of customer satisfactions. However, they did not provide any empirical test of these dimensions.

Table 2-2

A Selection of Studies with Dimensions of Quality in Different Industries

Industries	**Studies**	**Number of dimensions**	**Dimensions**
General Products	Garvin, 1984, Dimensions of Product Quality	8	Performance, Features, Reliability, Conformance, Durability, Serviceability, Aesthetics, Perceived Quality
General Services	Parasuraman et al. 1988, SERVQUAL	5	Tangibles, Reliability, Responsiveness, Assurance, Empathy
Health Care	JCAHO, 1996,	9	Efficacy, Appropriateness, Efficiency, Respect & Caring, Safety, Continuity, Effectiveness, Timeliness, Availability
Health Care	Sower et al. 2001, KQCAH	8	Respect & Caring, Effectiveness & Continuity, Appropriateness, Information, Efficiency, Meals, First Impression, Staff Diversity
IS/IT	DeLone, and McLean, 2003, Quality for IS success	3	System Quality, Information Quality, and Service Quality
IS/IT	Loiacono et al. 2007, WebQual	12	Info/Fit-to-Task, Tailored Information, Online Completeness, Relative Advantage, Ease of understanding, Intuitive operations, Trust, Response Time, Visual Appeal, Innovativeness, Emotional Appeal, Consistent Image
E-commerce	Bauer et al. 2006, eTransQual	5	Responsiveness, Reliability, Process, Functionality/Design, Enjoyment
E-commerce	Parasuraman et al. 2005, E-S-QUAL	7	E-S-QUAL: efficiency, fulfillment, system availability, and privacy; E-RecS-QUAL: Responsiveness, compensation, and contact.
E-commerce	Wolfinbarger and Gilly, 2003, eTailQ	4	website design, fulfillment/reliability, privacy/security, and customer service

The definition, measurement and criteria of quality have been changing through the development of the society, among different industries. Therefore, the dimensions of quality need to be redefined according to different industries and time. It is important for practitioners

and researchers to develop an instrument of quality from a specific set of dimensions for their own business strategies and research purposes (Mohanty et al. 2007).

2.5. EKB Decision Making Model

The Engel-Kollat-Blackwell (EKB) model (Figure 2-1) is a comprehensive model that deals with consumer decision making process, factors that influence the process, and interrelationships between these components and factors. The core of this model reflects the most widely accepted five-stage problem-solving process. Since consumers are decision makers attempting to fulfill their needs, this problem-solving process is applied in consumer behavior studies to understand how consumers make decisions to satisfy their needs and expectations. These five stages include problem recognition, search, alternative evaluation, purchase, and outcomes, as evidenced in in the extant literature (Liang and Lai, 2002; Darley, Blankson, Luethge, 2010). Furthermore, psychological, sociological and all the other factors (such as IT/IS factors in the E-Commerce study) that may influence consumer purchase decisions are involved in the EKB model (Lindquist and Sirgy, 2008). In the EKB model, as shown in Figure 2-1, since the EKB model depicts a dynamic and ongoing decision making process, customers' last online shopping experience highly influences their next purchase decision. This complex process is exacerbated by the influence of numerous uncertain internal and external factors. However, all these factors can be divided into two parts: (1) factors that are related to customers' own situations and cannot be changed by business managers, such as individual characteristics and social influence; and (2) factors that are related to business performance and can be improved by business managers, such as website quality and service quality. In this study and for simplicity, I focus on the external factors that influence customers' purchase decision making process.

On one hand, considering the consumer benefits, different customers in different situations may seek different benefit packages (Lindquist and Sirgy, 2008). Therefore, it is the academic researchers and practitioners' responsibility to find the market segmentation, which is defined as "the identification of like-minded clusters of consumers who can be expected to behave in similar ways, making similar decisions in the marketplace in similar situations" (Lindquist and Sirgy, 2008, p. 7). From the business strategy perspective, online retailers cannot change internal factors and sociological factors of the customers. However, those factors can be studied for customer segmentation so that online retailers can develop different business strategies for different market segments. From the academic perspective, researchers can examine the moderating effect of these customer segments. There could be a variety of different market segments based on different segment bounding, such as (1) demographics, including age, gender, income, education levels, etc. (2) individual characteristics, including personality, lifestyles, values, interests, etc. (3) social influences, including national culture, subculture, family size, etc. (Lindquist and Sirgy, 2008).

On the other hand, online retailers and academic researchers need to know what factors influence online customers purchase decisions that are based on their business performance, what the most important factors are that influence customer decision making process, and what they can do to change these factors for their business successes. From this perspective, this study mainly focuses on investigating how those IT/IS factors and marketing factors that can be improved by business managers affect customer purchase decisions. Some demographic questions and social-economic questions are involved in the study so that I can examine the influences of several different customer segments.

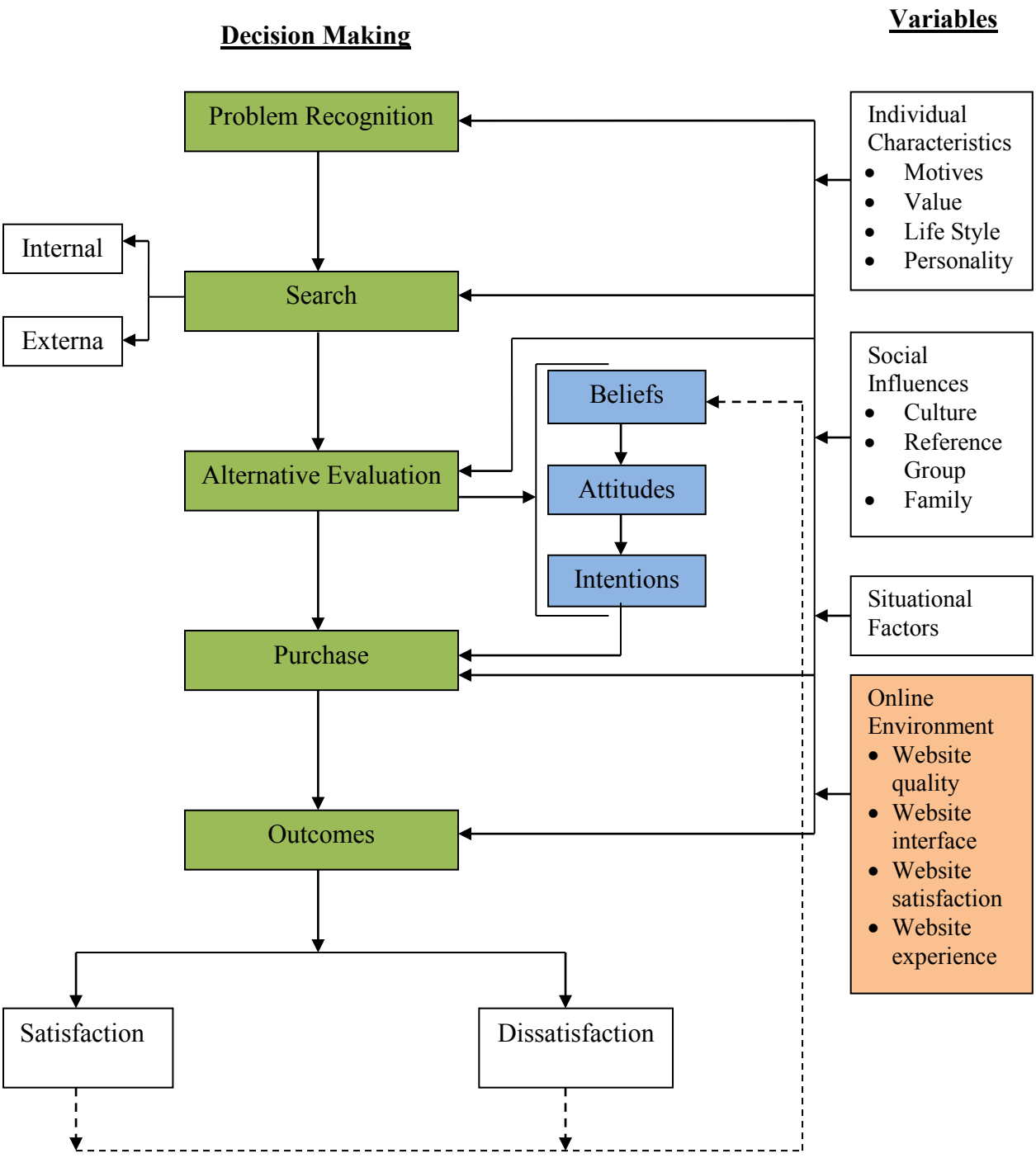


Figure 2-1. The Engel-Kollat-Blackwell model of consumer behavior in e-commerce. Adapted from Engel, Blackwell, and Miniard (1995, p. 95) and Darley, Blankson, and Luethge (2010, p. 96).

2.6. The Updated DeLone and McLean IS Success Model

This updated D&M IS success model is proposed by DeLone and McLean (2003) based on their first version of Information Systems Success Model that they developed in 1992. During the 10 years of the development of these two models, the Information systems success models have been studied and extended empirically and conceptually by numerous researchers. DeLone and McLean proposed the updated IS success model to "synthesize previous research involving IS success into a more coherent body of knowledge and to provide guidance to future researchers." (DeLone and McLean, 2003, p. 10) The updated D&M IS success model provide a more comprehensive and general measurement of multidimentional nature of IS success. Unlike the IS success model (1992) with only system quality and information quality as antecedents of use and user satisfaction, the updated D&M IS success model added service quality as the third major component of quality in the IS success model because of "the changes in the role of IS over the last decade" (DeLone & McLean, 2003, p. 18).

Most importantly, the updated D&M IS Success Model was discussed and adopted in the context of e-commerce in their further study by Delone and McLean (2003). The service quality was considered more important in the e-commerce success as the importance of IS support in the customer service. Six major dimensions (system quality, information quality, service quality, intention to use/use, user satisfaction, and net benefits) were defined, and metrics were developed. DeLone and McLean (2003) argued the e-commerce context fits well in the updated IS success model; however, they did not provide any empirical test of this fit. Wang (2008) proposed an e-commerce systems success model based on the Updated D&M IS Success model and the Seddon model (1997). In the model, information quality, system quality, and service quality are the antecedents of perceived value and customer satisfaction, which in turn influences

customer intention to reuse. In Wang's study, the e-commerce systems success model is limited in the IS area since it mainly considers the customers as a system user but not a buyer. Therefore, it is important to extend this study to a comprehensive level encompassing consumer buyer behavior.

2.7. A Review of Quality Related Studies in E-Commerce

Quality is deemed as the key to gain customer loyalty and the maintenance of competitive edge in e-commerce. As a result, many online retailers are designing tactics and strategies to improve the quality performance in their business deliberations. Furthermore, quality has been studied theoretically and empirically as the key driver in the e-commerce success (including e-commerce adoption and e-commerce continued-to-use) (DeLone & McLean, 2003); therefore, many researchers have included quality as a factor influencing consumer behavior.

Electronic service or e-service quality is defined as "overall customer evaluations and judgments regarding the excellence and quality of e-service delivery in the virtual marketplace" (Santos, 2003, p. 235). E-service is different from traditional service in that (1) e-service involves an encounter between the consumer and the virtual marketplace with virtual salespeople (websites or the salespeople behind the websites), (2) the tangible components compared to the traditional marketplace are absent, and (3) customers learn how to serve themselves (Carlson and O'Cass, 2010). Thus, the measurement of service quality delivered through an e-retailing website is different from the traditional service quality delivered in physical stores. Similar to the inconsistency of defining quality in traditional industries, the definition and measurement of quality in e-commerce is studied from various perspectives. Since e-commerce depends on the website(s) to deliver information and service, the quality perceived by online customers includes

not only service quality during encounter with the website, but also website (system) quality and information quality. Furthermore, for the studies related to customer adoption or continued usage of e-commerce, many other factors except for quality should also be considered. These factors include the unique advantages of shopping online as discussed in Chapter 1, and customer individual characteristics and social influences as put forward in the EKB model. To that end, customer behavior in the context of e-commerce is a complicated and a challenging topic. This dilemma explains why a variety of measurement scales of service quality in e-commerce were developed. However, there is no widely adopted measurement scale that fits well in the complicated e-commerce environment as SERVQUAL (Parasuraman et al. 1988) does for the traditional service industry. Even though academic research has identified various antecedents related to online consumer behavior from different perspectives, there is no comprehensive examination of these factors from the customer decision making process perspective. This lacuna in the literature further underscores the impetus for this research.

Gefen (2002) adopted the SERVQUAL instrument with five dimensions in the e-commerce context. His research results showed that three dimensions: responsiveness, reliability, and assurance fell into one dimension. Tangible is the most important dimension that influences customer loyalty. The SERVQUAL scales have been tested in several traditional service industries and are deemed as parsimonious scales to measure service quality. However, these scales do not fit into the e-commerce context quite well due to the special characteristics of the e-commerce domain.

Zeithamal et al. (2002) claimed that the service quality delivery through website is a more important strategy than low price and web presence. The authors' literature review summarized five criteria that customers use in evaluating e-service quality, including (1)

information availability and content, (2) ease of use or usability, (3) privacy/security, (4) graphic style, and (5) fulfillment. Zeithamal et al. (2002) compared traditional SQ and e-SQ from two perspectives: the customer assessment perspective and the organization's perspective. Customers' expectations, and the number and content of dimensions are different between traditional SQ and e-SQ from the customer assessment perspective. From the organization perspective, four gaps exist in the traditional SQ. These four gaps are differences among "customer expectations," "management perceptions of customer expectations," "SQ specifications," "the service actually delivered," and "what is communicated about the service to consumers". Meanwhile, the authors proposed another four gaps for the e-SQ, including information gap, design gap, communication gap, and fulfillment gap.

In their examination of customer perceptions of service quality in online shopping, Lee and Lin (2005) developed a five-dimension scale of e-service quality based on a modification of the SERVQUAL model in the online shopping context. The empirical results showed that only the dimensions of reliability, website design, responsiveness and trust significantly influence overall service quality and customer satisfaction. Trust is the strongest construct affecting customer satisfaction. Personalization, on the other hand, is not significant. These results are consistent with Zeithamal et al. (2002) claim that "personal service is not critical in the transactional aspects of online service" (p. 367) because personal service is required only when customers experience recovery issues. Yang et al. (2004) developed a reliable and valid instrument for measuring online service quality by integrating customer service quality, information systems quality, and product portfolio management in the context of online banking. Reliability, responsiveness, competence, ease of use, security, and product portfolio are identified as the six key online service quality dimensions with the empirical study result.

Parasuraman et al. (2005) developed two parsimonious scales including E-S-QUAL and E-RecS-Qual, which were designed to measure electronic service quality in the context of the B2C online shopping website. A six-step process was used to define the meaning and domain of e-SQ, develop the preliminary scale, refine the parsimonious scale, and test the final scales to measure e-SQ. In the final 22-item E-S-QUAL scale for measuring the service quality delivered by the websites, four dimensions, including efficiency, fulfillment, system availability, and privacy, were developed and tested. Unlike research on the goal-oriented online shopping behavior in previous studies, Bauer et al. (2006) proposed the importance of entertainment and the emotional value of online shopping, and developed an integrated scale of both utilitarian and hedonic e-service quality measurements. Five dimensions of e-service quality are identified by Bauer et al. (2006), including: functionality/design, enjoyment, process, reliability and responsiveness.

Mohanty et al. (2007) defined a comprehensive instrument to measure quality with 24 significant dimensions from the customer satisfaction perspective, including: (1)Basic-must requirements (reliability, time and timeliness, accessibility, communication and feedback, usability/navigability, availability, functionality, reputation, and trust); (2) Performance-expected requirements (performance, features, serviceability, accuracy/clarity, responsiveness, structure, customization, integrity, and flexibility); (3) Delight-excitement features (transcendence, courtesy/empathy, retrievability, interactability, service differentiation). Even though the authors defined these dimensions and provided the measurement items for these dimensions, no empirical study was conducted to establish the reliability and validity of these scales. Thus, the causal relationships of these quality dimensions with customer satisfaction and behavioral intentions remain untested. Some further empirical study needs to be done to refine these

dimensions so that e-commerce managers can focus on the most significant characteristics of quality. These dimensions are defined in the context of e-commerce, but not specified in online shopping. Some of the dimensions are overlapping with each other, and these authors do not show why the dimensions are categorized in three levels and why they related with each level.

Zhou et al. (2011) examined the importance of the factors resulting in decreased online purchases. Based on the two-factor theory, website quality, including two first-order dimensions of system quality and information quality, was considered Hygiene factor; service quality, including four first-order dimensions of reliability, responsiveness, assurance, and empathy, was also defined as motivational factor. The authors' data analysis results of survey data collected from online shoppers showed that Chinese consumers' perception of website quality has stronger influence on decreased online purchases than service quality, while service quality has stronger influence on increased online purchases than website quality. Zhou et al. (2011) research results are consistent with the theory of Kano quality model. Specifically, consumers' perceptions of quality during online shopping should be discussed from hygiene and motivational features, since consumer satisfaction is actually composed of two different constructs: satisfaction and dissatisfaction. The hygiene factors lead to less satisfaction if they meet certain level of customer needs or higher, but they lead to customer dissatisfaction if they do not meet the basic level. The motivational factors, instead, lead to more customer satisfaction or enjoyment if they reach higher levels.

A comprehensive literature review of extant empirical studies dealing with the impacts of quality (and other factors) on online consumer satisfaction or behavioral intention was conducted and is summarized in Table 2-3.

Table 2-3

Summary Review of a selection of Online Consumer Behavior and Quality Related Literature

Authors (Year), Jour.	Dependent Variables	Independent variables	Methods	Sample Source/Size	Service setting	Research Focus
Zhou, Lu, & Wang (2011),JECO	Decreased/increased online purchases	Website Quality (System and Information), Service Quality (Assurance, Reliability, Responsive, Empathy)	Separate group analysis with PLS	184 Internet shoppers	Chinese online shopping websites	Consumers' perceived service quality significantly affects increased purchasing behavior, whereas their perceived website quality affects decreased online purchasing.
Wang, Minor, & Wei (2011), JoR	Online Consumer Conative Tendencies (Purchase, Search on other websites, Re-visit, Consultation)	Perceived Web Aesthetics (Aesthetic Formality, Aesthetic Appeal); Satisfaction, Arousal, Online SQ	2X2 Factorial Design & with survey study. SEM in LISREL	258 intercepted mall shoppers	e-tail industry	Online consumers' perceived web aesthetics affect consumers' cognitive, affective, and conative outcomes. Purchase task significantly moderates consumers' responses in terms of magnitude and direction.
Abdul-Muhmin (2011), JICM	Repeat Purchase Intentions	Online Product Prices, Online Product Quality, Customer Service, Required Payment Methods, Perceived Payment Security, and Delivery Time; Overall Satisfaction, Attitude	Ordinary Least Squares Multiple Regression	436 consumers in Saudi Arabia	General online shopping	Customers' overall satisfaction with last online shopping experience and attitudes toward online shopping affects online repeat purchase intentions. Customer's' satisfaction with the independent variables will influence their overall satisfaction.

Authors (Year), Jour.	Dependent Variables	Independent variables	Methods	Sample Source/Size	Service setting	Research Focus
Yao and Liao, (2011),M&M	Consumer Satisfaction	E-tailing Service Quality (Reliability, Access, Ease of Use, Attentiveness, Security, Credibility), Trust in Website; Internet Shopping Anxiety; Perceived Risk	Survey Study, SEM in AMOS	239 online shopper from particular online retailers' websites	e-tail industry	E-tailing service quality and trust in website have significant negative effects on Internet shopping anxiety. Internet shopping anxiety has a significant positive effect on perceived risk. Perceived risk has a significant negative effect on consumers' satisfaction.
Im, Lennon, & Stoel(2010), JRIM	Repatronage Intent, Purchase Intent,	Visual Quality (major contributor to Perceptual Fluency), Aesthetic Evaluation, Pleasure	Experiment with mock sites and survey study, MANOVA,SEM	1999 College students in Midwestern university	online apparel stores	The perceptual fluency (manipulated by visual quality) positively influence aesthetic evaluation and pleasure. Pleasure had a stronger impact on behavioral intentions than aesthetic evaluation.
Kim & Song, (2010), JRIM	Online Shopping Intention	Quality of WOM; Online Trust; Perceived Usefulness (PU), Perceived Ease of Use (PEOU)				Customer's' reviews of product influence WOM. The quality of WOM positively influence online trust, which positively influence PU, PEOU and shopping intension. PU and PEOU influence online shopping intention.

Authors (Year), Jour.	Dependent Variables	Independent variables	Methods	Sample Source/Size	Service setting	Research Focus
Jones & Kim (2010), IJCS	Online Apparel Shopping Intention	Retail Brand Trust, Off-line Patronage, Clothing Involvement, and two factors of Website Quality	Survey, correlation analysis, regression	200 female college students	Online apparel shopping	Customers' offline attitude and behavior influence customer's intention to shop at retailer's website. All the proposed independent variables significantly influence the dependent variable.
Demangeot & Broderick (2010), P&M	N/A	Page clarity, site architecture, visual impact, experiential intensity, marketer informativeness, non-marketer informativeness	Survey study, CFA using LISREL	301 college students and staffs in UK	Online shopping	A model with 6 constructs was developed to test how customers perceive online shopping environments.
Kim & Niehm(2009), JIM	Perceived Information Quality, Perceived value, Loyalty Intention	Website Quality(Interactivity, Online Completeness, Ease of Use, and Entertainment, Trust)	Survey Study, SEM in AMOS	266 undergraduate students	Online Apparel retailing	Website quality significantly influence perceived information quality, which in turn affects perceived value and loyalty intentions. Perceived value influences loyalty intentions toward apparel retail websites.
Chiu, Chang, Cheng, & Fang (2009), OIR	Customer Repurchase Intentions	Trust, Enjoyment, PU, PEOU, e-Service Quality (Fulfillment, Privacy, System Availability, Responsiveness, Contact)	Survey study, SEM in PLS-Graph	360 online shopping customers	Online shopping	All the dimensions for E-Service Quality except for system availability are positively related to Trust. Trust, Enjoyment, PU, and PEOU significantly influence customer repurchase intention

Authors (Year), Jour.	Dependent Variables	Independent variables	Methods	Sample Source/Size	Service setting	Research Focus
Broekhuizen & Huizingh (2009), MRN	Online Purchase Intentions	Merchandise Quality, Service Quality, Price Attractiveness, Time/Effort Savings, Perceived Risk, Enjoyment	SEM	357 customers	Online shopping	Merchandize quality, enjoyment, and time/effort savings are significantly related to intentions; service quality is significantly related to perceived risk.
Lin & Sun (2009), OIR	Customer e-Satisfaction, e-Loyalty	External factors (Technology Acceptance Factor, Website Service Quality); Internal factor: Specific Holdup Cost	Survey Study, SEM	221online customers	Internet shopping	External factors positively affect e-satisfaction and e-loyalty; internal factors positively affect e-loyalty; e-satisfaction positively affects e-loyalty.
Bauer, Falk, & Hammerschmidt (2006), JBR	Perceived Value, Satisfaction	eTransQual: Responsiveness, Reliability, Process, Functionality/Design, Enjoyment	EFA, CFA, reliability analysis,	Online shopper in Germany	Electronic services, especially in online shopping	Develop and define e-service quality components including both utilitarian and hedonic measurements based on online shopping transaction process.
Ho & Lee (2007), TM	Customer Satisfaction and Loyalty Intention.	Information Quality, Security, Website Functionality, Customer Relationships, and Responsiveness.	EFA, CFA, and path analysis	Online purchasers from Taiwan Yahoo.	e-travel service	Identify dimensions and develop measurement items for e-travel service quality scale. Reliability, validity, and predictive capability were tested with empirical study.

Authors (Year), Jour.	Dependent Variables	Independent variables	Methods	Sample Source/Size	Service setting	Research Focus
Wolfinbarger & Gilly (2003), JoR	Overall Quality, Satisfaction, Loyalty Intentions and Attitude towards the Website	eTailQ: Website Design, Fulfillment/Reliability, Privacy/Security, and Customer Service	Hierarchical cluster analysis, EFA, CFA	online customer panel	Internet retailing	Identify dimensions and develop measurement items for eTail service quality scale. Reliability, validity, and predictive capability were tested with empirical study.
Srinivasan, Anderson, & Ponnavolu (2002), JoR	e-Loyalty, Word-of-Mouth Promotion, Willing to Pay More	Customization, Contact Interactivity, Care, Community, Convenience, Cultivation, Choice, and Character	EFA, CFA, regression	online customers	online B-2-C retailing	Antecedents and consequences of e-loyalty
Parasuraman, Zeithaml, & Malhotra (2005), JSR	Perceived Value, Loyalty Intentions	E-S-QUAL: Efficiency, Fulfillment, System Availability, and Privacy; E-RecS-QUAL: Responsiveness, Compensation, and Contact.	EFA, CFA, SEM analysis	online customers from Amazon.com and Walmart.com	online shopping websites	Conceptualize and identify dimensions of service quality delivered through web sites. Develop and refine the measurement scales for these dimensions. Test the reliability, validity, and predict capability of the scales.
Kassim & Abdullah (2010), APJML	Satisfaction, Trust, Customer loyalty: WOM and Intention	Service Quality: Ease of Use, Web Design, Responsiveness, Personalization, Assurance	EFA, CFA, GLM and SEM	357 customers	Electronic commerce	Perceived service quality significantly affect customer satisfaction, which in turn affect trust and loyalty.

Authors (Year), Jour.	Dependent Variables	Independent variables	Methods	Sample Source/Size	Service setting	Research Focus
Loiacono, Watson, & Goodhue (2007), IJEC	Reuse Intention	WebQual: Info/Fit-to-Task, Tailored Information, Online Completeness, Relative Advantage, Ease of Understanding, Intuitive Operations, Trust, Responsive Time, Visual Appeal, Innovativeness, Emotional Appeal, Consistent Image.	EFA, CFA	Four samples of college students enrolled in different semesters. (510, 336, 311, 377)	e-commerce websites	WebQual instrument with 12 dimensions were developed based on TRA and TAM for evaluation of websites. Reliability and validity of this scale were tested.
Gefen (2002), JAIS	Customer Loyalty	Service Quality (Tangibles, Empathy, Reliability, Responsiveness, Assurance), Trust, Perceived Risk, Cost to Switch Vendor	Principal Components Factor Analysis, PLS	160 college students	online book purchase from Amazon.com	SERVQUAL dimensions were used to measure online service quality, responsiveness, reliability, and assurance become one combined dimension. Tangible is the most important dimension that influences customer loyalty.
Harris & Goode (2004), JoR	Perceived Value, Trust, Satisfaction, and Loyalty	Service Quality (22 items adopted from SERVPERF scales)	SEM	294 online book purchasers and 204 online flight purchasers	books and flights online markets	SERVPERF scales are used to measure service quality perceived by online customers. Trust is a key driver of loyalty. Service quality influence perceived value. Four dimensions of loyalty were developed and tested.

Authors (Year), Jour.	Dependent Variables	Independent variables	Methods	Sample Source/Size	Service setting	Research Focus
Chen & Chang (2003), IJSIM	Online Shopping Experience	Interactivity (Connection Quality, Web Site Design), Transaction (Value, Convenience, Assurance, Entertainment, Evaluation),Fulfillment(Order Processing, Delivery, Post-sales Services)	Factor analysis and regression	306 valid responses from online shoppers	Online shopping	A common online shopping process were developed and three components with 10 factors influence online shopping experience
Jiang & Rosenbloom (2005), EJM	Customer Intention to Return Online	Customer Price Perception, Customer Satisfaction (at Check-Out, After Delivery, and Overall)	SEM	416 online customers from BizRate.com	online retail websites	The impact of price perception, two-stage of satisfaction, and an overall satisfaction on customers' return intention were tested. Results show that after-delivery satisfaction is more important than at-checkout satisfaction.
Lee & Lin (2005), IJRDM	Overall Service Quality, Customer Satisfaction, and Purchase Intentions	e-service quality (Web Site Design, Reliability, Responsiveness, Personalization, and Trust)	CFA and SEM	297 online consumers	online shopping	The scale of five dimension of e-service quality was adopted from SERVQUAL. All of them expect for personalization did not affect overall service quality and satisfaction.

Authors (Year), Jour.	Dependent Variables	Independent variables	Methods	Sample Source/Size	Service setting	Research Focus
Carlson & O'Cass (2010), JSM	Customer Satisfaction, Attitude Towards the Website, and Behavioral Intentions	E-service quality (Usefulness, Ease-of-Use, Entertainment, and Complementary Relationship).	PLS SEM.	518 online consumers	content-driven e-service web sites	E-service quality scales are based on WebQual developed by Loiacono et al.(2007) e-service quality positively affects satisfaction and web attitudes and behavioral intentions.
Christodoulides & Birmingham (2011), JMM	e-Satisfaction, e-Loyalty	Shopping Motives (Convenience, Information Seeking, Variety Seeking, and Social Interaction)	SEM	797 online customers	fashion e-retailers	Convenience, variety seeking and social interaction influence e-satisfaction, which in turn influence e-loyalty.
Liang & Lai (2002), I&M	Consumer Choice (Current Purchase, Future Visit, and Future Purchase)	Design Quality (Hygiene Factors, Motivators, and Media Richness Factors)	Experimental design with ANOVA test and least square difference comparison	30 students	online bookstores	Design quality of the online shopping website significantly influence consumer choice as the effect of price and store reputation. EKB model was used to identify the features for design quality.

Notes: I&M = Information & Management; JMM = Journal of Marketing Management; JSM = Journal of Services Marketing; IJRDM = International Journal of Retail & Distribution Management; EJM = European Journal of Marketing; IJSIM = International Journal of Service Industry Management; JoR = Journal of Retailing; JAIS = Journal of Association for Information Systems; IJEC = International Journal of Electronic Commerce; APJML = Asia Pacific Journal of Marketing and Logistics; JSR = Journal of Service Research; TM= Tourism Management; JBR = Journal of Business Research; OIR = Online Information Review; MRN = Management Research News; JIM = Journal of Interactive Marketing; PM = Psychology & Marketing; IJCS = International Journal of Consumer Studies; JRIM = Journal of Research in Interactive Marketing; MM = Management & Marketing; JICM = Journal of International Consumer Marketing; JECO = Journal of Electronic Commerce in Organizations.

CHAPTER 3

RESEARCH MODEL AND HYPOTHESES DEVELOPMENT

Based on the literature review and theory, this chapter proposes the research model and hypotheses that I want to test for this study. This chapter is organized in five sections. In section one, I proposed my basic research model – the causal relationship between perceived quality, customer satisfaction, and behavioral intentions in e-commerce based on the EKB decision making process. In section two, I extended the basic research model by adding other important factors, such as perceived value, sacrifice, perceived enjoyment, trust in the research framework. In section three, I developed a comprehensive measurement scale with dimensions of perceived quality according to Engel-Kollat-Blackwell (EKB) decision-making process. In this section, I redefined the dimensions of the quality dimensions to fit in the decision making process. In section four, I defined the dimensions of behavioral intentions and involve customer loyalty, repurchase intentions, willingness to pay more, and positive word of mouth in the research framework. In the last section, I provided a detailed description of the research model and summarize the research hypotheses for this study.

3.1. Basic Research Framework Based on the EKB Model

3.1.1. Causal Relationship between Beliefs, Attitude, and Intention

The EKB model shows a causal relationship (Beliefs -> Attitude -> Intention) that connects consumer decision making process in a circle as shown in Figure 2-1 in Chapter 2. In the EKB model, consumers' beliefs are based on the outcomes of the decision-making process or last shopping experience, and the intention will determine their next purchase decision.

A consumer's belief is defined as "a psychological association between a product or brand and an attribute or feature of that product or brand" (Lindquist and Sirgy, 2008, p. 308). Customers developed beliefs about online shopping when they start to link quality attributes to the products/services delivered by the e-commerce website or retailer. Such as, "it is convenient to shop online," "this website has good functions of searching and transactions," "this website has adequate security features and will protect customers' personal information," "the online retailer delivers the products quickly," and "the online retailer gives prompt services to customers". Therefore, one can redefine customer's beliefs in e-commerce as a customer's feelings of the product or service associated with the attribute (such as the quality or value) of the product or service provided by the e-retailer. The causal relationship between beliefs, attitudes, and intentions has been studied and examined in many studies.

This causal relationship is also found in the well-developed theory of reasoned action (TRA) (Ajzen and Fishbein, 1980) and technology acceptance model (TAM) (Davis, 1989). In the TRA model, beliefs about the outcomes from the decision making process shape the attitudes, and the attitudes will influence behavioral intention, which ultimately will influence the behavior itself (Wixom and Todd, 2005). In the TAM, however, behavioral beliefs, including perceived usefulness and perceived ease of use, will influence attitude toward usage. The attitude toward usage will lead to intention to use (behavioral intentions), which ultimately leads to usage (behavior). In the integrated model of user satisfaction and technology acceptance proposed by Wixom and Todd (2005), beliefs and attitudes are discussed from both the object-based (system) perspective and behavioral (system using) perspective. In the authors' model, object-based beliefs refer to information quality and system quality and will shape object-based attitudes (e.g.,

information satisfaction and system satisfaction). Behavioral beliefs, including usefulness and ease of use, influence behavioral attitude, which ultimately determine intention.

3.1.2. Causal Relationship between Cognition, Affection, and Conation

Social scientists have identified and validated the three components of attitude: cognition, affection, and conation or behavioral intention (Breckler, 1984). Cognition is defined as "people's thoughts about the attitude object. It encompasses the content of one's thoughts regarding **beliefs** in the statement of fact" (Back and Parks, 2003, p. 422). Affection is defined as "feelings, moods, or **emotional responses** that can be measured by collecting verbal reports or by physiological responses" (Back and Parks, 2003, p. 423). Online consumers who evaluate the service/product quality from their favorable websites are more likely to experience positive affective reactions. Conation refers to "**behavioral intentions** or willingness to act" (Back and Parks, 2003, p. 422). From the definitions of these three concepts, I can easily find the link of cognition, affection, and conation with beliefs, attitudes, and behavioral intentions.

Beliefs are considered the cognitive component (based on knowledge but not feelings) of consumer attitude, and affection is considered the emotive component of attitude (Lindquist and Sirgy, 2008). Therefore, it is reasonable to propose a causal relationship among cognation, affection and conation. Choi et al. (2004) proposed and tested their research framework in which the causal relationship among cognition (e.g., service quality and value), affect (e.g., satisfaction), and conation (e.g., behavior intention) are strong even across national boundaries.

3.1.3. Causal relationship between Quality, Satisfaction, and Behavioral Intention

Perceived quality, defined as a consumer's judgment about an entity's overall excellence or superiority (Zeithaml, 1988), is the consumer's belief on objective quality. Satisfaction in

some given situation is "a person's feelings or attitudes toward a variety of factors affecting that situation" (Wixom and Todd, 2005, p. 86). As stated by Brady and Robertson, "service quality is primarily a cognitively oriented construct where three or more factors are evaluated, resulting in an overall service quality perception. Conversely, the satisfaction construct is primarily an affective reaction to a service encounter" (2001, p. 54). Perceived quality is related to customer satisfaction and is obtained from the difference between perception of expectations and performance (Parasuraman et al., 1988). According to Bagozzi (1992), service quality evaluation of a product or a service encounter leads to an emotive satisfaction assessment that in turn drives behavioral intentions. Brady and Robertson (2001) tested the causal relationship among service quality, satisfaction, and behavioral intention; the results support the robust relationship even across national boundaries. The "antecedent, mediating, and consequent relationships" among quality, satisfaction, and intentions have been extensively studied theoretically and tested empirically in many other studies (see Anderson and Sullivan, 1993; Sirohi et al., 1998; Cronin and Taylor, 1992; and Zeithaml, 1988).

On the basis of the preceding discussion, in Figure 3-1, I put forward a basic causal relationship framework (e-service quality -> satisfaction -> behavioral intention) based on the causal sequences suggested by the EKB model (Beliefs -> Attitude -> Intention) (Engel, Blackwell, and Miniard, 1995) and the tripartite attitude model framework (e.g. Cognition -> Affection -> Conation) (Breckler, 1984, Back and Parks, 2003; Choi et al. 2004).

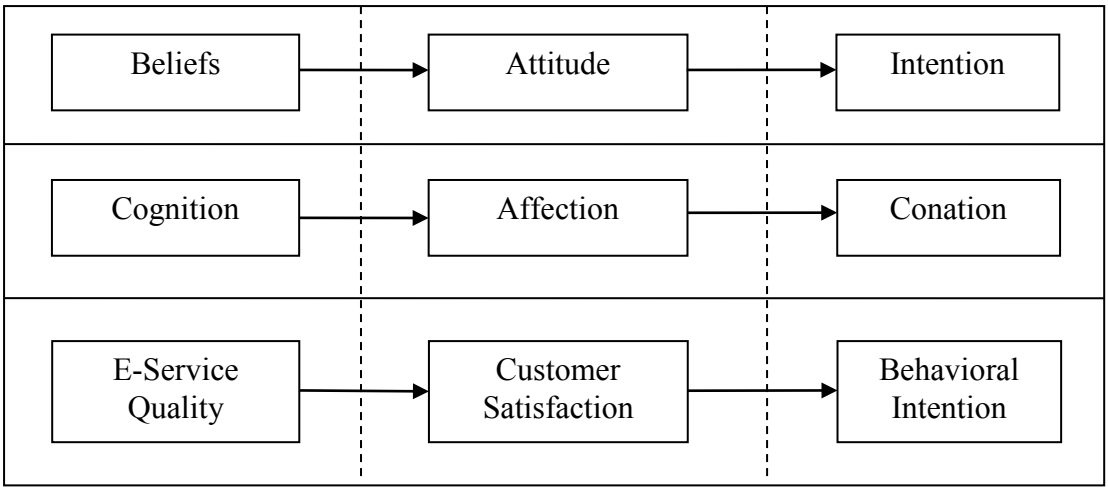


Figure 3-1. Theoretical foundation of basic research model for this study.

This basic model is considered the core of the EKB decision making process model and forms the basis of my research on factors influencing customers' online shopping decision. Customer perceives quality of service and products during their entire decision making process. Their beliefs on the excellence of quality delivered by the company will influence their attitudes and behaviors. "Higher levels of service quality produce higher levels of customer satisfaction that lead to increased customer loyalty and increased sales" (Mohanty et al., 2007, p. 222). Therefore, I hypothesize that:

Hypothesis 1: Customers' perceptions of e-service quality positively influence customer satisfaction in the e-retailing context.

Hypothesis 2: Customers' satisfaction about their last online shopping experience positively influences their behavioral intentions in the e-retailing context.

3.2. Extension of the Basic Research Model

In this study, perceived quality is considered the most important external factor that influences customers' behavioral intention. However, it is not the only antecedent. Cronin et al.

(2000) proposed that studies of value, quality, customer satisfaction, and their effects on behavioral intentions dominated the research in service environments. Practitioners also tried to consider customers' assessments on these variables in business strategies, because improving perceived value, perceived quality, and satisfaction leads to favorable financial and management outcomes (Cronin et al. 2000). McDougall and Levesque (2000) proposed and tested that perceived value and perceived quality are the two most important antecedents of satisfaction across four industries, including restaurant, auto service, dentist, and hairstylist. Cronin et al. (2000) built a research model with direct link of service quality and service value to satisfaction, and they also tested the interrelationship in six industries: spectator sports, health care, participation sports, long distance carriers, entertainment, and fast food. Kim and Niehm (2009), and Harris and Goode (2004) argued the direct relationship between perceived value and behavior intention.

Except for perceived value, many other antecedents influence customer satisfaction and behavioral intentions. Shopping motive is another determinant of customer satisfaction and behavioral intention (Christodoulides and Michaelidou, 2011). Trust plays a crucial role in customer retention and is the key reason for customers to purchase online (Gefen et al., 2003; Hassaneinand Head, 2007). An essential factor in offline shopping is enjoyment, which is becoming increasingly crucial for online shopping as well (Hassaneinand Head, 2007).

Just like traditional shopping, customers' behavioral intention is primarily based on satisfaction in a previous shopping experience. Satisfaction has also been tested in several studies as an important factor affecting repurchase intention in the context of e-commerce (Bhattacherjee, 2001b; Lee and Lin, 2005; Khalifa and Liu, 2007; Kim et al., 2009). Perceived enjoyment is a crucial influence in traditional brick-and-mortar shopping environments and is

also becoming more and more important for online customers (Hassaneinand Head, 2007). Online shopping enjoyment has been most studied as an influential antecedent of the initial purchase intention (Broekhuizen and Huizingh, 2009). In addition to perceived enjoyment, social/psychological factors, such as trust, also play a role in predicting customers' repurchase intention. Online retailers face a significant challenge in creating an environment of mutual trust that can give customers confidence with online transactions (Gefen et al., 2003), which makes the retailers' products and services appear visually attractive to consumers (Hassanein and Head, 2007). This study added perceived value, perceived sacrifice, trust and perceived enjoyment and examined the relationships between these constructs with perceived quality, customer satisfaction and behavioral intentions.

3.2.1. Perceived Value

Similar to perceived quality, perceived value should also be considered conceptually and empirically as a cognitive construct in the cognitive – affective causal sequence (Cronin et al., 2000; Choi et al. 2004, Wang, 2008; Kim et al. 2008). Perceived value is defined as customers' evaluation used to measure the utility of a product or service based on customer perceptions of its benefits (what is received) and sacrifices (what has to be given up) (Zeithaml, 1988, p.13 -14). Hallowell (1996, p. 29) has defined value as "service quality relative to price." Zeithaml (1988) argued that customer perceptions of prices or sacrifices should be included when predicting value and satisfaction. The major component of perceived benefits is "good service quality in both outcome and process domains" (Choi et al., 2004, p. 915). Therefore, perceived sacrifice and perceived quality performance (benefits) simultaneously affect perceived value. It has been argued that perceived value is the cognitive consequences of customer evaluation of the tradeoff

between perceived value and perceived sacrifice, and customer satisfaction is the affective response to quality evaluation (Choi et al., 2004). The interrelationship among perceived value, customer satisfaction and behavioral intentions has been debated in prior service literatures (e.g. Cronin et al. 2000; Harris, and Goode, 2004; Anderson and Srinivasan, 2003). Perceived quality has been studied as an antecedent of perceived value theoretically and empirically in a variety of studies as well (Wang, 2008; Snoj et al. 2004; Harris and Goode, 2004; Kim, Zhao and Yang, 2008). The positive and direct relationship between perceived value and customer satisfaction has been empirically validated (Sirohi et al. 1998; Wang, 2008). McDougall and Levesque (2000) tested the influences of perceived value and service quality on loyalty intentions through the mediation of customer satisfaction. Harris and Goode (2004) proposed the mediating role of perceived value in the relationship between service quality and Loyalty. In addition, perceived value is associated with trust conceptually and empirically in their study. Kim and Niehm (2009) provided conceptual support and empirical evidence of positive and direct effect of perceived value on loyalty intention. Although a considerable body of literatures on the relationship among quality, value, satisfaction, and behavioral intention can be found; however, the relationship needs to be validated in the e-retailing context theoretically and empirically. Therefore, this study tests the following hypotheses:

Hypothesis 3: Perceived e-service quality has a positive impact on perceived value in the e-retailing context.

Hypothesis 4: Perceived value has a positive impact on customer satisfaction in the e-retailing context.

Hypothesis 5: Perceived value has a positive impact on customer behavioral intention in the e-retailing context.

3.2.2. Sacrifice / Price

Perceived sacrifice is defined as "what is given up or sacrificed to acquire a service." (Cronin et al., 2000, p. 201) The measurement of perceived sacrifice should include monetary costs, such as the dollar price that the customers have to pay, and non-monetary costs, such as time and efforts that customers have to spend on the searching and purchasing process (Cronin et al., 2000; Choi et al., 2004). Perceived price can be found as determinants of customer satisfaction in many studies (Fornell et al. 1996; Voss et al., 1998; Kim et al. 2008). "When shopping on the Internet, customers cannot actually see or handle the product, so price perceptions play a critical role in the post-purchase satisfaction and intentions to return to the online retailer for future purchases" (Kim et al. 2008, p. 8). When customers perceive less sacrifice, which means they can pay lower dollar price and spend less time and effort while shopping online, they can perceive higher value of the product/service. Based on Cronin et al.'s (2000) research results, the relationship between sacrifice and value is significant in the fast food industry, but not significant in the other five industries (spectator sports, participative sports, entertainment, health care, and long distance). The research results are explained as a customer emphasizing value in the fast food industry but not in the other five industries. However, low price and time saving are also important reasons why customers choose shopping online. Therefore, online customers place great importance on perceived sacrifice, and I can propose the next hypothesis:

Hypothesis 6: Sacrifice/price has a negative influence on customer perception of value in the e-retailing context.

3.2.3. Perceived Enjoyment

Perceived enjoyment is studied as a concept of flow theory in psychology literature, which is defined as "an awareness of holistic sensation when people are totally involved in a certain activity" (Csikszentmihalyi, 1975, p.36). Customers would like to return to shopping in physical stores if they consider shopping in physical stores enriching and enjoyable (Rice, 1997). Online shopping enjoyment is equally important as enjoyment in the physical shopping environment and has a crucial influence on customer intention and behavior (Koufaris, 2002). When customers shop using an e-commerce website, they experience the process of searching for information about products and transactions using information systems, and it might be difficult for online vendors to make customers feel enjoyable by using the visual sense only. In the pre-purchase phase, a customer may be curious about the convenience, security, privacy maintenance, and ease of operation. In the purchase phase, customer enjoyment becomes more important and may inspire purchasing decisions. Thus, online retailers might not retain customers if customers do not enjoy the online shopping experience.

Perceived enjoyment is based on the design of the website and the information provided. In the post-purchase phase, customers will compare the service performance they received with their expectations and this confirmation will develop a level of satisfaction that will influence future repurchase decisions. Based on the results of Koufaris's (2002) research, shopping enjoyment is positively related to the online customers' intention to repurchase. Therefore, I offer the following hypothesis:

Hypothesis 7: Perceived enjoyment has a positive impact on customers' behavioral intention in the e-retailing context.

3.2.4. Trust

Trust could also promote honest behavior, provide a form of social control, and allow web users to perceive reliability, capability and honesty of online retailers (Zhang et al., 2007). Within the context of the e-retailing environment, the role of trust is more important compared to that in the traditional business because of the increasing uncertainties caused by the distance and other impersonal factors. It has been argued that to earn customer trust is the very first step to gain customer loyalty in the traditional business, and it is truer in the electronic business (Reichheld and Schefter, 2000). Gefen and Straub (2004) pointed out that the relative lack of regulations and customs on the Internet made individuals rely on trust and familiarity as primary mechanisms to reduce uncertainties. More recently, trust has been defined as a multidimensional concept related to various targets: sales person, product, company, and Internet consumer trust. Online consumer trust is defined as the "consumer's subjective belief that the selling party or entity on the Internet will fulfill its transactional obligations as the consumer understands them" (Kim et al., 2009, p.239).

Customers are both interacting with e-retailer websites and performing transactions with online vendors/stores. The fact that online customers lack trust in e-commercial websites or online vendors is the main obstacle of consumer participation in e-commerce (Gefen, 2000; Comegys et al., 2009). The online shopping experience is "more impersonal, anonymous and automated" (Hassanein and Head, 2007). Because of the limitations of online stores compared with physical stores, it is difficult for the customer to judge whether a website's security is good and whether the online store chosen is trustworthy. Consumers' trust in the Internet and the online vendor is the key factor in determining consumers' adoption of e-commerce (Gefen et al., 2003). Kim et al. (2009) studied trust and satisfaction as crucial factors for successful e-

commerce business relationships. A TAM-based Web Trust Model proposed by Gefen and Straub (2004**)** integrated TAM and trust in the same framework. In this model, trust affected IT usage intention directly. Harris and Goode (2004) tested the impact of perceived value on trust, and also the impact of trust on loyalty. Kim et al. (2008) also hypothesized and empirically validated the impact of perceived value on trust. Thus, I propose the following hypothesis.

Hypothesis 8: Trust has a positive influence on customer behavioral intention in the e-retailing context.

3.2.5. Customer Satisfaction

Customer satisfaction is believed to have direct influence on customer behavioral intentions and plays as an important mediating factor in the relationship among perceived quality, perceived value and customer repurchase intentions (Cronin et al. 2000). Just like traditional shopping, customers' repurchase intention is influenced by satisfaction on previous shopping experience. Satisfaction has also been tested in several academic studies as an important factor affecting repurchase intention in the context of e-commerce (Bhattacherjee, 2001; Lee and Lin, 2005; Khalifa and Liu, 2007; Dan et al. 2009). Customer satisfaction has been studied as an important antecedent of customer long-term behavior (Zhang & Prybutok, 2005).

Regarding to the relationship between perceived quality and satisfaction, Choi et al. (2004) argued that the distinctions in quality and satisfaction are not clear in services marketing literatures. For example, some researchers argued that these two constructs were both attitudinal and were "interchangeable evaluations" (Kleinsorge and Koenig, 1991). To understand why this unclear distinction between quality and satisfaction exists, I can tell from these definitions of customer satisfaction in the past studies. Anderson (1993) defined satisfaction as anex-post

evaluation of consumers' experience with the service and is captured as a positive feeling, indifference, or a negative feeling (Devaraj et al. 2002, p. 318). Cronin et al. (2000) defined customer satisfaction as "an evaluation of emotions which reflects the degree to which a customer believes that the possession and/or use of a service evokes positive feelings" (p. 204). Oliver (1980) suggested that satisfaction can be measured using both emotion-based and evaluative scales. Tse and Wilton (1988, p. 204) has defined satisfaction as "the consumer's response to the evolution of discrepancy between prior expectations and the actual performance of the product as perceived after its consumption". It can be noticed that all these definitions of satisfaction involve customers' affective responses to service encounters and the evaluative or cognitive process of comparing their expectations with the performance, which is similar to the cognitive judgment defined as perceived quality. In other words, perceived quality is actually overlapping with the evaluative measures of satisfaction based on those prior definitions. Choi et al. (2004, p. 915) also argued that "the majority of past studies of satisfaction formation view it as an affective response to an expectancy disconfirmation that involves a cognitive process."

To distinguish between quality and satisfaction, increasing recent studies have emphasized the affective/emotion-based reaction to a service encounter (Choi et al., 2004, Brady and Robertson, 2001, Wixom and Todd, 2005), while perceived quality place the importance on the cognitive-oriented evaluation (Brady and Robertson, 2001). For example, Wixom and Todd (2005, p. 86) have defined satisfaction in some given situation as "a person's feelings or attitudes toward a variety of factors affecting that situation." The causal relationship between perceived quality and customer satisfaction is consistent with the causal relationship between cognition and affection. The causal relationship between quality and satisfaction has been studied conceptually and empirically in different contexts (Brady and Robertson, 2001; Choi et al., 2004) and also in

the e-commerce context (Wang, 2008). Some previous studies have validated the impact of customer satisfaction on trust (Kassim and Abdullah, 2010). Zeithaml, Berry and Parasuraman (1996) proposed the direct effect of perceived service quality on behavioral intentions. Superior service performance leads to favorable behavioral intentions, such as saying positive things, recommending the company, being loyalty to the company, spending more with the company, and paying price premium. While inferior service performance leads to unfavorable intentions, such as saying negative things, switching to another company, complaining to external agencies, and doing less business with the company. Therefore, I can propose the following hypothesis.

Hypothesis 9: Perceived quality has a direct positive influence on behavioral intentions in the context of e-retailing.

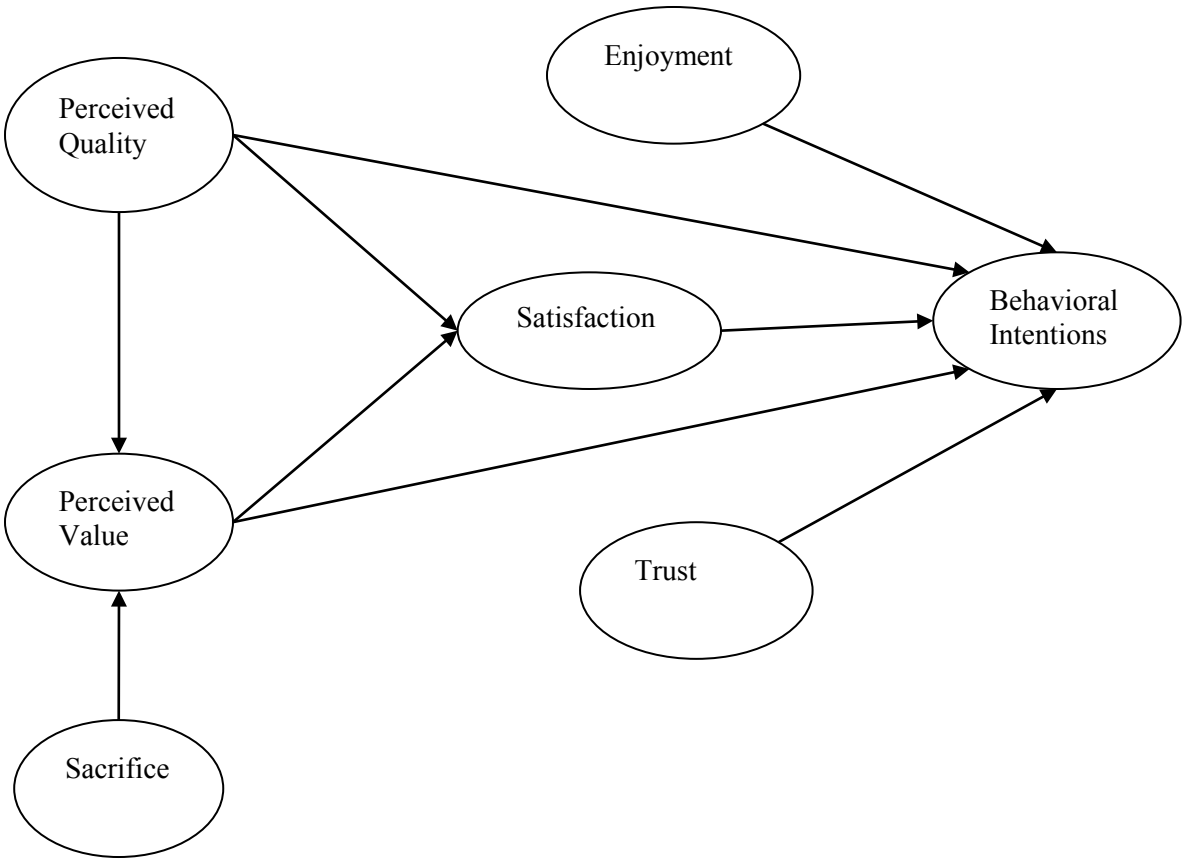


Figure 3-2. The extended research model.

3.3. Dimensions of Perceived Quality Based on Decision Making Process

How customers perceive quality of products and services through e-commerce websites is considered one of the critical determinants of online retailer success (Kim et al. 2008). "Perceived quality is the consumer's judgment about an entity's overall excellence or superiority. It differs from objective quality; it is a form of attitude, related but not equivalent to satisfaction, and results from a comparison of expectations with perceptions of performance" (Parasuraman et al. 1988, p. 15). However, as summarized in chapter 2, perceived quality in the context of e-commerce has been defined and examined in many studies, without any consistent definitions and measurement scales. Many researchers have studied customer perceived quality from different perspectives. All these studies can be divided into several categories. Some researchers focused on the website quality and developed new dimensions and measurement scales to measure customer perceived website quality. Website quality is the major platform that customers interact with product/service information and where customers complete their transactions. However, the website quality cannot cover the quality delivered by the e-retailer and the communication between e-retailer and customers. Parasuraman et al. (2005) developed a new measurement instrument E-S-QUAL to measure service quality delivered through e-commerce website. Wang (2008) adopted D&M IS success model to measure quality perceived by online customers. Customers' perception of quality is their judgment about the overall excellence and superiority of the e-retailer (Kim et al. 2008).

As discussed in Chapter 2, I can notice that even though there are many studies that have investigated the measurements of quality and effects of quality on online consumer behaviors, few studies have developed a quality measurement scale based on consumer decision-making process. I believe it is important to view perceived quality through the decision making process

because online customers may change their purchase decisions easily during any stage of their decision making process. Researchers and practitioners need to understand how customers perceive quality in each stage so that they can influence customer purchase decisions and maintain customer loyalty by improving quality performance. It is also important to investigate to what degree these quality features are influencing customer satisfaction and loyalty.

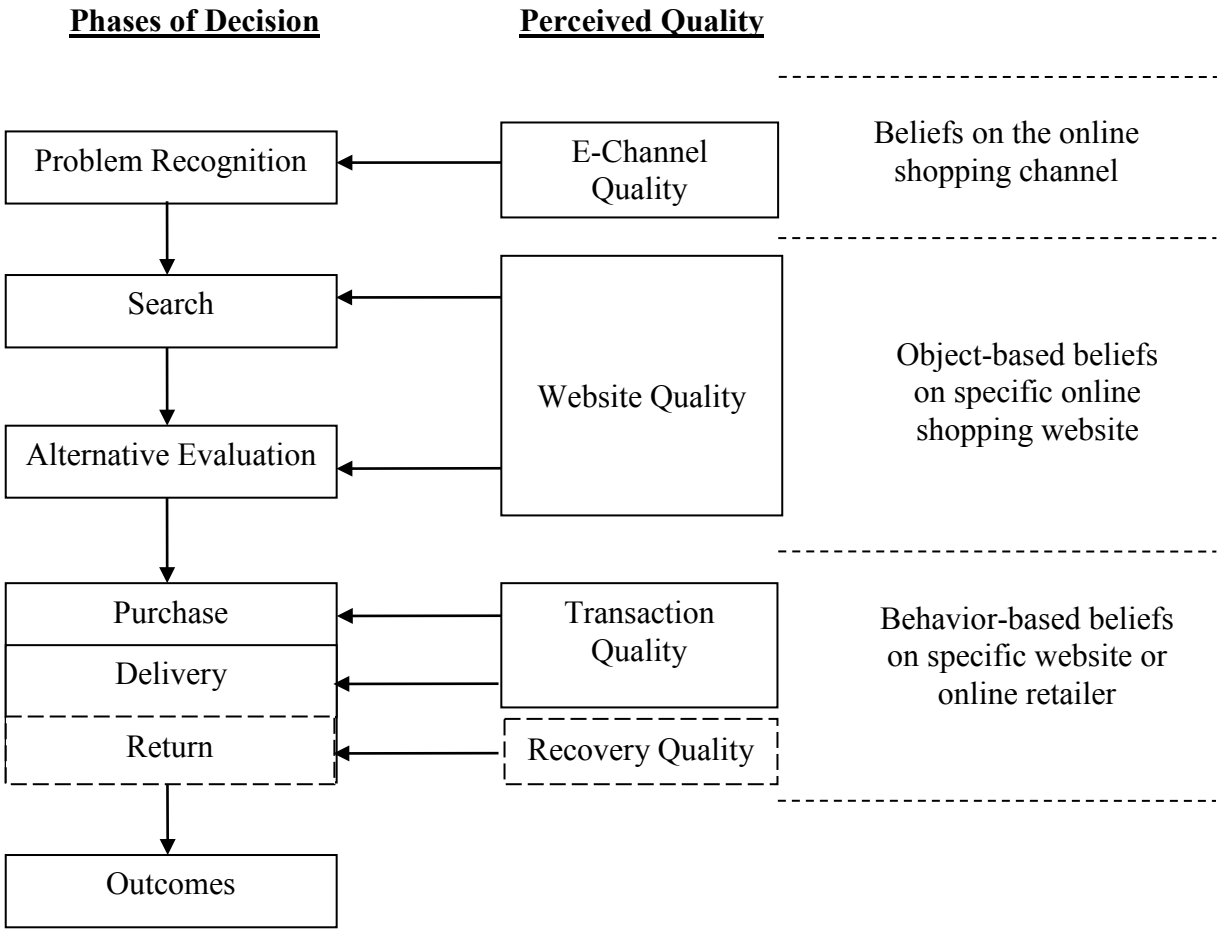


Figure 3-3. Perceived quality at each stage based on decision making process

By integrating research findings and consumer decision-making process, I conclude that customers' perceived quality includes 3+1 parts.

At the problem recognition stage, customers need to decide whether they choose online shopping channel or not. During this stage, perceived e-channel quality includes factors about

the reason why people choose online shopping channel instead of going to a physical store. The perception of quality is customers' beliefs on the benefits of online shopping channel compared with traditional shopping channel. Factors, such as convenience, perceived usefulness, perceived product quality, multiple choices, and lower price, may be considered by customers who decide to shop online. The online shoppers act as problem solvers during this stage.

In the "search" and "alternative evaluation" stages, online customers interact with specific e-commerce websites for product information and compare the information for the next stage. During these two stages, customers' perceptions of quality are objective-based beliefs on the website, such as the system quality, information quality, and website aesthetics. Online customers choose the ecommerce websites, which provide efficient, ease of use, secured, accessible and well-designed websites to finish transaction. The website quality is similar to the tangible factor in traditional shopping stores. During this stage, the online shoppers act as website users.

The "purchase" stage in the decision making process actually should include two or three sub-stages: agreement, delivery, and return (if applicable). Because customers need to finish the transaction process and then wait for the product delivered to them. If they have a problem with the product, they may return the product to the online retailer. This stage is a process of a fulfillment of the e-retailer, and customers need to interact with the e-retailer. Similar to the service delivered by salespeople in the physical stores, this stage involves how customers perceive service quality delivered by the online retailers. During this stage, the online shoppers act as customers who perceive the quality of the service and products.

The return stage is not necessary if the products and services delivered by the online retailers meet customers' expectations. If any problem occurs, how the retailers deal with the

after-sale problems determine customer satisfaction. “Service after sale is one of the most important factors in establishing customer perception of quality and customer loyalty” (Evans and Lindsay, p. 57).

3.3.1. E-Channel Quality (in Phase 1: Problem Recognition)

Customers can purchase products/services from multi-channels (Madlberger, 2006). Recently, more and more retailers are trying to sell products through different channels so that they can accommodate customers’ preferences and buying behaviors. When consumers need to buy some products/services to fulfill their needs, they need to first decide which channel they want to access to finish the purchase task. To continue using an e-commerce shopping channel instead of using the traditional brick-and-mortar shopping channel, consumers must believe that the e-commerce shopping channel can provide more benefits than the alternative. Therefore, it is important for researchers and online retailers to know the motivating factors for online shopping. There are many reasons that make consumers decide to continue using e-commerce shopping channel. These include favorable price level, convenience/ease of use, usefulness, and various choices/selections (Madlberger, 2006). In this study, e-Channel Quality is similar to the motives behind customers’ choice of online shopping channel.

3.3.1.1. Perceived Ease of Use and Perceived Usefulness

The technology acceptance model (TAM), proposed by Davis (1998), has been confirmed as the most popular theoretical framework to explain consumers’ behavioral intention to adopt and use information technology/systems. Many scholars have used TAM, or extended TAM, to test the initial usage of online shopping. Chen and Tan (2003), Klopping et al. (2004),

and Mouakket et al. (2009) have all used TAM directly to investigate e-commerce activities. In the e-commerce studies, perceived usefulness (PU) and perceived ease of use (PEOU) are considered the basic determinants in consumers' intention to use e-commerce channel. Perceived usefulness was defined as "the prospective user's subjective probability that using a specific application system will increase his or her job performance within an organizational context" (Davis et al., 1989, p. 985). Perceived ease of use was defined as "the degree to which the prospective user expects the target system to be free of effort" (Davis et al., 1989, p. 985). Combining Davis's definition of PU with the context of online shopping, PU in this model refers to the extent to which a consumer perceives that shopping at a web-based store will improve his or her shopping experience. PEOU in this study is thus defined as the extent to which a consumer perceives how easy the interaction with the e-commerce website and is able to finish the shopping task without much effort. Founded on TAM, PEOU has an essential effect on PU. Many researchers conclude, both theoretically and empirically, that the easy usage of technology will lead to peoples' perception of usefulness (Davis et al., 1989; Gefen and Straub, 2004; Hong et al., 2006; Mouakket, 2009). When consumers find it easy to interact with e-commercial websites, to search product information, and to pay online, they will consider online shopping more useful.

3.3.1.2. Convenience

Customer perception of convenience is an important component of value to customers and an important reason for customers to decide shopping online (Zhang and Prybutok, 2005; Madlberger, 2006; Jih, 2007; Kim et al., 2008). Based on Jih's study (2007), convenience is a subjective and perceptive concept related to psychological dimension and problem solving. Litan

(2001) proposed that the benefits of using Internet from convenience and multiple choices could be more than the benefits of higher productivity and lower prices. Perceived convenience includes several dimensions conceptually. For example, Madlberger (2006) proposed perceived convenience is composed of access, search, time and place convenience. According to Zhang and Prybutok (2005), perceived convenience directly affect perceptions of service quality and satisfaction in online shopping.

3.3.1.3. Selection

Compared with a physical shopping mall/center, the e-commerce websites usually can provide "a wider range of product categories and a greater variety of products within any given category" (Srinivasan et al. 2002, p. 44) because of the cost and physical space constraints in a physical store. An e-commerce website however does not have these constraints as long as it can handle the logistics and inventories well with its suppliers. It is easier for customers to find a product that they need online, and in some cases, online customers may get the product only online. "The e-retailer that offers greater choice can emerge as the dominant, top-of-mind destination for one-stop shopping, thereby engendering e-loyalty." (Srinivasan et al. 2002, p. 44) Yang et al. (2004) developed a dimension named "product portfolio," similar to the dimension "choice". "Product portfolio" was defined as the range and depth of products/services available in an online shopping website. An e-commerce website can attract more customers by providing various products in the menu options with updated information.

3.3.2. Website Quality (in Phase 2&3: Information Search & Alternative Evaluation)

The website quality measurements are mainly to help e-commerce website designer

better understand how to affect the functional and nonfunctional perceptions of the web users. The website quality measurements do not include how online vendors interact with online customers to deliver services, respond to their requests, and fulfill their needs. "The website quality scale is more pertinent to interface with design rather than service quality measurement." (Zeithaml et al. 2002. p. 366). From the IT/IS perspective, website quality, which means the quality of the website interface, focuses on e-commerce website as a platform, based on which e-vendors sell products and consumers search and purchase what they need. Based on SITEQUAL proposed by Yoo and Donthu (2001), ease of use, aesthetic design, processing speed, and security of personal and financial information are the four major components to measure website quality. Loiacono et al. (2007) proposed WebQual^{TM}, including 12 dimensions of website quality: informational fit-to-task, interactivity, trust, response time, ease of understanding, intuitive operations, visual appeal, innovativeness, flow/emotional appeal, consistent images, online completeness and better than alternative channels. In this study, website quality refers to the case when customers interact with different e-shopping websites, and how they perceive the efficiency, availability, security, and aesthetic appeal of the website system and the information provided on the website. Therefore, based on the literature review, the e-commerce website quality should include system quality, information quality, website design quality, and privacy/security.

3.3.2.1. System Quality

System quality refers to the case when the website system is stable and always available so that customers can access the website anytime they want; the website is well structured and easy to use, and the website contains functions that assist customers search products and finish

purchase process fast and without any difficulty. Therefore, the quality of the website system is related to objective-based functional factors, such as efficiency, ease of navigation, access and flexibility (Zeithaml et al., 2002). System quality is related to factors such as website availability, navigation, layout, and ease-of-use" (Zhou et al., 2011). Wang (2008) adopted the measurement of Ease of Use from the TAM model to measure system quality, and usefulness to measure information quality. In this study, I use two dimensions, efficiency and system availability from the E-S-Qual scale (Parasuraman et al., 2005), to measure system quality.

In the IS success model, system quality includes adaptability, availability, reliability, response time, usability. "In the Internet environment, measures the desired characteristics of an e-commerce system. Usability, availability, reliability, adaptability, and response time (e.g., download time) are examples of qualities that are valued by users of an e-commerce system." (DeLone and McLean 2003, p24-25).

Efficiency refers to the case whereby the e-commerce website is properly structured and is easy for online shoppers to get to the web site, find their desired product and information associated with it, and check out with minimal effort (Zeithaml et al. 2002. p. 366). Since e-retailer provides a wide and deep range of choices to the customers, system efficiency becomes very important to help customers find what they need and make their choices (Liang and Lai, 2002). Without these functions, customers will not choose to shop on the e-commerce website. Once a consumer has decided to purchase, the transaction should be efficient and satisfactory (Devaraj et al. 2002). Therefore, the transaction efficiency is also a part of system efficiency. System availability: the correct technical functioning of the site refers to the technical functioning of the site, particularly the extent to which it is available and functioning properly. (Parasuraman et al. 2005. p. 220)

3.3.2.2. Information Quality

Information quality refers to the case whereby the product/service information provided by the website is accurate, updated, easy to understand, appropriate, in-depth, and geared to customer needs (Zhou, Lu, and Wang, 2011; Wolfinbarger and Gilly 2003; Loiacono et al. 2007). Factors related to information quality should include availability and depth of information. Information quality captures the e-commerce content issue. Web content should be personalized, complete, relevant, easy to understand, and secure if I expect prospective buyers or suppliers to initiate transactions via the Internet and return to my site on a regular basis (DeLone and McLean 2003, p.25). In DeLone and McLean's IS Success Model, information quality includes completeness, ease of understanding, personalization, relevance, and security. Liang and Lai (2002) proposed that it is important for e-retailer to provide "value-added information" and "customized information" when customers search product/service information. Wixom and Todd (2005) used four dimensions (completeness, format, accuracy, and currency) and three items to measure information quality.

3.3.2.3. Visual Appeal

The aesthetic design of the website is an important part of website quality. Design appeal involves the aesthetics of the web site, including information organization and navigability. Visual appeal refers to the presentation of graphics and text on the site (Zeithaml et al. 2002). Other researchers have studied the influence of graphic style of the e-commerce website on customer perceptions of shopping online (Zeithaml et al. 2002). Website design quality refers to the aesthetic appearance, including graphic style related to color, layout, animation and organization of content, and number of photographs and graphics (Zeithaml et al. 2002;

Loiacono et al. 2007; Cyer et al. 2006; Moshagen and Thielsch, 2010).

3.3.2.4. Privacy/Security

Privacy: the degree to which the site is safe and protects customer information, which includes assurance that shopping behavior data are not shared and that credit card information is secure (Parasuraman et al. 2005). Wolfinbarger and Gilly (2003) developed a set of measurement scales eTailQ to measure etail quality. The final scales are narrowed down from 100 items to 14 items with four dimensions. Security/Pricy is one of the four final dimensions, which strongly predict customers' perception of quality. In their study, security/pricy refers to security of credit card payments and privacy of shared information. In Zeithaml et al.'s (2002) study, privacy refers to the protection of customer personal information (account and transaction information), while security refers to the protection of users from the risk of financial loss. For the purpose of this study, I combined these two as one construct.

3.3.3. Transaction Quality (In Phase 4: Purchase)

The "purchase" stage in the decision making process actually should include two or three sub-stages: agreement, delivery, and maybe return. Most of the interactions between customers and e-retailer occur at this stage. It is possible that for the online shoppers who are familiar with the procedure, they will finish the entire purchase process without interacting with any salespersons but only the website. However, the e-commerce websites are reacting as the salespeople during the transaction. Therefore, service quality in this stage is mostly behavioral based quality perceived by customers. Service quality in this stage also refers to the overall support delivered by the service provider no matter the support delivered by the e-commerce

website, transaction department, department of customer services, retailers behind the websites, or even an Internet service provider (ISP). The service quality is even more important than the e-channel quality and website quality because shoppers are now treated as real customers, not just website users. Thus, "poor service support will translate into lost customers and lost sales."(DeLone and McLean 2003, p.25) "There is a consensus among researchers that favors superior customer service as having the greatest impact on customer satisfaction and loyalty" (Kim et al. 2008, p.6).

The service quality can be measured using SERVQUAL scales developed by Parasuraman et al. (1988). These scales are not applied in the context of e-commerce, while many researchers have adopted these scales in their studies (Cheung and Lee, 2005; Gefen, 2002; Wang, 2008; Wang and Tang, 2003; Zhou, Lu and Wang, 2011). Definitions and descriptions of these dimensions adopted in the context of e-commerce and my study are summarized in the next table. In this study, the dimension "tangible" is not included since the website quality will cover this dimension. Reliability is important especially during the delivery process. Therefore, reliability and fulfillment are considered one construct in some studies (e.g. Zeithaml et al. 2002; Wolfinbarger and Gilly, 2003).

Table 3-1

Summary of Definition of Five Dimensions for Transaction/Service Quality

Dimensions	**Definitions in traditional industries (Parasuraman et al. 1988)**	**Explanation in the context of e-commerce (Gefen, 2002)**	**Description in my study**
Tangibles	Physical facilities, equipment, and appearance of personnel.	The appearance of the website, including the appealing interface, ease of use and understandability of the website interface, and the clarity of the purchase procedures	For online retailer, tangibility is mainly related to website/webpage appearance and can be categorized into website quality.
Reliability	Ability to perform the promised service dependably and accurately	Providing the service on time and as ordered	Online retailers provide on-time and reliable services and deliver the products/services as promised to customers.
Responsiveness	Willingness to help customers and provide prompt service	Human service providers' ability to respond to the customers in an accurate, error-free, helpful, and prompt manner. This could also include automated systems.	Online retailers provide prompt responses to customers.
Assurance	Knowledge and courtesy of employees and their ability to inspire trust and confidence	Knowledgeable and courteous systems can be shown throughcourteous help-screens and appropriate error messages and guidance boxes	Online retailers provide professional services to customers
Empathy	Caring, individualized attention the firm provides its customers	Provide personalized service through customized contents, personal greetings, and individualized e-mail.	Online retailers provide personalized services to customers

3.3.4. Recovery Quality (in Phase 5: Post Purchase)

Parasuraman et al. (2005) constructed a scale to measure the quality of recovery service provided by online retailers, and they used data from customers who had experienced a recovery interaction with online retailers to validate the scale. They came up three dimensions, including 11 items, to measure e-recovery quality. These three dimensions are responsiveness, compensation and contact. Responsiveness is defined as how the website solves problems and returns effectively and efficiently. Compensation refers to how retailers compensate customers to recover the problems. Contact refers to how customers can access representatives or online retailers easily through telephone or Internet. I adopted this scale in this study. To differentiate the responsiveness concept in service quality, I name the responsiveness construct as return.

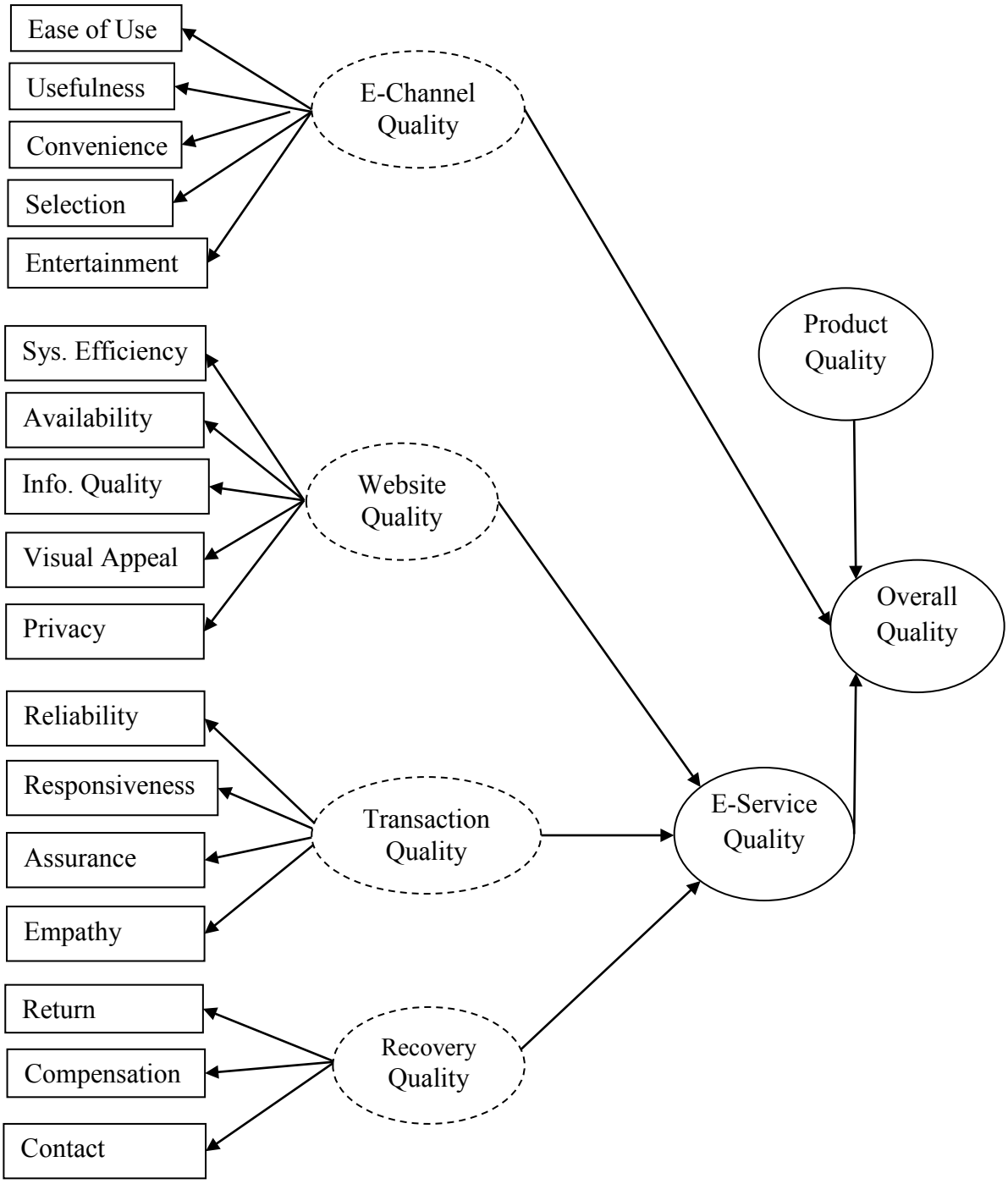


Figure 3-4. Dimensions for perceived quality in four categories based on decision-making process

3.4. Dimensions of Behavioral Intentions

Customer retention is a major key for a company to generate profits and to maintain business competitiveness. Therefore, reducing the rate of customer defection and increasing the rate of customer retention are the most important strategies for business success (Cronin et al., 2000). Behavioral intentions have been studied as critical signals that indicate whether customers will stay with or defect from the company (Zeithaml et al., 1996; Cronin et al., 2000).

Behavioral intentions are complicated concepts and the measurements of behavioral intentions involve dimensions from different levels. Zeithaml, Berry, and Parasuraman (1996) proposed five dimensions of behavioral intentions with 13 measurement items, including loyalty to company, propensity to switch, willingness to pay more, external response to problem, and internal response to problem. Internal response is a dimension with only one item measurement, which "undermines its meaningfulness on conceptual and psychometric grounds" (Zeithaml et al., 1996, p. 38). Therefore, I did not include this single-item dimension in their further analysis. The other four dimensions can be divided into two categories: (1) positive/favorable intentions (loyalty and willing to pay more); (2) negative/unfavorable intentions (propensity to switch and external response). When customers perceive higher quality of service/product, which will meet or exceed their expectations or desire of the service/products, the customers probably are more willing to continue to purchase from the e-commerce websites, say positive things about their experience to other customers, recommend their friends or relatives to purchase from this website, increase their business with the website, and remain loyalty to the website. Conversely, if customers perceive lower quality of service/product, they will be more inclined to exhibit unfavorable behaviors, such as complaining to others about their experience and switching to other e-commerce websites (Zeithaml et al., 1996; Gefen, 2002).

In the previous e-commerce research, many studies examined specific dimension(s) of online customer behavioral intentions as the consequences of constructs, such as perceived quality, satisfaction, trust, enjoyment/pleasure, or perceived value (Chiu et al., 2009; Im et al., 2010; Kim and Song, 2010; Ho and Lee, 2007; Lin and Sun, 2009; Kassim and Abdullah, 2010; Gefen, 2002). The most frequently studied constructs, including intention to use online shopping channel (Devaraj et al. 2002); repurchase intentions (Abdul-Muhmin, 2011; Chiu et al., 2009); online shopping/purchase intention (Kim and Song, 2010; Jones and Kim, 2010; Broekhuizen and Huizingh, 2009); repatronage intention (Im, Lennon and Stoel, 2010; Jiang and Rosenbloom, 2005); loyalty (Lin and Sun, 2009; Ho and Lee, 2007; Wolfinbarger and Gilly, 2003; Srinivasan et al., 2002; Parasuraman et al., 2005; Kassim and Abdullah, 2010; Gefen, 2002; Christodoulides and Birmingham, 2011); Word-of-Mouth (Srinivasan et al., 2002; Kassim and Abdullah, 2010); willing to pay more (Srinivasan et al., 2002). In this dissertation, I adopted Zeithaml's et al. (1996) multi-dimensional measurement scales for online customer behavioral intentions to examine the relationship among these dimensions and also how different dimensions of perceived quality affect the different dimensions of behavioral intentions. The behavioral intensions in this study include (1) Customer loyalty, (2) Willingness to pay more, (3) Intention to switch, and (4) external responses (negative word of mouth).

As a behavioral intention, loyalty is defined as ''a deeply held commitment to re-buy or re-patronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand set purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior'' (Oliver, 1999, p.34). In the context of online shopping, "e-loyalty or website brand loyalty refers to consumers' cognitive, affective, and behavioral reactions and favorable attitudes toward the site and its brands that result in repeat

buying and patronage behaviors." (Kim and Niehm, 2009, p. 224). As noted by Srinivasan et al. (2002), loyal customers will consider both economic factors and relationships with the company during shopping, while less loyal customers may mainly consider the economic factors. Some researchers use customer repurchase/repatronage intention to measure customer loyalty to a retailing website. Online customers' repurchase behaviors may exhibit "spurious loyalty" because customers' repeat purchase from the same retailer may result from some economic factors or "some situational constraints such as lack of availability or inertia" (Christodoulides and Michaelidou, 2011). Repeat buying behavior cannot differentiate true loyalty from spurious loyalty (Srinivasan et al., 2002). Hence, I propose that re-patronizing or re-purchasing behavior may not predict customer loyalty, but customer loyalty will lead to repeat patronizing or purchasing behaviors.

Srinivasan et al. (2002) defined customer loyalty to e-retailer as an attitudinal dimension that can be used to predict customer re-buy behavior. According to Gefen (2002), "customer loyalty deals with customer intentions to do more business with the vendor and to recommend that vendor to other customers." (p. 29). The measurement scales of customer loyalty in Zeithaml et al. (1996) include two parts: repurchase intentions and positive word of mouth. Research by Srinivasan et al. (2002) reveals that e-loyalty of customers is positively related to their word-of-mouth behavior and willingness to pay more. "The more satisfied the customers are, the more tolerant they are to price increases, thus resulting in greater profits." (Athanassopoulos, 2000, p. 192.) The measurement scales of loyalty used by Zeithaml et al. (1996) and Parasuraman et al. (2005) involve measurement items related to positive word of mouth and re-buying intentions. In this paper, the measurement scales of e-loyalty, word-of-mouth, and willingness to pay more are adopted from the scales used by Srinivasan et al. (2002) and Zeithaml et al. (1996). As well, the

measurement scales of repurchase intention are adopted from Loiacono et al. (2007).

Hypothesis 10: Customer loyalty has a positive influence on customer repurchase intentions.

Hypothesis 11: Customer loyalty has a positive influence on customers' positive word-of-mouth.

Hypothesis 12: Customer loyalty has a positive influence on customers' willingness to pay more.

3.5. Final Research Model

Putting all the dimensions together based on the theory, I can summarize my research framework for this study as shown in Figure 3-5. The general framework is based on the causal relationship among beliefs, attitudes, and intentions. In beliefs, I have four second-order dimensions of perceived quality developed from EKB decision-making process, perceived value and sacrifice / price. In attitudes, I have customer satisfaction, perceived enjoyment, and trust. In behavioral intentions, I have four dimensions: customer loyalty, repurchase intention, willingness to pay more, and positive word of mouth. In Figure 3-6, I exhibit all the latent variables (including first-order quality dimensions) and the relationships (hypotheses) for this research framework. In Figure 3-7, I presented the research framework of the model fitting in EKB decision-making process. This framework can provide a better understanding of how I derived the research model from decision-making process and why the variables that I want to test are important.

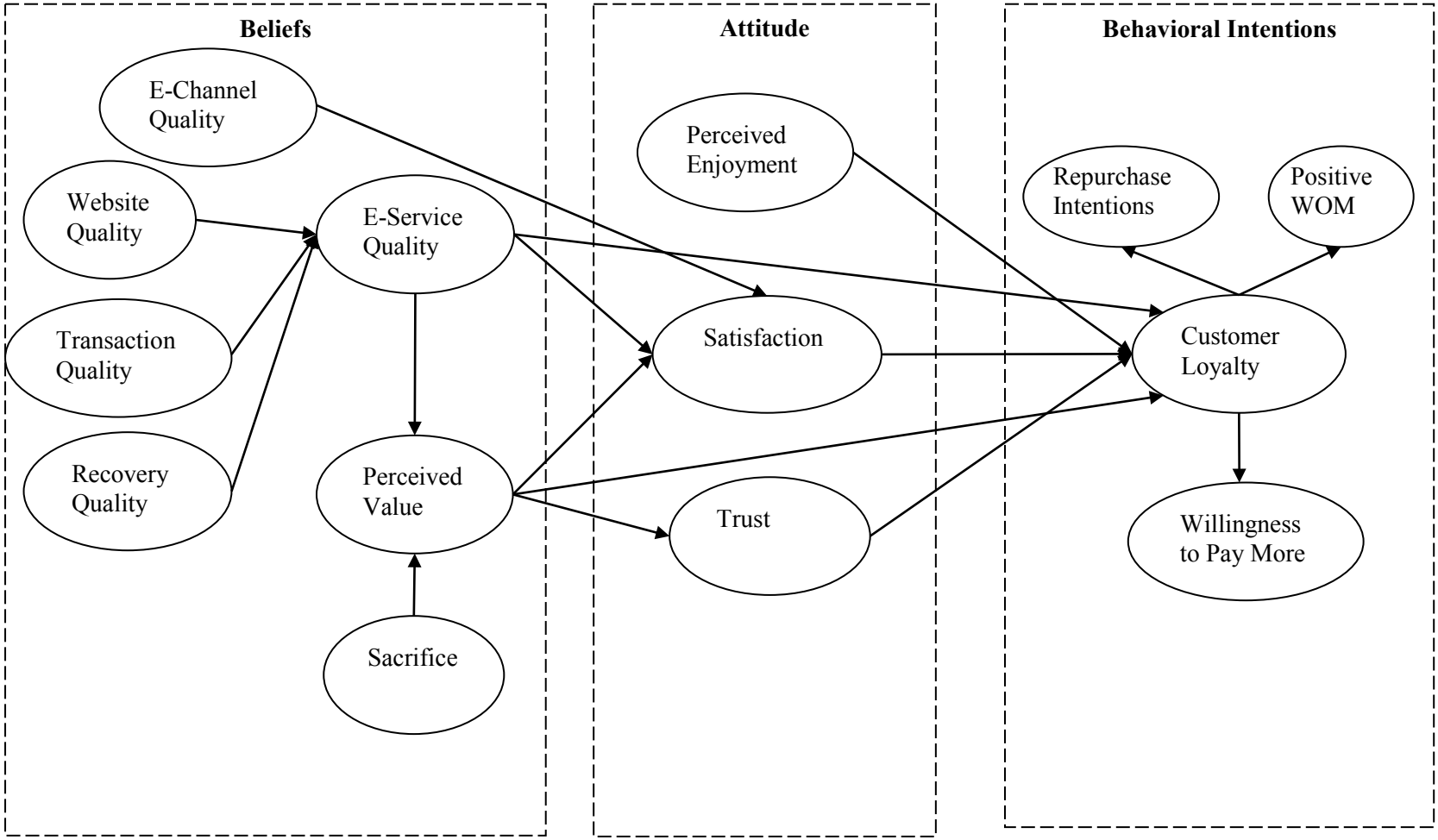
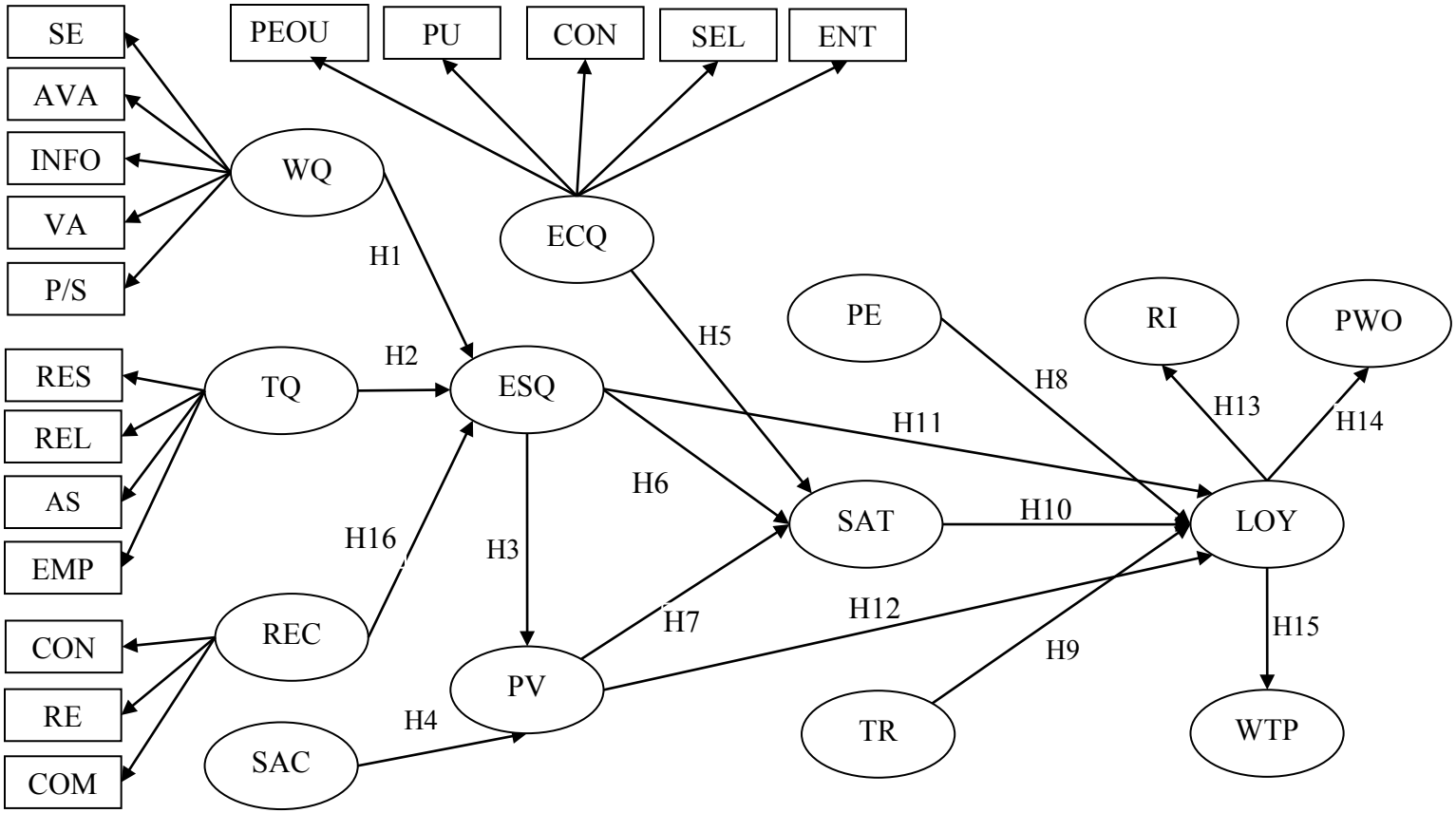


Figure 3-5. The research model of e-retailing success



Explanation of Abbreviation: PEOU = perceived ease of use, PU = perceived usefulness, CON = convenience, SEL = selection, ENT = entertainment; SE = system efficiency, AVA = availability, INFOQ = information quality, VA = visual appeal, P/S = privacy/security; RES = responsiveness, REL = reliability, AS= assurance, EMP = empathy; CON = contact, RE = response, COMP = compensation; WQ = website quality, TQ = transportation quality, RECQ = recovery quality, ECQ = e-channel quality; ESQ = e-service quality, PE = perceived enjoyment, PV = perceived value, SAC = price/sacrifice, SAT = satisfaction, TR = trust, LOY = customer loyalty, RI = repurchase intention, PWOM = positive word of mouth, WTPM = willingness to pay more.

Figure 3-6. The research model of e-retailing success with quality dimensions and hypotheses

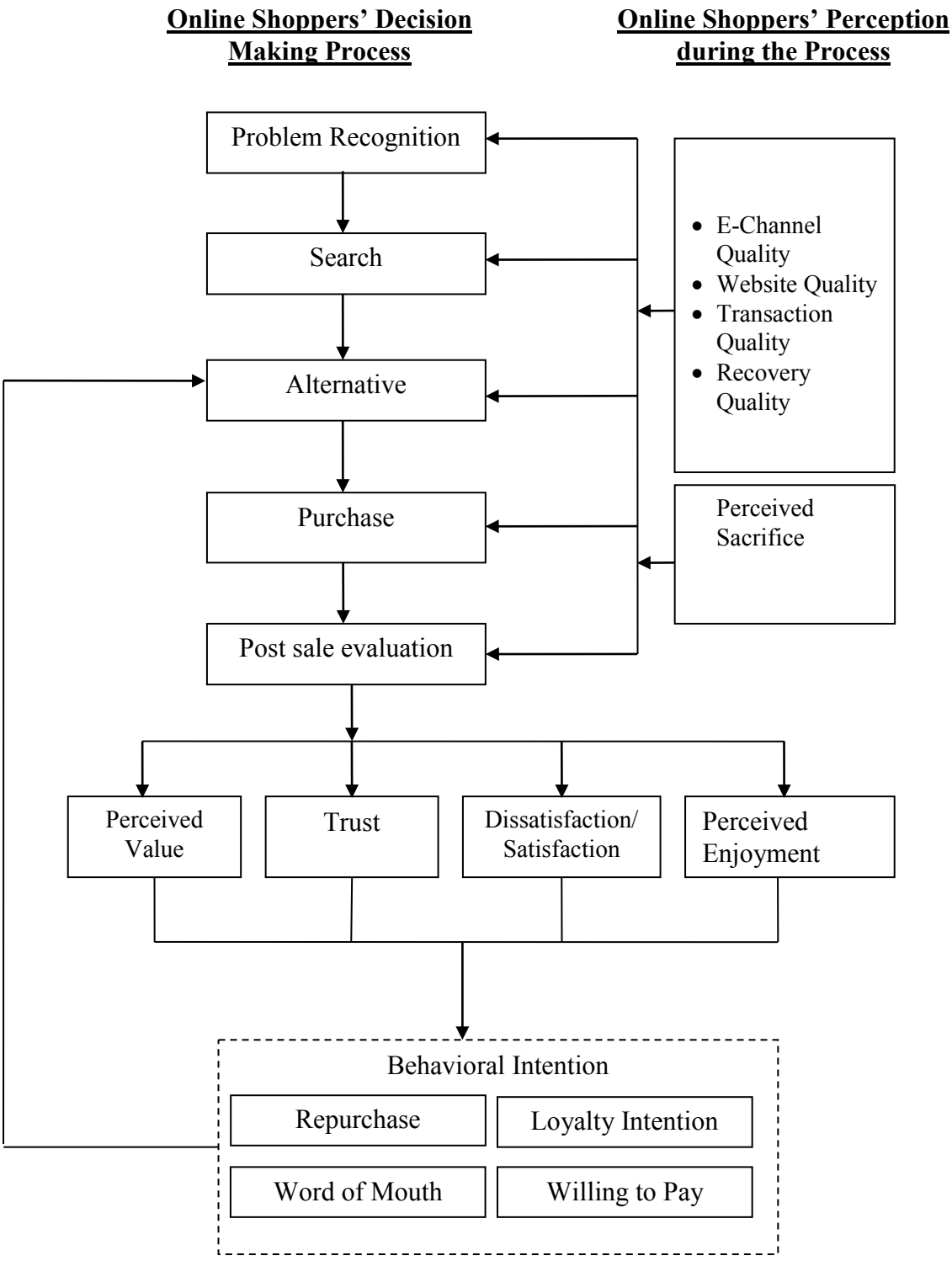


Figure 3-7. Research model fit in EKB decision-making process.

CHAPTER 4

RESEARCH METHODOLOGY

This chapter starts with an overview of the research methodology used to validate the comprehensive research framework. In the overview, I summarize procedures for developing measurement scales for the constructs in previous studies and propose a five-step procedure for this study. Then, I develop a questionnaire including the measurement scales and demographic questions about the respondents. After that, I distributed the survey to selected samples and collected data for analysis. The reliability and validity of the measurement instrument are examined using exploratory factor analysis with the SPSS statistical package and confirmatory factor analysis with the LISREL package. In the end, structural equation modeling was applied to test the research hypotheses and the contextualized relationships among perceived quality, perceived value, trust, enjoyment, customer satisfaction, and dimensions of behavioral intentions. This chapter focuses on the overview of the methodology including focus group study, measurement instrument development, pilot study, and data collection for the final study. In next chapter, I talk about data analysis and results.

4.1. Overview

To recap, one important task of this dissertation is to develop a comprehensive measurement scale of perceived quality in the context of e-commerce based on the decision making process. The next table (Table 4-1) summarizes a selection of studies with methods of development of measurement scales of e-service quality.

Table 4-1

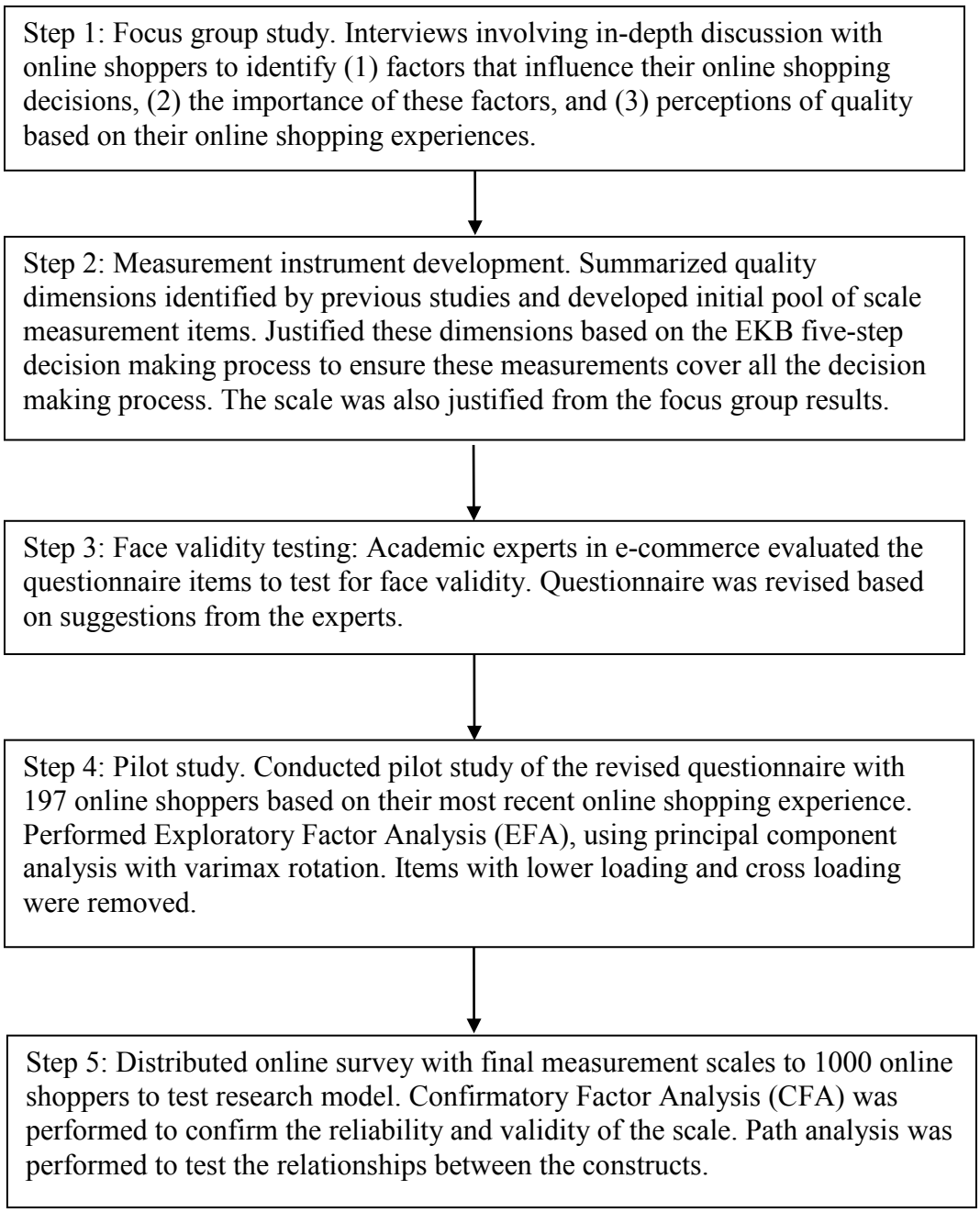
A Selection of Methods Used to Develop Measurement Scales of E-Service Quality

Studies	**Development of measurement scale of e-service quality**
Srinivasan et al. (2002)	1. Initial pool of scale items developed from in-depth discussions with 30 online shoppers, site administrators, and IT professionals. 2. Face validity of these items were evaluated by six academic researchers. 3. Format or wording issue of the questionnaire was indicated by 25 online shoppers. 4. Refined the scales using EFA data set.
Wolfinbarger and Gilly (2003)	1. Online and offline focus group research to develop items. 2. Structured conceptualization to develop dimensions/categories of eTail quality. 3. Categorize and remove items based on literature review. 4. Card sorting task and cluster analysis. 5. EFA and CFA.
Parasuraman et al. (2005)	1. Qualitative study for the meaning and domain of e-service quality. 2. Develop preliminary scale and revised based on focus groups. 3. Conduct pilot study and revise the scale parsimoniously. 4. CFA for the final scales. 5. Final online survey.
Bauer et al. (2006)	1. Items adopted from literature that cover the important factors identified from online transaction process. 2. Qualitative interview of 30 online shopping users.
Ho and Lee (2007)	1. Initial pool of 44 scales generated from conceptualization and extensive literature reviews. 2. In-depth interviews with 8 online purchasers to identify the facets of e-services. 3. Pre-test with 50 online purchasers comment on the importance of the items. 4. Pilot study with EFA analysis results. 5. Final survey

Building upon the suggestions of scholars as noted in Table 4-1 above, I propose a procedure to develop the measurement instrument of perceived quality based on consumer decision-making process. I summarize the five-step procedure in Table 4-2.

Table 4-2

Steps Employed in the Development of the Measurement Scales.



4.2. Focus Group Study

A focus group study with an in-depth discussion was conducted with the aim of identifying (1) factors that influence their online shopping decisions, (2) the importance of these factors, and (3) perceptions of quality based on their online shopping experiences. Two classrooms of 27 and 35 students, one in business statistics course and one in marketing course respectively, in College of Business at a large southwest public university were recruited for focus group interview. The focus group interview included two parts.

First, a few open questions were discussed in each class to explore the general factors that influence online shopping decisions. These questions included the followings: (1)What are the reasons behind using the online shopping channel? (2) What are the reasons behind choosing a specific online shopping website? (3) What are the reasons behind choosing a specific online vendor/store? (4) How do you perceive the product quality that you are going to purchase (based on what criteria)? (5) Have you ever meet some problems when you shop online? What are the problems and how did you solve the problems? (6) Do you search for product information online but decide to shop at a physical store? What are the reasons behind not buying online?

Second, a list of factors/constructs with definitions was given to the participants and rated regarding the importance of these factors in their online shopping decision making process. These factors, influencing customer online purchase decisions, were collected from literature review, and this step helped to determine whether the measurement scales of these constructs were adequate and whether there were any important attribute missing to measure quality perceived by customers.

4.2.1. Open Ended Questions in the Discussion

When the participants were asked about the reason for using the online shopping channel instead of the physical stores, they gave answers like the followings: “Some products are available online only.” “Shopping mall is not nearby, and online shopping can save time.” “Customer reviews from online shopping websites can provide fair ideas about the products.” “Save time, save gas, do not need to drive to the mall.” Many participants said shopping online is “cheaper,” “with more/various choices,” “convenient,” and “easy to do”. Some other participants argued they could compare price easily, get better price and free shipping online and even do not need to pay tax.

When the participants were asked about the reason for choosing a specific online shopping website, they provided the following reasons: “The website provides fast shipping and fast check-out service.” “I can get happy hour special from my favorite websites, and they will send email to their customers with this information.” “The website has a great reputation and brand equity. I know where to find the products in this website and want to stay there.” “This website provides a variety of products and specific things.” “The website is reliable, user friendly, and easy to use.” “I trust this website because of the transaction security and data inscription.” “It is easy to find information such as customer reviews and pictures of the product.” Other participants also mentioned they wanted to use this website because their friends recommended them to do so, so they trusted this website and they got familiar with the website. Some chose to use specific website because the customer service is quicker than others: “you can call or they have pop-up windows for online chatting and fast response.” A few students argued the importance of after-sale service and said they chose some website because the website

provided better return policies and had customer support systems so that they could easily access customer services when they had problems.

When the participants were asked about the reasons for choosing a specific online vendor/store, many of the participants said the free shipping was a very important factor. Some will choose a vendor based on customer reviews, feedbacks and shipping time. Some participants are price-sensitive, and they would choose the vendor with lower price or promotion. One participant said he would just choose any vendor listed first because of the eBay money back guarantee and it does not matter which vendor he chooses. There are participants choosing online vendors based on the quality of the products or funny advertisement.

Regarding to the criteria that online shoppers used to perceive the quality of the product, the brand name, product review, warranty provided, detailed product description, reputation of better quality of products from the websites, and preview pictures of products are used most frequently.

All the participants in the focus study group have the experience of searching for product information online but often decide to shop at a physical store. The reasons behind this behavior include they want to get the product immediately, they can talk to the salesperson to make better decisions, they can touch and feel the products before purchasing, or it is easier to return the product if it is purchased in a physical store. Transactions in stores are safe. They can enjoy socialization and have fun when shopping in the mall. Sometimes, they can get better deals at the counter. These reasons reflect the disadvantages of online shopping channel: time delay of getting the product because of the delivery, late gratification, high shipping cost, poor perception of the product (intangibility), security issues, and interaction problems.

4.2.2. Importance Rating of Quality Attributes from Literature

A short survey was given to the participants of the focus group. 19 constructs regarding the quality perceived by online customers during online shopping experience were derived from previous literature and listed in the short survey. The definitions of these constructs were also presented so that the participants could understand the meaning of these factors, as shown in Appendix A. The participants were asked to rate the importance of these constructs based on their online shopping experience.

Table 4-3

Descriptive Statistics of Importance of Factors Influencing Their Online Purchase Decision

	Minimum	Maximum	Mean	Std. Deviation
Product Quality	4	9	8.36	1.144
Reliability	6	9	8.33	.846
Privacy/Security	3	9	8.29	1.349
Website Availability	5	9	8.10	.958
Website Efficiency	6	9	8.05	.854
Information Quality	3	9	8.05	1.268
Responsiveness	5	9	8.05	1.058
Assurance	5	9	8.05	1.011
Various Choices	6	9	8.05	.936
Return	2	9	7.90	1.478
Compensation	4	9	7.74	1.398
Convenience	3	9	7.74	1.515
Time Saving	4	9	7.71	1.402
Cost Saving	4	9	7.38	1.529
Contact	3	9	7.38	1.561
Ease of Use	1	9	7.12	2.039
Empathy	1	9	6.86	1.705
Usefulness	1	9	6.36	2.046
Website Aesthetic Design Quality	1	9	6.31	1.718

Notes: 42 responses. Rating from 1 to 9 was used, where 1 being not important at all, and 9 being very important.

The rating is based on a 9 point scales with 1 being not important at all and 9 being very important. The data of rating were collected and the descriptive statistics are reported in Table 4-3 to find out the importance of these factors influencing their online purchase decisions. All the 42 participants in the focus group have online shopping experience with the online shopping frequency up to 15 times per month. These factors are sorted based on the mean from high to low.

4.3. Research Instrument Development and Face Validity Testing

In chapter 2 and 3, I defined all the constructs and dimensions of these constructs for the research framework. I also proposed the theory support of the relationships among these constructs. In the literature review stage, I put all the measurement items that other scholars used together to initiate a pool of measurement items. Previous studies defined and measured the constructs from different perspectives for different research purposes. This study aims to measure perceived quality based on consumers' decision-making process. Therefore, I redefined all the constructs based on the focus study results and EKB decision-making process as proposed in Chapter 3.

I adopted the measurement scales from previous studies and modified these items to fit the definition of these constructs in this study. A questionnaire was designed and it includes the measurement items and some demographic questions about the respondents to collect data to validate the constructs and theory posited in the research framework. This questionnaire was given to several university professors and four doctoral students with expertise in e-commerce and service quality study for face validity testing. Specifically, several faculty members specializing in the area of service quality management, consumer decision-making process, and e-commerce were asked to review the research constructs and the survey instrument to evaluate

the items targeted by the survey. This procedure enhanced the face validity of the measurement instrument. Next, four doctoral students from different academic concentrations were asked to modify the wording of the items in the research questionnaire. Based on their feedback, a few modifications were made to the indicators, which suggests that the doctoral students were satisfied that the survey instrument was accurate and easily understood by participants. The questionnaire was revised based on their comments and suggestions.

The revised questionnaire is composed of three parts. The first section of the survey was designed to get information about the participants' online shopping habits and their most recent shopping experience. Specifically, the following questions are included: (1) whether they have bought products on the Internet before; (2) how many times they have purchased products or services online in the last three months; (3) what are their favorite online shopping websites; (4) what is their most recently used online shopping website; (5) what are products/services they bought online; and (6) what is the initial motivation for their most recent online purchase.

The second section contained 138 questionnaire items that measure 30 constructs in the proposed research model. A seven-point Likert Scale (1 = strongly disagree, 4 = neither agree nor disagree, and7 = strongly agree) was chosen to measure these construct items. Since these items were selected from previous related theoretical research and subsequently modified to fit the online shopping decision making process, these measurement items can be divided into dimensions for e-channel quality, dimensions for website quality, dimensions for service quality, dimensions for recovery quality, constructs for beliefs, constructs for attitude, and constructs for behavioral intentions. The title of the constructs/dimensions, measurement items, and sources are listed in Tables 4-4 to 4-9. The third section of the questionnaire concerned the demographic information of the respondents.

Table 4-4

Measurement Items and Sources of Constructs for E-Channel Quality

Construct	Measurement Items	Sources
Perceived Ease of Use	It is easy for me to shop online.	Devaraj et al. 2002
	My interactions during online shopping are clear and understandable.	
	I believe that it is easy to do what I want to do while shopping online.	
	A first-time buyer can make a purchase online without much help.	
	Overall, I believe that shopping online is easier.	
Perceived Usefulness	Shopping online gives me greater control.	Devaraj et al. 2002
	Shopping online improves the quality of my decision making.	
	Shopping online is a more effective way to make a purchase.	
	Overall, I find shopping online very useful.	
Convenience	Shopping online lets me stay at home and shop	Yang and Lester, 2004; Madlberger, 2006; Christodoulides and Michaelidou, 2011
	Shopping online saves me from driving from store to store.	
	Shopping online requires less effort of my part.	
	Shop online allows me to shop 24/7.	
	Shopping online removes time pressure.	
	The Internet is a convenient way of shopping.	
Choices	Online shopping websites have a wide variety of products that interest me.	Wolfinbarger and Gilly 2003; Srinivasan et al. 2002
	Online shopping websites have products I can't easily find in physical stores.	
	Online shopping websites have a good selection of products.	
	Online shopping websites are updated often with new products.	
	Online shopping websites provide a "one-stop shop" for my shopping.	
Entertaining	It's really fun to shop online.	Wolfinbarger and Gilly 2003; Srinivasan et al. 2002
	There are features at online shopping websites that are entertaining to use.	
	Buying online is exciting.	
	Shopping online feels inviting to me.	
	I feel comfortable shopping online.	

Table 4-5

Measurement Items and Sources of Constructs for Website Quality

Construct	Measurement Items	Sources
Efficiency	This site makes it easy to find what I need.	Parasuraman et al., 2005;Wolfinbarger and Gilly, 2003; Yang et al., 2004
	It makes it easy to get anywhere on the site.	
	It enables me to complete a transaction quickly.	
	It loads its pages fast.	
	This site is simple to use.	
	This site enables me to get on to it quickly.	
	This site is well organized.	
	The organization and layout of the website facilitates searching for products.	
	Using this web site requires a lot of effort.	
Availability	This site is always available for business.	Parasuraman et al., 2005
	This site launches and runs right away.	
	This site does not crash.	
	Pages at this site do not freeze after I enter my order information.	
Information Quality	This website provides accurate information.	Wolfinbarger and Gilly 2003; Zhou et al., 2011; Loiacono et al., 2007
	This website provides up-to-date information.	
	This website provides complete information.	
	This website provides easy-to-understand information.	
	The website adequately meets my information needs.	
	The website provides information tailored to my specific needs.	
Visual Appeal	The page design (i.e. colors, layouts, animations, etc.) is attractive.	Cyr et al. 2006
	This site looks professionally designed.	
	The graphics are meaningful.	
	The overall look and feel of the site is visually appealing.	
Privacy/Security	This website protects information about my Web-shopping behavior.	Parasuraman et al. 2005; Wolfinbarger and Gilly 2003;
	This website does not share my personal information with other sites.	
	This website protects information about my credit card.	
	This website has adequate security features.	
	The company behind the site is reputable.	
	The risk associated with my online transactions is low.	

Table 4-6

Measurement Items and Sources of Constructs for Service Quality

Construct	Measurement Items	Sources
Reliability	When the online store promises to do something by a certain time, it does so.	Gefen 2002
	When I have a problem, the online store shows a sincere interest in solving it.	
	The online store is dependable.	
	The online store is reliable.	
Responsiveness	The online store tells me exactly when services will be performed.	Gefen 2002
	The online store gives me prompt services.	
	The online store is always willing to help me.	
	The online store is never too busy to respond to my requests.	
Assurance	The online store behavior instills confidence in me.	Gefen 2002
	I feel safe in my transactions with this online store.	
	The online store is consistently courteous with me.	
	The online store has the knowledge to do its job.	
Empathy	The online store gives me individual attention.	Gefen 2002; Wolfinbarger and Gilly, 2003
	The online store gives me personal attention.	
	The online store understands my specific needs.	
	This online store has features that are personalized for me.	
	This online store offers me extra services or information based on my preferences.	
	The online store has my best interests at heart.	
	This online store does a pretty good job guessing what kinds of things I might want and making suggestions.	

Table 4-7

Measurement Items and Sources of Constructs for Recovery Quality

Construct	Measurement Items	Sources
Return Policy	The site provides me with convenient options for returning items.	Parasuraman et al. 2005
	This site handles product returns well.	
	This site offers a meaningful guarantee.	
	It tells me what to do if my transaction is not processed.	
	It takes care of problems promptly.	
	The return policy at this site is reasonable.	
Compensation	This site compensates me for problems it creates.	Parasuraman et al. 2005
	It compensates me when my order does not arrive on time.	
	It picks up items I want to return from my home or business.	
Compensation	This site provides a telephone number to reach the company.	Parasuraman et al. 2005
	This site has customer service representatives available online.	
	It offers the ability to speak to a live person if there is a problem.	

Table 4-8

Measurement Items and Sources of Constructs for Beliefs and Attitude

Construct	Measurement Items	Sources
Perceived Sacrifice	The price of the product charged by this website is…very low to very high	Cronin et al. 2000
	The time required to shop online is …very low to very high	
	The effort that I must make to receive the services/products is…very low to very high	
Overall Quality	Overall, the service quality of this website is of high standards.	-
	Overall, the service quality of this website is excellent.	
	Overall, the service quality of this website is superior.	
Perceived Value	The product offered by this website is a good value for the money.	Harris and Goode, 2004; Wang, 2008
	The price that I pay for the product is worthwhile.	
	I would consider the product to be a good buy.	
	The goods I purchase from this site are worth every cent.	
Trust	Even if not monitored, I'd trust this website to do the job right.	Gefen 2002; Loiacono et al. 2007
	I trust this online shopping website.	
	I am quite certain what to expect from this website.	
	I feel safe in my transactions with the Web site.	
	I trust the Web site to keep my personal information safe.	
	I trust the Web site administrators will not misuse my personal information.	
Perceived Enjoyment	I found my visit to this website interesting.	Van der Heijden et al. (2003); Hassanein and Head (2007)
	I found my visit to this website entertaining.	
	I found my visit to this website enjoyable.	
	I found my visit to this website pleasant.	
Overall Satisfaction	I think I did the right thing to shop online.	Yang et al., 2004; Carlson & O'Cass, 2010
	My choice to use this website shopping was a wise one.	
	I am very satisfied with Internet-based transactions.	
	I am very satisfied with the products/services offered by the online store.	
	Overall, I am very satisfied with my last online shopping experience.	

Table 4-9

Measurement Items and Sources of Constructs for Behavioral Intentions

Construct	Measurement Items	Sources
Channel Preference	I plan to use online shopping again.	Devaraj et al., 2002
	I strongly recommend shopping online to others.	
	For products I can buy online, I intend to completely switch over to online shopping.	
	I intend to increase my use of shopping online in the future.	
Repurchase Intention	If I needed this product or service in the future, I would be likely to buy it from this Web site.	Loiacono et al. 2007
	If I needed this product or service in the future, I would probably revisit this Web site.	
	If I needed this product or service in the future, I would probably try this Web site.	
	If I needed this product or service in the future, I would probably end up making a purchase from this Web site.	
Recommendation (Word of Mouth)	I say positive things about this website to other people.	Srinivasan et al. 2002
	I recommend the website to whoever seeks my advice.	
	I **do not** encourage friends to do business with this website.	
	I **hesitate to** refer my acquaintances to this website.	
Customer Loyalty	I seldom consider switching to another website.	Srinivasan et al. 2002
	As long as the present service continues, I doubt that I would switch websites.	
	I try to use the website whenever I need to make a purchase.	
	When I need to make a purchase, this website is my first choice.	
	I like using this website.	
	To me this website is the best retail website to do business with.	
	I believe that this is my favorite retail website.	
Willingness to Pay More	I will take some of my business to other websites that offer better prices.	Srinivasan et al. 2002
	I will continue to do business with this website if its prices increase somewhat.	
	I will pay a higher price at this website relative to other websites for the same benefit.	
	I will stop doing business with this website if other websites' prices decrease somewhat.	

4.4. Pilot Study

Though all the items, except overall quality of the e-commerce website and product quality, were selected from related studies following modifications to fit this study, I realized that a pilot test was necessary to adapt these items to the present study context, and thus, further ensuring the content validity. The purpose of pilot study is to make the questionnaire easy to understand, simplified and with enough content validity. Another purpose of pilot study is to ensure that the information obtained from the questionnaire will meet the research objectives. The pilot study was conducted with 196 college students with various business majors. I employed Exploratory Factor Analysis (EFA) using principal component analysis with varimax rotation to analyze the data from pilot study. Items with lower loading and cross loading are removed and some modifications of the questionnaire items were also made. The final scale contains 129 items for 29 latent variables.

4.5. Data Collection

Both online survey and paper-pencil survey were employed to collect data. The online survey was hosted by Qualtrics. The final survey was distributed to 10 sections of business statistics classes with a total of 1126 college students in a large southwestern university in the US. Some classes of students were given extra credits for participating in the survey if the course content is related to the study. Two sections with around 300 students were administrated using paper-pencil survey and the respondents were given 30 minutes to finish the survey in the class. The other respondents were administrated with online survey. They could access the survey link posted on course websites and blackboard any time in a three-week time period.

I obtained 808 responses and 91 incomplete responses were disregarded for incompleteness. The final 717 usable responses resulted in 63.6% response rate. 702 out of the 717 respondents have the online shopping experience and were usable for further data analysis. The average age of these respondents is 23.8 and 58% of these respondents were aged between 18 and 22. The demographic information of the respondents were summarized in Table 4-10.

Table 4-10

Demographic Characteristics of Respondents

Item	Characteristics	Percentage (%)
Gender	Male	57.26%
	Female	42.74%
Race	American Indian or Alaska Native	0.29%
	Asian	11.88%
	Black or African American	11.88%
	Hispanic or Latino	15.07%
	Mixed Race	3.19%
	Native Hawaiian or Other Pacific Islander	0.43%
	White	57.25%
Academic Status	Freshman	1.28%
	Sophomore	17.66%
	Junior	54.84%
	Senior	25.07%
	Graduate Student	1.14%
Location living in	Urban	32.86%
	Suburban	59.83%
	Rural	7.32%
Personal yearly income	Under $10,000	44.37%
	$10,000-$19,999	26.25%
	$20,000-$39,999	18.97%
	Above $40,000	10.41%
Household yearly income	Under $20,000	29.80%
	$20,000-$59,999	29.65%
	$60,000-$99,999	18.46%
	Above $100,000	22.09%

I also summarized the shopping experience information of the respondents and shopping information regarding their most recent online purchase in Table 4-11.

Table 4-11

Shopping Experience Characteristics of Respondents

Item	Characteristics	Percentage (%)
Years of online shopping experience	Less than five years	40.03%
	Between five and ten	44.73%
	Greater than ten	15.24%
Frequency of online shopping per month in the past year	Less than one	9.83%
	Between one and three	60.97%
	Between three and five	15.67%
	Greater than five	13.53%
Categories of products or services most recent purchased (could be multiple choices)	Books or magazines	33.90%
	Clothing or shoes	34.90%
	Travel (airlines, car rentals, hotels)	10.26%
	Electronic Products (Software, Computer accessories, CDs, DVDs, Home Electronics)	38.75%
	Services (Oil changes, car clear, Insurance, etc.)	4.27%
	Food (fast food or coupon for restaurants)	5.27%
	Tickets (concert, movies, etc.)	17.09%
	Others	13.68%
Websites used for most recent shopping	eBay.com	21.23%
	Amazon.com	39.60%
	Others	39.17%
Initial motivation for most recent online purchase	Need based (Necessity)	40.03%
	For fun (Not necessary but like to own)	53.28%
	Others	6.70%
Money spent for most recent purchase	Under $50	35.47%
	$50-$100	28.49%
	$100-$200	16.52%
	$200-$500	13.68%
	Above $500	5.84%

On average, the respondents have 5.5 years online shopping experience since their first attempt. The respondents' average frequency of online shopping in the last year is 2.66 times per

month. Therefore, the demographic analysis shows that the student sample has rich online shopping experience and is qualified for this study.

CHAPTER 5

DATA ANALYSIS AND RESULTS

This chapter first explains what statistics package and statistical analysis procedure I applied for data analysis and why I choose those statistical methods. I also provide a clear report of the results regarding factor loading, reliability, validity, model fitness, and hypotheses testing. A detailed theoretical and practical implications based on the data analysis results will be discussed in next chapter.

5.1. Statistical Analysis Procedure

Even though most of the measurement items are from previous literature, the latent variables have been redefined and the items have been modified to fit in this study. Thus, an exploratory factor analysis (EFA) was conducted first to see how the respondents from this sample evaluate these items and how many dimensions can be identified from these items. EFA results will also show how observed items load together to measure certain latent variables. A Principal Component Analysis with varimax rotation was conducted to examine the scale items. Items with lower loading (minimal acceptance level of 0.3 or 0.4, usually above 0.5, is considered practical significance) should be removed for further analysis (Hair et al., 1998). Cross-load items should also be removed (Hair et al., 1998).

Next step is to evaluate the reliability and construct validity of the measurement scales. Reliability measures to what extent the measurement items are consistent with the latent construct that they are supposed to measure, and it is about how the construct is measured by the items (Hair et al., 1998). The reliability or internal consistency can be examined using both Cronbach's Alpha from EFA and composite reliability (CR value) from CFA. All Cronbach's Alpha and composite reliability scores should be above the recommended value of 0.7

(Churchill, 1979; Hair et al., 1998), indicating an acceptable internal consistency. Construct validity refers to the degree to which the measurement items actually represent the theoretical latent constructs that the items are designed to measure (Hair et al., 1998). Construct reliability is the necessary condition but not sufficient condition since reliability is about the consistency of the measures and the validity is about how well the concept is defined by the measures. Construct validity includes face validity, convergent validity, and discriminant validity. Face validity or content validity refers to the extent to which the content of items corresponds to the definitions of the concepts. I have tested the face validity in pilot study mentioned in last chapter using expert judges. Convergent validity shows how well the items designed to measure certain construct converge or share a high proportion of the variance in common (Hair et al., 1998). Discriminant validity, on the other hand, is to confirm that the measurement instrument is different from other similar constructs. The test of the convergent and discriminant validity is conducted with confirmatory factor analysis using an established structural equation modeling procedure with LISREL 8.8. Detailed steps of testing convergent and discriminant validity are shown in next sections.

To ensure the validity of the measurement model, another important index provided by structural equation modeling is model fit assessment or goodness-of-fit (GOF). GOF refers to how well the research model reproduces the covariance matrix among the indicator items close to the observed covariance matrix produced by the data collected (Hair et al., 1998). There are many different indices used to assess GOF and I provided detailed information in the next few sections.

The last step is to test the relationships among latent constructs to support the research hypotheses.

5.2. Exploratory Factor Analysis (EFA)

I employed IBM SPSS Statistics (version 19, SPSS Inc.) to conduct EFA data analysis. I have 29 latent variables based on the theory and I conducted EFA with independent variables and dependent variables separately. I first ran EFA with all the items measuring e-channel quality and the results are shown in Table 5-1.

Table 5-1

EFA Results of E-Channel Quality

Items	Component				
	Convenience	Perceived Ease of Use	Entertainment	Selection	Perceived Usefulness
CONV2	**.848**	.100	.100	.177	.116
CONV3	**.800**	.210	.140	.091	.105
CONV1	**.782**	.200	.111	.201	.055
CONV5	**.666**	.337	.208	.273	.243
CONV4	**.536**	.199	.197	.281	.287
EOU3	.197	**.763**	.223	.184	.200
EOU2	.273	**.752**	.165	.181	.265
EOU4	.239	**.724**	.205	.256	.271
EOU1	.207	**.682**	.159	.148	.365
PU4	*.288*	*.519*	*.162*	*.247*	*.518*
ENT3	.093	.135	**.863**	.138	.135
ENT1	.171	.160	**.818**	.199	.145
ENT4	.138	.168	**.816**	.125	.208
ENT2	.158	.164	**.789**	.175	.075
SEL1	.266	.313	.130	**.767**	.115
SEL2	.281	.350	.189	**.750**	.065
SEL3	.085	.020	.173	**.727**	.258
SEL4	.251	.166	.219	**.717**	.140
PU2	.140	.229	.148	.130	**.840**
PU3	.135	.287	.153	.189	**.777**
PU1	.170	.362	.247	.173	**.683**
Factor Mean	6.280	4.940	5.65	5.930	4.920
Factor sd.	1.038	1.385	1.243	1.139	1.523
Eigenvalue	3.367	3.266	3.233	2.829	2.721
Cum. % of Variance	16.033	31.588	46.983	60.456	73.413

As shown in Table 5-1, most of the 21 items have loadings higher than 0.70 and cross loadings less than 0.40. CONV4, CONV5, EOU1, and PU1 have loading less than 0.70 but above 0.50.I decided to remove CONV4 and CONV5 for lower loadings and keep EOU1 and PU1 because their loadings are close to 0.70. Only one item, "Overall, I find shopping online very useful" (item PU4), has a 0.518 loading on its expected factor perceived usefulness but also has a 0.519 loading on the perceived usefulness factor. Therefore, this item was removed from further analysis. All the items loaded into five factors: (1) convenience, (2) perceived ease of use, (3) entertainment, (4) selections, and (5) perceived usefulness. All the five factors explained 73.4% variance of e-channel quality.

The EFA results for website quality are summarized in Table 5-2 as shown below. As shown in Table 5-2, almost all the 24 items have loadings higher than 0.7 and cross loadings less than 0.40, showing the convergent and discriminant validity of the scales (Hair et al., 1998). EFFI6, PS5, and INFOQ2 have factor loadings above 0.60 and close to 0.70. All the items loaded on five factors: (1) system efficiency, (2) privacy/security, (3) information quality, (4) visual design, and (5) availability. All the five factors explained 76.5% variances of website quality.

Table 5-2

EFA Results for Website Quality

Items	Component				
	System Efficiency	Privacy/ Security	Information Quality	Visual Design	Availability
EFFI2	**.798**	.108	.300	.195	.247
EFFI5	**.770**	.211	.271	.242	.161
EFFI1	**.767**	.109	.288	.171	.279
EFFI3	**.765**	.125	.265	.146	.327
EFFI4	**.753**	.173	.173	.112	.375
EFFI6	**.685**	.225	.283	.246	.182
PS3	.076	**.836**	.164	.130	.216
PS4	.134	**.835**	.158	.148	.202
PS2	.164	**.817**	.148	.086	.066
PS6	.059	**.744**	.264	.213	.098
PS1	.218	**.738**	.216	.186	.052
PS5	.162	**.650**	.199	.180	.316
INFOQ3	.257	.205	**.809**	.200	.102
INFOQ5	.311	.232	**.761**	.171	.183
INFOQ1	.260	.212	**.722**	.201	.311
INFOQ4	.315	.254	**.718**	.202	.280
INFOQ6	.263	.266	**.710**	.216	.039
INFOQ2	.236	.277	**.691**	.191	.363
VISUAL4	.196	.201	.194	**.861**	.060
VISUAL1	.229	.147	.156	**.852**	.079
VISUAL3	.127	.241	.212	**.809**	.108
VISUAL2	.205	.187	.235	**.763**	.217
AVA3	.254	.177	.142	.110	**.781**
AVA2	.358	.186	.206	.121	**.778**
AVA4	.237	.203	.222	.111	**.739**
AVA1	.368	.192	.212	.110	**.707**
Factor Mean	6.010	5.870	5.900	5.620	.986
Factor sd.	6.230	1.201	1.108	1.253	1.005
Eigenvalue	4.556	4.401	4.227	3.366	3.334
Cumulative % of Variance	17.523	34.450	50.709	63.657	76.480

Table 5-3

EFA Results for Transaction Quality

Items	Component	
	Combination of Reliability, Assurance, Reliability	Empathy
RELI4	**.871**	.201
RELI3	**.870**	.195
RESP2	**.818**	.195
RELI1	**.809**	.183
ASSU4	**.787**	.256
ASSU2	**.783**	.194
RESP1	**.778**	.224
ASSU3	**.753**	.330
ASSU1	**.733**	.293
RELI2	**.720**	.284
RESP3	**.713**	.365
RESP4	**.636**	.366
EMPA2	.223	**.877**
EMPA4	.252	**.850**
EMPA1	.260	**.834**
EMPA3	.276	**.811**
EMPA5	.220	**.780**
EMPA6	.254	**.723**
Factor Mean	5.61	4.9
Factor sd.	1.229	1.445
Eigenvalue	7.583	4.822
Cumulative % of Variance	42.127	68.917

The EFA results for transaction quality are summarized in Table 5-3. The 18 items measuring transaction quality did not load into four factors as I expected, while they loaded on two factors: (1) empathy and (2) a combination factor reflecting reliability, responsiveness, and assurance. All the six items for empathy loaded together and the other twelve items for reliability, assurance, and responsiveness loaded as one combined factor. All the 18 items have loadings higher than 0.70, except for RESP4, and cross loadings less than 0.40, showing the convergent and discriminant validity of the scales (Hair et al., 1998). I can find theory support

for this result in previous studies. Gefen (2002) had similar results when he adopted SERVQUAL scale in e-commerce study. In his study, the items of each scale loaded into three factors: tangibles, empathy, and a combined factor for reliability, responsiveness, and assurance. In my study, I did not adopt the measure items for tangibility since the website quality was considered as general measurement of tangibility for e-commerce, and that explains why I have two factors only in transaction quality. It is not surprised to see the 12 items for reliability, assurance, and responsiveness load as one combined factor because (1) theoretically, previous literature has reported the unstable dimensionality of SERVQUAL (Gefen, 2002); and (2) practically, almost all the online shopping websites provide 24/7 transaction platforms, professional customer services, and stable shopping websites to the customers.

Table 5-4

EFA Results for Recovery Quality

Items	Component		
	Return	Contact	Compensation
RE2	**.880**	.153	.200
RE3	**.846**	.218	.208
RE1	**.834**	.157	.206
RE4	**.785**	.225	.217
RE5	**.782**	.309	.252
CONTACT3	.214	**.856**	.203
CONTACT2	.190	**.834**	.231
CONTACT1	.249	**.800**	.048
COMP2	.223	.182	**.866**
COMP3	.175	.109	**.825**
COMP1	.350	.197	**.769**
Factor Mean	5.26	4.37	5.31
Factor sd.	1.467	1.673	1.552
Eigenvalue	3.760	2.393	2.356
Cumulative % of Variance	34.183	55.940	77.356

As shown in Table 5-4, all the 11 items have loadings higher than 0.70 and cross loadings less than 0.40, showing the convergent and discriminant validity of the scales (Hair et al., 1998). All the items loaded on three factors as I expected: (1) return, (2) contact information, and (3) compensation. All the three factors explained 77.4% variances of recovery quality.

After I ran the EFA for each quality category separately, I put all the measurement items related to quality for all the four categories together and ran the EFA. The factor loading results are shown in the following table. As I can see, almost all the items loaded to the dimensions as I expected. Only items for reliability, responsiveness, and assurance from transaction quality are loaded together as one combined factor. The reason why these items loaded together has been explained in previous sections. Perceived usefulness and perceived ease of use also loaded together as one combined factor. I can also find similar results from previous studies.

Table 5-5

EFA Results for Quality (with e-channel quality, website quality, transaction quality, and recovery quality)

	Component														
Items	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RELI3	.719														
RELI4	.716														
RESP3	.707														
RELI1	.694														
RELI2	.686														
RESP2	.681														
RESP4	.665														
RESP1	.660														
ASSU1	.634														
ASSU3	.602														
ASSU2	.583			.432											
ASSU4	.579														
PU2		.785													
PU3		.775													
PU1		.748													

PU4		.733														
EOU1		.730														
EOU2		.702														
EOU4		.673														
EOU3		.632														
EMPA2			.843													
EMPA1			.803													
EMPA4			.802													
EMPA3			.749													
EMPA5			.743													
EMPA6			.688													
PS3 P/S3				.811												
PS4 P/S4				.782												
PS2 P/S2				.782												
PS1 P/S1				.696												
PS6 P/S6				.680												
PS5 P/S5				.619												
EFFI5					.738											
EFFI2					.725											
EFFI3					.706											
EFFI4					.695											
EFFI1					.688											
EFFI6					.651											
INFOQUAL3						.720										
INFOQUAL5						.693										
INFOQUAL6						.655										
INFOQUAL4						.642										
INFOQUAL1						.636										
INFOQUAL2						.607										
RE2							.802									
RE1							.768									
RE3							.716									
RE4							.668									
RE5							.650									
VISUAL4								.812								
VISUAL1								.808								
VISUAL3								.752								
VISUAL2								.729								
PROQUAL3									.795							
PROQUAL4									.780							
PROQUAL2									.672							
PROQUAL1									.630							
CONV2										.809						

CONV3										.743					
CONV1										.717					
CONV5		.448								.584					
CONV4										.453					
ENT3											.823				
ENT4											.777				
ENT1											.772				
ENT2											.734				
AVA3												.769			
AVAI4												.724			
AVA2												.654			
AVA1												.571			
SEL3													.692		
SEL1													.688		
SEL2													.678		
SEL4													.651		
COMP2														.808	
COMP3														.783	
COMP1														.735	
CONTACT3															.817
CONTACT2															.794
CONTACT1															.714

The EFA results for beliefs and attitudes are summarized in Table 5-6 below. As shown in Table 5-6, all the 28 items have loadings higher than 0.60 and cross loadings less than 0.40, showing the convergent and discriminant validity of the scales (Hair et al., 1998). All the items loaded on four factors for beliefs: (1) overall service quality, (2) product quality, (3) sacrifice/price, and (4) perceived value; three factors loaded for attitudes: (1) trust, (2) perceived enjoyment, and (3) customer satisfaction. All the three factors explained 82.7% variances.

Table 5-6

EFA Results for Beliefs and Attitudes

Items	Component						
	Trust	Satisfaction	Perceived Enjoyment	Perceived Value	Product Quality	Overall Service Quality	Sacrifice/ Price
TRUST4	**.871**	.158	.155	.157	.159	.135	-.023
TRUST5	**.848**	.166	.194	.142	.128	.157	-.063
TRUST3	**.837**	.199	.150	.209	.190	.169	-.068
TRUST1	**.771**	.273	.170	.205	.199	.239	-.106
TRUST2	**.685**	.299	.145	.210	.291	.245	-.093
SAT1	.207	**.785**	.218	.231	.229	.116	-.085
SAT2	.239	**.781**	.225	.264	.226	.165	-.109
SAT3	.274	**.750**	.270	.218	.202	.165	-.057
SAT4	.271	**.726**	.227	.246	.285	.218	-.068
SAT5	.227	**.704**	.230	.317	.285	.223	-.070
ENJOY2	.145	.114	**.894**	.115	.083	.070	.030
ENJOY1	.157	.157	**.853**	.122	.114	.087	-.001
ENJOY3	.156	.239	**.847**	.132	.120	.179	-.017
ENJOY4	.174	.265	**.814**	.150	.127	.147	-.051
VALUE2	.252	.298	.132	**.776**	.255	.183	-.066
VALUE3	.231	.307	.169	**.759**	.277	.189	-.062
VALUE1	.248	.243	.161	**.754**	.213	.217	-.121
VALUE4	.200	.276	.218	**.738**	.216	.169	-.057
PROQUAL3	.179	.288	.071	.247	**.798**	.099	-.092
PROQUAL4	.176	.292	.057	.287	**.784**	.115	-.052
PROQUAL2	.229	.145	.181	.123	**.763**	.055	-.063
PROQUAL1	.191	.187	.180	.157	**.693**	.304	.024
OQ2	.297	.237	.212	.249	.187	**.768**	-.077
OQ1	.331	.247	.210	.270	.193	**.751**	-.092
OQ3	.344	.242	.203	.244	.191	**.729**	-.120
SAC2	-.032	-.115	.049	.036	-.112	-.152	**.853**
SAC3	-.186	-.123	.002	-.018	-.144	-.200	**.825**
SAC1	.009	.045	-.090	-.308	.159	.251	**.710**
Factor Mean	5.7	5.880	5.33	5.8	5.82	5.62	3.21
Factor sd.	1.228	1.134	1.197	1.11	1.192	1.159	1.416
Eigenvalue	4.364	3.982	3.651	3.341	3.273	2.496	2.047
Cumulative % of Variance	15.586	29.806	42.844	54.775	66.463	75.375	82.687

Table 5-7

EFA Results for Behavioral Intentions

Items	Component				
	Repurchase Intention	Loyalty	Willingness to pay more	Positive Word of Mouth	Complain
RI2	**.879**	.198	.016	.285	.005
RI3	**.859**	.228	-.004	.295	.021
RI1	**.857**	.239	.083	.208	.017
RI4	**.839**	.247	.112	.243	.041
LOYALTY5	.203	**.793**	.270	.242	.051
LOYALTY6	.136	**.790**	.279	.157	.025
LOYALTY3	.254	**.787**	.176	.242	.017
LOYALTY2	.274	**.740**	.197	.260	.035
LOYALTY4	.467	**.563**	.086	.392	.020
LOYALTY1	.406	**.557**	.169	.387	.018
PAYMORE2	.007	.215	**.889**	.051	.012
PAYMORE4	-.037	.167	**.879**	.061	.005
PAYMORE3	.075	.202	**.858**	.067	.026
PAYMORE1	.183	.152	**.774**	.206	-.026
WOM3	.288	.317	.121	**.817**	.051
WOM4	.235	.252	.177	**.813**	.080
WOM2	.433	.339	.085	**.722**	.003
WOM1	.452	.289	.080	**.686**	.017
Factor Mean	5.86	5.31	3.81	5.67	4.84
Factor sd.	1.147	1.414	1.776	1.232	1.576
Eigenvalue	4.201	3.829	3.342	3.189	2.103
Cumulative % of Variance	19.097	36.500	51.691	66.185	75.744

The EFA results for behavioral intentions are summarized in Table 5-7 above. As shown in Table 5-7, the loadings of all the 22 items ranged from 0.557 to 0.889. There are several items (LOYALTY4, LOYALTY1, WOM1, and WOM2) cross-loaded with two different factors and these items would be dropped off from subsequent analysis. It is normal to see cross loadings of these variables since these factors are inter-correlated with each other based on the theory. All

the items loaded on four factors for behavioral intentions: (1) customer loyalty, (2) repurchase intention, (3) willingness to pay more, and (4) positive word of mouth. The eigenvalues of all the factors identified in EFA are higher than 2.0 and all the five factors explained 75.7% variance of customer behavioral intention.

5.3. Reliability

A Principal Component Analysis was first conducted to examine the scale items using SPSS. The internal consistency was examined using Cronbach's Alpha and composite reliability. Cronbach's Alpha was calculated using reliability analysis in SPSS, and composite reliability (CR) was calculated based on the results from confirmatory factor analysis in LISREL. The method of calculating CR values is shown in Table 5-8. The results of the Cronbach's Alpha values, CR values for each construct, and goodness of fit of each construct using single factor analysis are shown in Table 5-8. Both Cronbach's Alpha and composite reliability scores are above the recommended value of 0.7 (Churchill, 1979; Hair et al., 1998), indicating an acceptable internal consistency. As shown in Table 5-8, the goodness of fit indices based on the single structural analysis show that most of the constructs are above the acceptable levels (Bentler, 1995; Mulaik and Millsap, 2000).

Table 5-8

Summary of Factor Loading, AVE values and Construct Reliability Values

Items	Factor loading (Lambda)	t-value	Lambda square	AVE	Delta	sum-lambda	sqr-sum-lambda	sum-delta	Construct Reliability
EOU1	0.78	22.74	0.608	0.665	0.4	3.26	10.628	1.35	0.887
EOU2	0.83	25.02	0.689		0.31				
EOU3	0.81	X	0.656		0.35				
EOU4	0.84	25.46	0.706		0.29				
PU1	0.81	22.67	0.656	0.640	0.35	3.2	10.240	1.44	0.877
PU2	0.78	X	0.608		0.39				
PU3	0.79	22.24	0.624		0.37				
PU4	0.82	23.02	0.672		0.33				
SEL1	0.89	33.34	0.792	0.615	0.21	3.09	9.548	1.55	0.860
SEL2	0.91	X	0.828		0.17				
SEL3	0.58	16.86	0.336		0.67				
SEL4	0.71	22.61	0.504		0.5				
CONV1	0.83	23.31	0.689	0.657	0.32	2.43	5.905	1.04	0.850
CONV2	0.83	X	0.689		0.31				
CONV3	0.77	21.54	0.593		0.41				
ENT1	0.85	28.38	0.723	0.686	0.27	3.31	10.956	1.24	0.898
ENT2	0.77	24.26	0.593		0.4				
ENT3	0.86	X	0.740		0.26				
ENT4	0.83	27.29	0.689		0.31				
EFFI1	0.88	35.58	0.774	0.751	0.23	4.33	18.749	1.23	0.938
EFFI2	0.91	X	0.828		0.17				
EFFI3	0.88	36.36	0.774		0.22				
EFFI4	0.84	32.53	0.706		0.29				
EFFI5	0.82	30.89	0.672		0.32				
AVAI1	0.87	33.89	0.757	0.678	0.25	3.28	10.758	1.3	0.892
AVAI2	0.92	X	0.846		0.15				
AVAI3	0.75	25.32	0.563		0.44				
AVAI4	0.74	24.73	0.548		0.46				
INFO1	0.85	29.47	0.723	0.707	0.27	5.04	25.402	1.73	0.936
INFO2	0.85	29.5	0.723		0.27				
INFO3	0.85	X	0.723		0.27				
INFO4	0.88	31.33	0.774		0.22				
INFO5	0.85	29.49	0.723		0.27				
INFO6	0.76	24.2	0.578		0.43				
VIS1	0.88	34.5	0.774	0.741	0.23	3.44	11.834	1.03	0.920

VIS2	0.81	29.28	0.656		0.34				
VIS3	0.83	31.1	0.689		0.3				
VIS4	0.92	X	0.846		0.16				
PS1	0.75	21.19	0.563	0.666	0.44	4.07	16.565	1.67	0.908
PS2	0.78	X	0.608		0.39				
PS3	0.87	25.84	0.757		0.24				
PS4	0.89	26.62	0.792		0.2				
PS6	0.78	22.22	0.608		0.4				
RELI1	0.79	31.48	0.624	0.746	0.37	3.43	11.765	1	0.922
RELI2	0.72	26.03	0.518		0.47				
RELI3	0.96	X	0.922		0.08				
RELI4	0.96	58.66	0.922		0.08				
RESP1	0.84	24.68	0.706	0.659	0.3	3.24	10.498	1.37	0.885
RESP2	0.88	26.19	0.774		0.23				
RESP3	0.79	X	0.624		0.38				
RESP4	0.73	20.85	0.533		0.46				
ASSU1	0.78	25.15	0.608	0.703	0.39	3.35	11.223	1.19	0.904
ASSU2	0.85	X	0.723		0.27				
ASSU3	0.86	29.41	0.740		0.27				
ASSU4	0.86	29.61	0.740		0.26				
EMPA1	0.9	38.28	0.810	0.670	0.2	4.88	23.814	1.99	0.923
EMPA2	0.92	X	0.846		0.15				
EMPA3	0.83	31.59	0.689		0.32				
EMPA4	0.84	33.07	0.706		0.29				
EMPA5	0.72	24.14	0.518		0.48				
EMPA6	0.67	21.57	0.449		0.55				
PROD1	0.72	23.74	0.518	0.674	0.48	3.26	10.628	1.31	0.890
PROD2	0.71	23.23	0.504		0.49				
PROD3	0.91	X	0.828		0.18				
PROD4	0.92	37.03	0.846		0.16				
RE1	0.83	29.01	0.689	0.720	0.31	4.24	17.978	1.4	0.928
RE2	0.88	X	0.774		0.23				
RE3	0.88	32.33	0.774		0.23				
RE4	0.8	27.43	0.640		0.35				
RE5	0.85	30.41	0.723		0.28				
COMP1	0.83	24.93	0.689	0.656	0.31	2.42	5.856	1.02	0.852
COMP2	0.88	X	0.774		0.22				
COMP3	0.71	20.72	0.504		0.49				
CONT1	0.71	20.55	0.504	0.656	0.49	2.42	5.856	1.02	0.852
CONT2	0.83	24.73	0.689		0.3				
CONT3	0.88	X	0.774		0.23				
SAC1	0.45	10.82	0.203	0.529	0.8	2.11	4.452	1.42	0.758
SAC2	0.77	16.31	0.593		0.41				

SAC3	0.89	X	0.792		0.21				
OQ1	0.95	44.55	0.903	0.853	0.1	2.77	7.673	0.45	0.945
OQ2	0.92	X	0.846		0.16				
OQ3	0.9	38.65	0.810		0.19				
VALUE1	0.87	30.25	0.757	0.793	0.24	3.56	12.674	0.82	0.939
VALUE2	0.93	33.8	0.865		0.14				
VALUE3	0.92	33.27	0.846		0.15				
VALUE4	0.84	X	0.706		0.29				
TRUST1	0.88	36.85	0.774	0.819	0.22	3.62	13.104	0.73	0.947
TRUST3	0.92	41.19	0.846		0.16				
TRUST4	0.92	X	0.846		0.16				
TRUST5	0.9	38.94	0.810		0.19				
ENJOY1	0.84	32.86	0.706	0.784	0.29	3.54	12.532	0.87	0.935
ENJOY2	0.87	35.36	0.757		0.25				
ENJOY3	0.93	X	0.865		0.14				
ENJOY4	0.9	38.76	0.810		0.19				
SAT1	0.87	X	0.757	0.800	0.24	4.47	19.981	0.99	0.953
SAT2	0.92	36.27	0.846		0.16				
SAT3	0.88	33.32	0.774		0.22				
SAT4	0.9	35.12	0.810		0.18				
SAT5	0.9	34.81	0.810		0.19				
RI1	0.88	X	0.774	0.824	0.22	3.63	13.177	0.68	0.951
RI2	0.94	39.66	0.884		0.11				
RI3	0.93	38.93	0.865		0.13				
RI4	0.88	33.88	0.774		0.22				
WOM1	0.85	31.74	0.723	0.762	0.28	3.49	12.180	0.97	0.926
WOM2	0.9	35.91	0.810		0.19				
WOM3	0.9	X	0.810		0.2				
WOM4	0.84	30.68	0.706		0.3				
LOYALTY1	0.78	24.17	0.608	0.654	0.4	4.85	23.523	2.09	0.918
LOYALTY2	0.82	26.15	0.672		0.33				
LOYALTY3	0.84	X	0.706		0.3				
LOYALTY4	0.79	25.01	0.624		0.37				
LOYALTY5	0.85	27.67	0.723		0.28				
LOYALTY6	0.77	23.84	0.593		0.41				
PAYMORE1	0.74	24.43	0.548	0.705	0.45	3.35	11.223	1.19	0.904
PAYMORE2	0.91	X	0.828		0.18				
PAYMORE3	0.84	30.69	0.706		0.29				
PAYMORE4	0.86	31.53	0.740		0.27				

Notes: factor loadings are from complete standardized solution. t values are from unstandardized solution. X means the t values are unavailable because the loadings are fixed for scaling purposes.

Table 5-9

Constructs, Reliability Scores, and Single Factor Analysis Results

Construct Name	# of Items	Alpha Score	CR	Ch-sq.	df	p-value	NFI	GFI	RMR
Ease of Use	4	0.887	0.887	86.52	2	0.000	0.96	0.94	0.059
Perceived Usefulness	4	0.878	0.877	15.26	2	0.000	0.99	0.99	0.034
Selection	4	0.855	0.860	30.6	2	0.000	0.98	0.98	0.050
Convenience	3	0.847	0.850			N/A			
Entertainment	4	0.898	0.898	19.47	2	0.000	0.99	0.99	0.032
Efficiency	5	0.938	0.938	65.08	5	0.000	0.98	0.96	0.018
Availability	4	0.894	0.892	193.9	2	0.000	0.9	0.88	0.080
Information Quality	6	0.936	0.936	160.1	9	0.000	0.97	0.93	0.037
Visual Appeal	4	0.918	0.920	6.57	2	0.037	1	1	0.013
Privacy/ Security	5	0.908	0.908	154.3	5	0.000	0.95	0.92	0.073
Reliability	4	0.919	0.922	45.92	2	0.000	0.98	0.97	0.058
Responsiveness	4	0.884	0.885	193.7	2	0.000	0.9	0.88	0.110
Assurance	4	0.903	0.904	1.83	2	0.400	1	1	0.008
Empathy	6	0.924	0.923	536.3	9	0.000	0.85	0.8	0.160
Recovery - Response	5	0.927	0.928	222.7	5	0	0.94	0.89	0.093
Compensation	3	0.845	0.852			N/A			
Contact	3	0.845	0.852			N/A			
Product Quality	4	0.888	0.89	26.36	2	0	0.99	0.98	0.042
Sacrifice	3	0.738	0.758	N/A					
Value	4	0.939	0.939	8.7	2	0.0129	1	0.99	0.009
Overall Quality	3	0.943	0.945			N/A			
Trust	4	0.946	0.947	109.1	2	0	0.96	0.93	0.036
Enjoyment	4	0.934	0.935	118.9	2	0	0.96	0.92	0.046
Satisfaction	5	0.953	0.953	115	5	0	0.98	0.94	0.026
Repurchase Intention	4	0.951	0.951	59.93	2	0	0.98	0.96	0.024
WOM	4	0.926	0.926	139.1	2	0	0.94	0.91	0.056
Pay More	4	0.903	0.904	17.71	2	0.00014	0.99	0.99	0.046
Loyalty	6	0.917	0.918	196.5	9	0	0.96	0.91	0.083

Notes: CR= Composite Reliability, Ch-sq. = Chi-Square Test, NFI = Normed Fit Index, GFI = Goodness of Fit Index, RMR = Root Mean Square Residual.

5.4. Construct Validity

In order to examine the construct validity, first, the standardized estimated loading should be 0.5 or higher, and ideally higher than 0.7 (Hair et al., 1998). Table 5-9 shows that all the factor standardized estimations are higher than 0.7, except for SEL3 (0.58) and EMPA6 (0.67). But the loading of those two items are still higher than the value of 0.5. Second, the average variance extracted (AVE) value for each construct should be 0.5 or greater. As shown in Table 5-9, all the AVE values are above the cutoff value 0.5. These results suggest adequate convergent validity. Third, all the composite reliabilities (see Table 5-9) are above 0.7, indicating an adequate convergence consistency. Fourth, to assess the discriminant validity, I compared the square root of the AVE values (the average variance shared between the construct and its indicators) with the inter-construct correlation (variance shared between the construct and other constructs) to examine whether the latent construct can explain its indicators better than it explains other constructs. The rule of thumb for discriminant validity is that the square root of AVE estimates should be greater than the correlation between those two constructs. As shown in Table 5-10, most of the values meet the criteria, suggesting adequate discriminant validity. To that end, all the results indicate sufficient internal consistency (reliability) and construct validity (convergent validity and discriminant validity) for the measurement scales.

Table 5-10

Correlation Matrix for the Latent Constructs

	EOU	PU	SEL	CON	ENT	EFFI	AVAI	INFO	VIS	PS	REL	RES	ASS	EMP	RE	COM	CON	PRO	SAC	OQ	VA	TR	EN	SAT	RI	WOM	LOY	PAY
EOU	**0.82**																											
PU	0.84	**0.80**																										
SEL	0.66	0.60	**0.78**																									
CONV	0.59	0.51	0.59	**0.81**																								
ENT	0.54	0.54	0.50	0.40	**0.83**																							
EFFI	0.58	0.51	0.65	0.56	0.47	**0.87**																						
AVAI	0.50	0.41	0.60	0.61	0.32	0.74	**0.82**																					
INFO	0.53	0.45	0.54	0.45	0.41	0.73	0.65	**0.84**																				
VIS	0.38	0.36	0.41	0.33	0.41	0.52	0.41	0.58	**0.86**																			
PS	0.38	0.26	0.34	0.32	0.29	0.44	0.50	0.60	0.48	**0.82**																		
RELI	0.50	0.41	0.47	0.40	0.35	0.55	0.53	0.66	0.51	0.60	**0.86**																	
RESP	0.51	0.41	0.49	0.41	0.42	0.62	0.54	0.68	0.54	0.54	0.84	**0.81**																
ASSU	0.49	0.41	0.45	0.41	0.40	0.60	0.57	0.71	0.55	0.71	0.84	0.85	**0.84**															
EMPA	0.28	0.25	0.21	0.12	0.38	0.32	0.17	0.44	0.40	0.41	0.48	0.58	0.56	**0.82**														
RE	0.46	0.40	0.36	0.27	0.39	0.48	0.32	0.57	0.49	0.49	0.58	0.62	0.63	0.52	**0.85**													
COMP	0.29	0.24	0.20	0.06	0.30	0.25	0.11	0.35	0.31	0.31	0.40	0.42	0.40	0.47	0.60	**0.81**												
CONT	0.24	0.18	0.23	0.16	0.17	0.35	0.26	0.42	0.38	0.40	0.45	0.50	0.47	0.42	0.56	0.50	**0.81**											
PROD	0.47	0.40	0.45	0.44	0.25	0.51	0.54	0.60	0.37	0.48	0.64	0.58	0.62	0.34	0.45	0.30	0.36	**0.82**										
SAC	-0.19	-0.21	-0.24	-0.23	-0.08	-0.29	-0.29	-0.28	-0.24	-0.21	-0.32	-0.30	-0.33	-0.06	-0.19	-0.04	-0.08	-0.29	**0.73**									
OQ	0.43	0.37	0.42	0.32	0.34	0.52	0.47	0.61	0.53	0.53	0.64	0.67	0.68	0.50	0.61	0.41	0.47	0.57	-0.35	**0.92**								
VALUE	0.46	0.39	0.42	0.33	0.32	0.50	0.48	0.58	0.37	0.45	0.55	0.52	0.56	0.36	0.47	0.31	0.32	0.67	-0.29	0.67	**0.89**							
TRUST	0.40	0.32	0.36	0.31	0.30	0.49	0.48	0.61	0.49	0.75	0.64	0.60	0.75	0.40	0.56	0.36	0.42	0.53	-0.30	0.67	0.60	**0.91**						
ENJOY	0.45	0.43	0.37	0.25	0.61	0.44	0.32	0.47	0.49	0.35	0.42	0.46	0.48	0.46	0.46	0.39	0.34	0.39	-0.12	0.52	0.49	0.47	**0.89**					
SAT	0.59	0.52	0.52	0.40	0.43	0.56	0.54	0.62	0.41	0.48	0.64	0.63	0.65	0.36	0.50	0.35	0.39	0.69	-0.32	0.68	0.75	0.63	0.59	**0.89**				
RI	0.48	0.43	0.48	0.37	0.38	0.53	0.50	0.55	0.40	0.43	0.57	0.56	0.58	0.36	0.44	0.29	0.30	0.60	-0.29	0.62	0.66	0.56	0.49	0.79	**0.91**			
WOM	0.49	0.44	0.42	0.32	0.38	0.55	0.49	0.56	0.38	0.48	0.57	0.60	0.60	0.45	0.49	0.39	0.40	0.53	-0.24	0.63	0.65	0.59	0.53	0.73	0.72	**0.87**		
LOY	0.51	0.47	0.42	0.30	0.47	0.54	0.38	0.53	0.43	0.39	0.55	0.60	0.57	0.48	0.52	0.38	0.36	0.46	-0.15	0.60	0.53	0.53	0.59	0.67	0.65	0.77	**0.81**	
PAYMORE	0.19	0.15	0.10	0.00	0.19	0.12	0.02	0.22	0.19	0.15	0.18	0.24	0.18	0.28	0.29	0.37	0.28	0.11	0.17	0.19	0.14	0.16	0.30	0.15	0.16	0.30	0.49	**0.84**

Notes: The values on the diagonal are the square roots of the average variance extracted (AVE) value. The off-diagonal values are correlations between latent constructs.

5.5. Model Fitness Assessment

The goodness-of-fit of the research framework were examined using multiple fit indices and the results are summarized in Table 5-11. Normed Chi-Square or the $\chi 2/df$ ratio equals to 2.6, which is less than the cutoff value 3.0. NFI, CFI, and NNFI are all higher than the cutoff value 0.9. RMSEA is less than 0.07 and SRMR is less than 0.08. Eventually, almost all these indices are within acceptable limits (Bagozzi and Yi, 1988).

Table 5-11

Model Fitness Indexes Summary Based on CFA

Indexes	χ^2 / df	p-value	RMSEA	NFI	PNFI	CFI	NNFI	GFI	SRMR
Results	16901.24/6614	0	0.047	0.98	0.91	0.99	0.99	0.71	0.049
Criteria	< 3.0	significant	<0.07	>0.9	>0.75	>0.9	>0.9	>0.80	<0.08

Note: RMSEA = root mean square error of approximation; NFI = normed fit index; PNFI = parsimony normed fit index; CFI = comparative fit index; NNFI = Non-Normed fit index; GFI = goodness of fit index; SRMR = standardized root mean square residual.

5.6. Testing the Structural Model

Because I get sufficient supports of reliability and validity of the measurement scales and also evidence of good model fit of the data based on the model fitness assessment, I can move on to test the research hypotheses proposed in the model. As indicated earlier, the research model hypotheses were tested using the structural equation modeling procedure. All the dimensions are included in the final data analysis, except for the three dimensions for recovery quality (response, contact, and compensation). I removed these dimensions because most of respondents in my current sample reported that they did not meet a problem during their most recent online shopping experience. If they did not have any problem, they would not experience the recovery service and therefore the recovery quality would not influence their behavioral intentions. I used

second order analysis for the quality dimensions. Table 5-12 presents the standardized coefficient estimation and t statistics results.

Table 5-12

Standardized Factor Loading and t Values for Indicators Based on SEM

Parameters	**Factor loading**	**t value**
Website Quality (ξ1)		*
System Efficiency	0.81	23.36
Availability	0.76	20.9
Information Quality	0.86	23.12
Visual Design	0.66	17.57
Privacy/Security	0.7	16.14
Transaction Quality (ξ2)		*
Reliability	0.89	28.1
Responsiveness	0.91	22.04
Assurance	0.95	24.77
Empathy	0.58	15.63
E-Channel Quality (ξ3)		*
Perceived Ease of Use	0.9	22.26
Perceived Usefulness	0.84	19.69
Selection	0.77	20.54
Convenience	0.66	15.95
Entertainment	0.65	16.25
E-Service Quality (η1)		
ESQ1	0.94	43.95
ESQ2	0.92	set to 1
ESQ3	0.9	38.33
Sacrifice/Price (ξ4)		
Sac1	0.45	10.62
Sac2	0.75	14.65
Sac3	0.9	set to 1
Perceived Value (η2)		
PV1	0.88	30.13
PV2	0.92	33.28
PV3	0.92	32.65
PV4	0.84	set to 1
Perceived Enjoyment (ξ5)		
PE1	0.84	32.68

PE2	0.87	35.12
PE3	0.93	set to 1
PE4	0.9	38.53
Trust (ξ6)		
TRUST1	0.88	36.21
TRUST3	0.92	41.18
TRUST4	0.92	set to 1
TRUST5	0.9	39.13
Customer Satisfaction (η3)		
CS1	0.87	set to 1
CS2	0.91	35.16
CS3	0.88	32.47
CS4	0.9	34.02
CS5	0.89	33.46
Customer Loyalty (η4)		
CL1	0.78	22.83
CL2	0.78	22.82
CL3	0.8	set to 1
CL4	0.81	24.16
CL5	0.79	23.26
CL6	0.71	20.14
Repurchase Intention (η5)		
RI1	0.88	set to 1
RI2	0.94	38.6
RI3	0.93	37.74
RI4	0.88	33.57
Positive Word of Mouth (η6)		
WOM1	0.83	30.45
WOM2	0.88	34.38
WOM3	0.9	set to 1
WOM4	0.84	30.92
Willingness to Pay More (η7)		
PAYMORE1	0.74	24.03
PAYMORE2	0.9	set to 1
PAYMORE3	0.85	30.19
PAYMORE4	0.85	30.43

Notes: factor loadings are from complete standardized solution. t values are from unstandardized solution. "set to 1" means the t values are unavailable for these items because the loadings are fixed for scaling purposes. * means that the variance of the second order constructs (Website Quality, Transaction Quality, and E-Channel Quality) are set to 1.

Table 5-13

Hypotheses Testing Based on SEM in LISREL

Hypothesized relationship	**Path Coefficient**	**t values**
H(1) Website Quality --> E-Service Quality	0.29	4.42
H(2) Transaction Quality --> E-Service Quality	0.51	7.79
H(3) E-Service Quality --> Value	0.66	17.92
H(4) Sacrifice --> Value	-0.08	-2.26
H(5) E-Channel Quality --> Customer Satisfaction	0.34	10.44
H(6) E-Service Quality --> Customer Satisfaction	0.25	6.45
H(7) Perceived Value --> Customer Satisfaction	0.42	11.38
H(8) Perceived Enjoyment --> Customer Loyalty	0.24	7.38
H(9) Trust --> Customer Loyalty	0.09	2.61
H(10) Customer Satisfaction --> Customer Loyalty	0.43	8.92
H(11) E-Service Quality --> Customer Loyalty	0.20	4.20
H(12) Perceived Value --> Customer Loyalty	-0.02	-0.40
H(13) Customer Loyalty --> Repurchase Intentions	0.72	18.96
H(14) Customer Loyalty --> Positive Word of Mouth	0.81	21.88
H(15) Customer Loyalty --> Willingness to Pay More	0.42	10.53
H(16) Recovery Quality--> E-Service Quality	not tested	

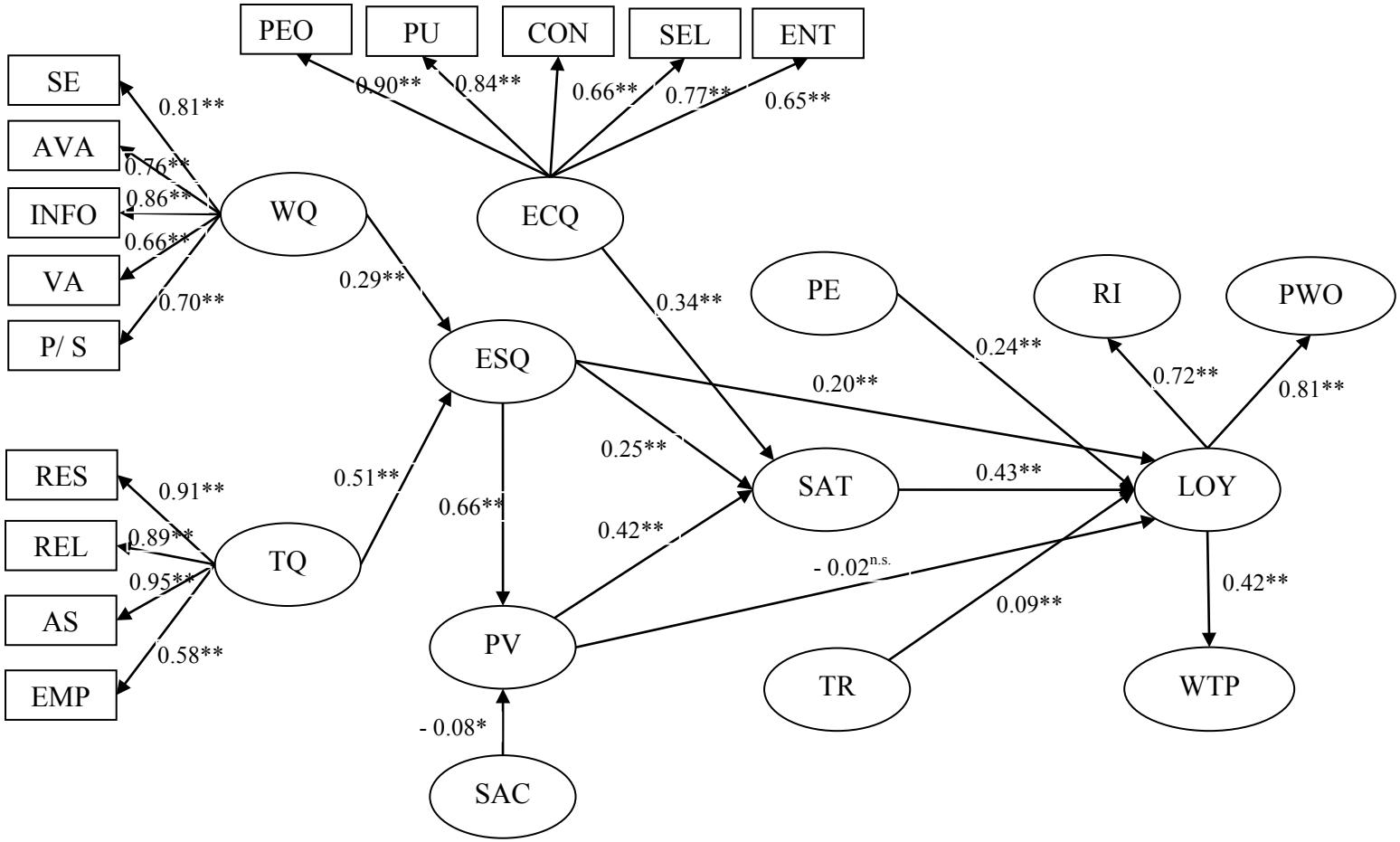
Most of the hypotheses are statistically supported by my data analysis results except for hypotheses 12 and 16. The positive correlation between recovery quality and e-service quality are not tested because of the constraint of the current sample data. The positive relationship between perceived value and customer loyalty are not significant at 0.05 level of significance and therefore the relationship is not supported. The LISREL analysis results of path coefficients and the significance of the paths are shown in Figure 5-1. Based on the goodness-of-fit indices provided by SEM model as shown in Table 5-14, I can conclude that my hypothesized research model fits the sample data fairly well.

Table 5-14

Model Fitness Assessment Based on SEM model

Indexes	χ^2 / df	p-value	RMSEA	NFI	PNFI	CFI	NNFI	GFI	SRMR
Results	13291.47 /5005	0	0.055	0.97	0.95	0.98	0.98	0.7	0.081
Criteria	< 3.0	significant	<0.07	>0.9	>0.9	>0.9	>0.9	>0.8	<0.10

Note: RMSEA = root mean square error of approximation; NFI = normed fit index; PNFI = parsimony normed fit index; CFI = comparative fit index; NNFI = Non-Normed fit index; GFI = goodness of fit index; AGFI = LISREL adjusted goodness of fit index; SRMR = standardized root mean square residual.



Explanation of Abbreviation: PEOU = perceived ease of use, PU = perceived usefulness, CON = convenience, SEL = selection, ENT = entertainment; SE = system efficiency, AVA = availability, INFOQ = information quality, VA = visual appeal, P/S = privacy/security; RES = responsiveness, REL = reliability, AS= assurance, EMP = empathy; WQ = website quality, TQ = transportation quality, ECQ = e-channel quality; ESQ = e-service quality, PE = perceived enjoyment, PV = perceived value, SAC = price/sacrifice, SAT = satisfaction, TR = trust, LOY = customer loyalty, RI = repurchase intention, PWOM = positive word of mouth, WTPM = willingness to pay more.

Figure 5-1. Structural equation modeling results using LISREL

5.7. PLS Results

I also investigate the hypotheses of this study using the Partial Least Squares Path Modeling (PLS-PM), a component-based structural equations modeling (SEM) technique. As the covariance-based structure analysis (e.g. using LISREL), the PLS is an advanced statistical method that can examine the measurement model together with the structural path (Wold, 1982). However, unlike the covariance structure analysis, which requires "multinormality and interval scaling, or sample size required by maximum likelihood estimation" (Fornell and Bookstein, 1982, p440), the PLS has lower requirements in the minimal sample size, measurement scales, and distribution assumptions (Wold, 1982; Chin, 1998). Furthermore, the PLS can easily work with single-item scales since I needed to test the effect of control variables on the relationships in this research.

The PLS-Graph version 3.0 was used in scale validation of the measurement model and the hypothesized structural model. Before I add any control variables in the model, I would like to compare the results by PLS with the results by LISREL. The PLS-Graph version 3.0 does not allow the direct demonstration of first-order and second-order latent constructs in the same model (Yi and Davis, 2003). Therefore, I employed the procedure proposed by Agarwal and Karahanna (2000), and Yi and Davis (2003) to solve this problem. First, the latent variable scores in a sub-model with all of the first-order constructs were calculated using confirmatory factor analysis (Gefen and Straub, 2005). Afterwards, the calculated first-order factor scores were used as manifest indicators of the second-order constructs in the full structural model (Agarwal and Karahanna, 2000; Yi and Davis, 2003).

The factor loadings and t values for manifest indicators to latent variables are shown in Table 5-15. T-values generated with Bootstrap to evaluate the significance of the path

coefficients in this research are also shown in Table 5-16. The path coefficient and explained variance (R^2) of the endogenous variables are shown in Figure 5-2.

Table 5-15

Standardized Factor Loading and t Values for Indicators Based on PLS

Construct Measurement	Factor loading	Standard error	T-Statistic
Website Quality (ξ1)			
SE	0.829	0.018	46.65
AVA	0.782	0.023	33.70
INFOQ	0.870	0.013	67.97
VA	0.740	0.026	28.73
PS	0.737	0.026	28.48
Transaction Quality (ξ2)			
RES	0.910	0.008	109.09
REL	0.906	0.010	93.03
AS	0.906	0.007	125.99
EMP	0.726	0.023	31.21
E-Channel Quality (ξ3)			
PEOU	0.873	0.009	92.51
PU	0.830	0.011	73.12
SEL	0.801	0.020	40.24
CON	0.697	0.034	20.36
ENT	0.701	0.026	26.70
E-Service Quality (η1)			
OQ1	0.957	0.005	205.96
OQ2	0.947	0.005	190.77
OQ3	0.938	0.006	148.52
Sacrifice/Price (ξ4)			
SAC1	0.670	0.059	11.42
SAC2	0.836	0.027	30.48
SAC3	0.907	0.018	51.77
Perceived Value (η2)			
VALUE1	0.910	0.009	97.12
VALUE2	0.940	0.008	124.51
VALUE3	0.935	0.008	117.78
VALUE4	0.894	0.010	89.80
Perceived Enjoyment (ξ5)			

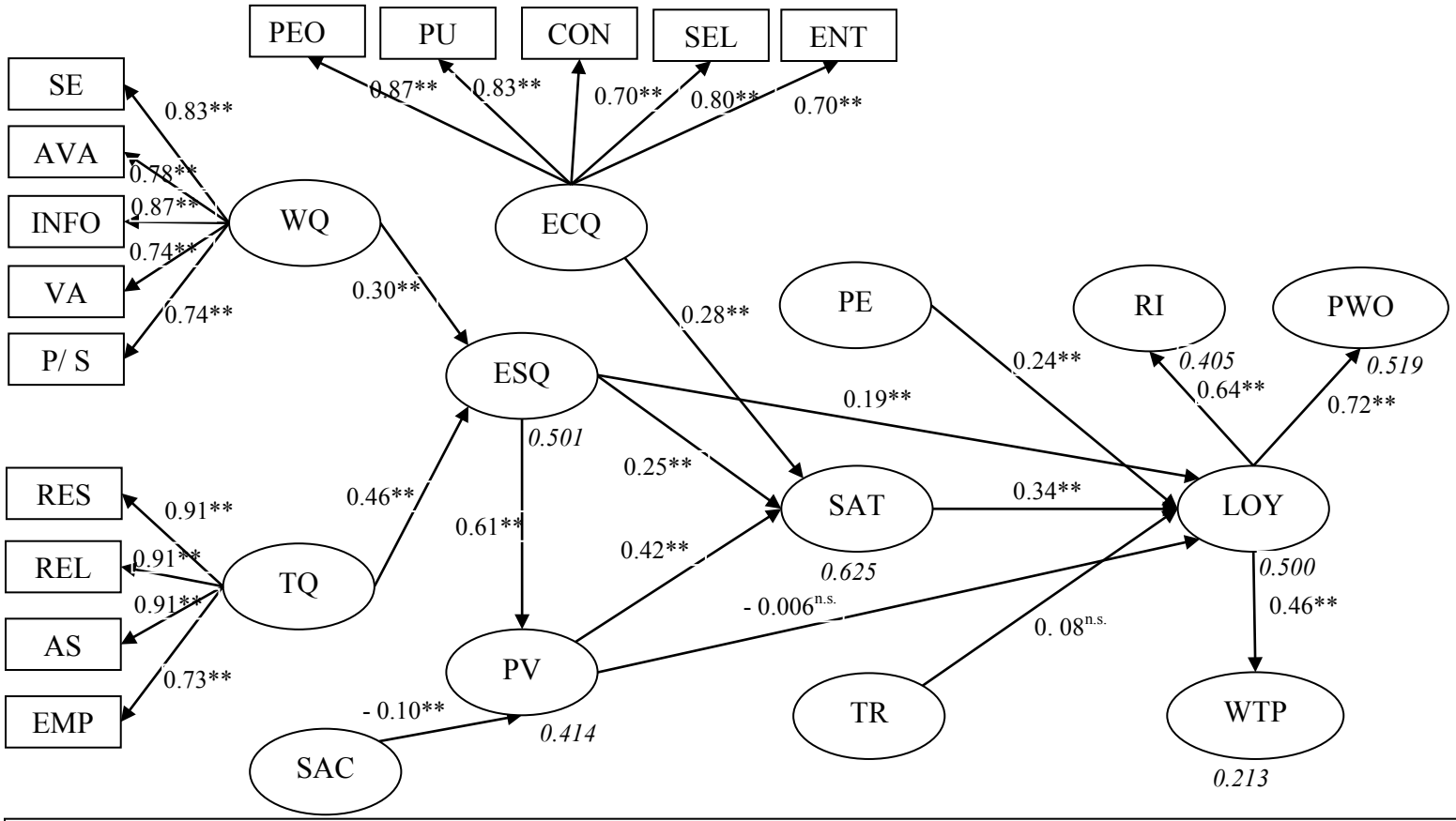
ENJOY1	0.892	0.015	59.85
ENJOY2	0.912	0.011	86.01
ENJOY3	0.935	0.008	116.09
ENJOY4	0.916	0.011	84.84
Trust (ξ6)			
TRUST1	0.917	0.009	102.83
TRUST3	0.939	0.008	117.91
TRUST4	0.934	0.009	107.15
TRUST5	0.923	0.012	77.23
Customer Satisfaction (η3)			
SAT1	0.900	0.013	71.43
SAT2	0.934	0.008	120.80
SAT3	0.910	0.010	89.24
SAT4	0.925	0.008	111.31
SAT5	0.917	0.011	86.15
Customer Loyalty (η4)			
LOYALTY1	0.820	0.017	48.30
LOYALTY2	0.847	0.014	61.89
LOYALTY3	0.870	0.011	80.54
LOYALTY4	0.827	0.016	52.95
LOYALTY5	0.871	0.011	76.76
LOYALTY6	0.803	0.020	39.86
Repurchase Intention (η5)			
RI1	0.924	0.008	112.42
RI2	0.946	0.006	155.51
RI3	0.939	0.007	138.12
RI4	0.926	0.009	102.64
Positive Word of Mouth (η6)			
WOM1	0.885	0.011	83.89
WOM2	0.918	0.009	98.62
WOM3	0.930	0.009	107.34
WOM4	0.885	0.016	56.10
Willingness to Pay More (η7)			
PAYMORE1	0.843	0.015	57.80
PAYMORE2	0.913	0.009	97.03
PAYMORE3	0.888	0.012	72.19
PAYMORE4	0.875	0.013	68.49

As I can see, the loadings and coefficients generated by PLS are very close to the outputs generated by LISREL. The t values of the path coefficient provide slight difference: (1) the path coefficient between trust and customer loyalty is significant at 0.01 level in LISREL, but not significant at 0.05 level in PLS; (2) the path coefficient between sacrifice and perceived value is significant at 0.05 level in LISREL, but significant at 0.01 level in PLS.

Table 5-16

Hypotheses Testing Based on SEM in PLS-Graph

Hypothesized relationship	**Path Coefficient**	**t values**
H(1) Website Quality --> E-Service Quality	0.299	6.7013
H(2) Transaction Quality --> E-Service Quality	0.457	12.2568
H(3) E-Service Quality --> Value	0.611	19.4769
H(4) Sacrifice --> Value	-0.098	3.0754
H(5) E-Channel Quality --> Customer Satisfaction	0.275	6.3484
H(6) E-Service Quality --> Customer Satisfaction	0.264	6.0028
H(7) Perceived Value --> Customer Satisfaction	0.415	8.8583
H(8) Perceived Enjoyment --> Customer Loyalty	0.242	6.1367
H(9) Trust --> Customer Loyalty	0.082	1.8832
H(10) Customer Satisfaction --> Customer Loyalty	0.335	5.9727
H(11) E-Service Quality --> Customer Loyalty	0.193	4.2912
H(12) Perceived Value --> Customer Loyalty	-0.006	0.1236
H(13) Customer Loyalty --> Repurchase Intentions	0.636	18.8345
H(14) Customer Loyalty --> Positive Word of Mouth	0.721	32.4989
H(15) Customer Loyalty --> Willingness to Pay More	0.462	15.0682
H(16) Recovery Quality--> E-Service Quality	not tested	



Explanation of Abbreviation: PEOU = perceived ease of use, PU = perceived usefulness, CON = convenience, SEL = selection, ENT = entertainment; SE = system efficiency, AVA = availability, INFOQ = information quality, VA = visual appeal, P/S = privacy/security; RES = responsiveness, REL = reliability, AS= assurance, EMP = empathy; WQ = website quality, TQ = transportation quality, ECQ = e-channel quality; ESQ = e-service quality, PE = perceived enjoyment, PV = perceived value, SAC = price/sacrifice, SAT = satisfaction, TR = trust, LOY = customer loyalty, RI = repurchase intention, PWOM = positive word of mouth, WTPM = willingness to pay more.

Figure 5-2. Structural equation modeling results using PLS-Graph

5.8. Moderating Effect of the Control Variables

The effect of control variables on customer behavioral intentions was also tested. I considered the following control variables in this study: customers' motivation to purchase (hedonical or utilitarian), gender (male or female), housing type (apartment or house), living areas (urban, suburban, or rural), academic level, and age. In PLS graph, I test the effect of these single-item control variables on behavioral intentions (customer loyalty, repurchase intention, positive word of mouth, and willingness to pay more). The results show that only gender is significant control variable, suggesting that there could be a moderating effect of gender differences in the relationships between latent variables in the research model. It is important to acknowledge that the limitations of a student sample is that most of the subjects are in the age, ranging between 18 and 25 years old. This could explain the lack of a significant influence of age on customer behavioral intentions in this study.

To test the moderating effect of gender on behavioral intentions, I tested the structural model again with separate samples (sample with only male subjects and sample with only female subjects). After that, the path coefficients of the two separate structural models were collected and compared in Table 5-17. The significance of the path coefficient difference between two separate models was tested based on the approach proposed by Keil et al. (2000) and Li et al. (2006). This approach is shown in Appendix B. Based on the results of *t* tests on the path coefficient differences, most of the path coefficients have significant differences between male sample and female sample that suggest significant moderating effects of gender on relationships between the latent constructs. As shown in Table 5-17, if the t-values are positive, it means the positive relationship between those two latent constructs is stronger in male samples than that in

female samples. If the t-values are negative, it means the positive relationship between those two latent constructs is stronger in female samples than that in male samples.

Table 5-17

Moderating Effect Analysis (Path Coefficient Comparison)

Path	Overall Sample	Male Sample (X_1)	Female Sample (X_2)	Coefficient Difference (CD)	SE1	SE2	S_{X1*X2}	t value
H(1) WQ--> ESQ	0.299	0.286	0.325	-0.039	0.076	0.059	0.069	-7.402
H(2) TQ --> ESQ	0.457	0.461	0.449	0.012	0.060	0.058	0.059	2.682
H(3) ESQ --> PV	0.611	0.627	0.589	0.038	0.044	0.059	0.051	9.823
H(4) SAC--> PV	-0.098	-0.088	-0.124	0.036	0.039	0.050	0.044	10.689
H(5) ECQ --> CS	0.275	0.264	0.287	-0.023	0.055	0.050	0.053	-5.688
H(6) ESQ --> CS	0.264	0.284	0.249	0.035	0.055	0.062	0.058	7.899
H(7) PV --> CS	0.415	0.383	0.445	-0.062	0.061	0.076	0.068	-11.976
H(8) PE --> LOY	0.242	0.248	0.245	0.003	0.046	0.055	0.050	0.793
H(9) TR --> LOY	0.082	0.083	0.106	-0.023	0.055	0.068	0.061	-4.939
H(10) CS --> LOY	0.335	0.364	0.29	0.074	0.067	0.086	0.076	12.831
H(11) ESQ--> LOY	0.193	0.122	0.26	-0.138	0.060	0.062	0.061	-29.655
H(12) PV --> LOY	-0.006	0.013	-0.028	0.041	0.049	0.073	0.060	8.900
H(13) LOY --> RI	0.636	0.682	0.599	0.083	0.040	0.046	0.043	25.570
H(14) LOY --> PWOM	0.721	0.703	0.74	-0.037	0.032	0.025	0.029	-16.487
H(15) LOY --> WTPM	0.462	0.428	0.509	-0.081	0.040	0.043	0.041	-25.735

Therefore, the male subjects are more sensitive to the transaction quality while female subjects are more sensitive to the website quality as part of e-service quality. Male subjects believes that e-service quality is an important factor influencing perceived value, while female subjects believe sacrifice/price is an important factor influencing the value. Regarding customer satisfaction to their last online shopping experience, male customers still believes that service quality is relatively important, while female customers are more sensitive to perceived value and e-channel quality, such as ease of use, convenience, multiple choices, etc. When talking about

customer loyalty, male customers and female customers has similar perception of enjoyment. Since, the link between perceived value to customer loyalty is not significant for both samples, it is meaningless to compare these two links. The relationship between customer satisfaction and loyalty is significant stronger in the male sample than in the female sample, while the relationship between e-service quality and customer loyalty is stronger in the female sample than that in the male sample. For loyal customers, male customers are more like to repurchase at the same e-retailer or e-commerce website, while female customers are more likely to recommend it to other customers and be willing to pay more than the male customers.

CHAPTER 6

DISCUSSION, IMPLICATIONS, AND FUTURE DIRECTIONS

6.1. Discussion

To sum up, this study provides a better understanding of the relationship among quality, customer satisfaction, customer loyalty, and repurchase intention. The results may help researchers to understand how customers make their purchase decisions. It also helps practitioners to improve their performance by working on the essential attributes of quality. It is necessary to investigate and develop a comprehensive measurement scale of perceived quality with all of the possible components based on the consumer decision-making process in e-commerce that may influence online customer satisfaction and behavioral intentions. Through building a comprehensive research model that explains all of the possible factors, this dissertation explains why consumers would like to continue to shop online, how they make a purchase decision when surfing online, why they choose a certain e-commerce website or e-retailer to make a purchase, and what the most important factors are that will lead to customer repurchase intention and loyalty.

To recall the five major contributions of this study to the e-commerce and service marketing literature, I can summarize the importance of this study based on the research results in the following points.

First, I developed a comprehensive instrument to measure how online consumers perceive the quality of the shopping channel, website, transaction, and recovery based on the consumer decision-making process. The procedure used for the development of the measurement scales is based on the theory, literature review, focus group study, expert judges, and pilot study. The reliability and validity of this scale were tested using empirical data. The results show that 5-

dimentional website quality and 4-dimensional transactional quality forms the overall e-service quality. The 3-dimentional recovery quality was developed but not tested for the lack of data for this case. 5-dimentional e-channel quality and e-service quality have a significant and positive influence on customer satisfaction. These comprehensive measurement scales provide a better understanding of how customers perceive quality while making online shopping decisions form a more complete perspectives. The factor loading of the measurement items and dimensions will also tell me the importance of these quality features.

Secondly, because of the fast growth and fierce competition within the e-commerce industry, it is important for researchers and practitioners to find ways to increase customer loyalty, which will lead to increasing profits and competitive advantages. Gefen (2002) has discussed the importance of increasing customer loyalty in e-commerce in four ways: (1) loyal customers are willing to pay more; (2) loyal customers are easier to satisfy since the e-commerce retailers understand these customers; (3) loyal customers are "more understanding when things go wrong" (p.28); and (4) loyal customers are willing to repurchase from the same website and provide positive word of mouth about their online shopping experience to their friends, which will bring more new customers. This study tested the positive influence of customer loyalty on the other key dimensions of customer behavioral intentions in e-commerce including customers' repurchase intention, willingness to pay more, and positive word of mouth using empirical data.

Furthermore, I find theory in the decision-making process framework to support the causal relationships among perceived quality, customer satisfaction, and behavioral intentions. The causal relationships among beliefs, attitude, and intentions are parallel with to causal relationships among perceived quality, customer satisfaction, and behavioral intentions. Most importantly, I tested this theory using empirical data and the results are consistent with my

theory.

Fourthly, I applied both LISREL and PLS-Graph for data analysis and compared the results from those two different packages. Even though there are different pros and cons for these two methodologies, they are both very popular in social science research and have been employed in many studies to analyze complicated research models with latent variables. My results show that the loadings and coefficients generated by PLS were very close to the outputs generated by LISREL. The results from both methodologies show that the reliability and validity of the measurement scales are acceptable, and most of the research hypotheses are supported.

Finally, I examined the moderating effect of control variables, such as customers' motivation to purchase (hedonic or utilitarian), gender (male or female), housing type (apartment or house), living areas (urban, suburban, or rural), academic level, and age. In PLS Graph, I test the effect of these single-item control variables on behavioral intentions and the results show that only gender is significant control variable. This suggests that there could be a moderating effect of gender differences in the relationships between latent variables in the research model. I ran the research model twice with separate samples (male vs female). The significance of the path coefficient difference between the two separate models was tested based on the approach proposed by Keil et al. (2000) and Li et al. (2006). Based on the results of *t* tests on the path coefficient differences, most of the path coefficients have significant differences between the male sample and the female sample which suggest significant moderating effects of gender on the relationships between the latent constructs.

This dissertation fills a gap in both the e-commerce and quality literature by developing a new quality scale with different categories and empirically validating that instrument. Furthermore, this research proposes to test a model of the influence of online consumers'

perceptions of quality on consumer loyalty intentions through the mediation of customer satisfaction, perceived enjoyment, trust and perceived value. This study provides guidelines for researchers in the e-commerce and service quality areas about the comprehensive measurement scales of quality in e-commerce. The study also helps e-commerce platform providers or e-retailers to improve their marketing strategy by understanding the most important factors that influence customer repurchase intention, positive word of mouth, and loyalty.

6.2. Implications

The study of online consumer behavior can help researchers and practitioners understand what factors will influence consumers' decisions to purchase and repurchase from the same website. Koufaris (2002) suggested that researchers should consider constructs from information technology, consumer behavior, and social psychology in order to study online consumer behavior comprehensively. Longitudinally, shopping online is a process that includes three behavioral phrases: pre-purchase, purchase and post-purchase (Kim et al., 2009). Laterally, online shopping studies should consider the influences of IT technologies (functional), marketing theory and psychological methodologies (nonfunctional). However, not much research has developed a comprehensive model, which considers both customers' nonfunctional determinants in the role of a consumer and functional determinants in the role of a web user.

Similar to traditional shopping, customers' return intention is primarily based on their satisfaction with a previous shopping experience. Satisfaction has also been tested in several academic studies as an important factor affecting repurchase intention in the context of e-commerce (Bhattacherjee, 2001; Lee and Lin, 2005; Khalifa and Liu, 2007; Kim et al., 2009). Online vendors face a significant challenge in creating an environment of mutual trust that can

give customers confidence with online transactions (Gefen et al., 2003), and make the vendors' products and services appear visually attractive to consumers (Hassanein and Head, 2007). Shopping enjoyment is a crucial influence in traditional brick-and-mortar shopping environments and is also becoming more and more important for online customers (Hassanein and Head, 2007). The research results help e-commerce platform providers or e-retailers to improve their business and marketing strategies by providing better understanding of the most important factors influencing customer behavioral intentions such as repurchase intentions, positive word of mouth, loyalty and willingness to pay more.

This study provided normative guidelines about the comprehensive measurement scales of quality in e-commerce. Other researchers can adopt the measurement scales of perceived quality in their study. To the practitioner, the results of this study suggest the importance of quality perceived by customers on their profits. E-vendors can adjust their sales strategies based on the importance of different quality features. This study suggested that male and female customers have different assessments of the importance of quality when they shop online. Therefore, online shopping websites targeting female customers must pay attention to price, perceived value, and e-channel quality, such as ease of use, convenience, multiple choices. While online shopping websites targeting male customers must pay attention to the transaction quality, including reliability, professional and knowledgeable responses, and customized service.

6.3. Future Directions

My future projects within this research stream are to extend this research method and research framework to mobile commerce and e-commerce using social network sites. Social commerce is the use of social networks in the context of e-commerce transitions. E-commerce

using Facebook is called f-commerce and that using Twitter is called t-commerce. These two platforms are becoming more and more popular in recent online transactions. The characteristics of mobile commerce and social commerce are different from traditional e-commerce. Customers may focus on different quality features while completing their online transactions through mobile phone or social network sites. Therefore, these are two areas worth studying that can be separated from traditional e-commerce.

I also want to dig deeper into the data set to explore whether I can develop a parsimonious measurement scale for perceived quality. The informative demographic and socio-economic variables from the survey data also need to investigated so that I can determine how these variables influence these relationships. I also expand these research models to investigate how the relative importance of these quality dimensions impact repurchase rates over time. Research questions such as "does the importance of E-Channel quality diminish over time, but the importance of Service Quality increase?" will be answered.

More data will be collected to the test the importance and influence of recovery quality features. Further data can be collected from different countries with different cultures to compare the influence of culture on customer behavioral intentions.

The measurement scales for quality are developed based on the consumer decision making process. I can categorize these dimensions based on the Kano Model to determine to what degree these quality attributes influence customer satisfaction. Furthermore, I are going to develop a set of parsimonious measurement scales for perceived quality to be used as the general instrument for further e-commerce studies. Another way to categorize the quality dimensions are based on the process of shopping. The pre-purchase phase includes e-channel quality and website quality; the purchase phase includes transaction quality; and the post purchase phase includes

post-transaction quality (such as recovery quality). This study may provide an improved understanding of the importance of these quality features and how they influence customers' behaviors differently.

APPENDIX A

SHORT QUESTIONNAIRE FOR PILOT STUDY

How often do you shop online? (On average, _____ times per month.)

What is your favorite (most frequently used) online shopping websites? (Please write down the name of the website)

What type of products do you usually buy online?

Referring to your most recent online shopping experience, please indicate your perceptions about the importance of the factors below in online shopping. Use rating from 1 to 9: where 1 being not important at all to you; and 9 being very important.

When you decide to shop online or go to a physical store, the importance of the following factors is…

Convenience: (It is convenient to shop online because it can be done at any time and place)

Various Choices (You can find a wider range of product categories and a greater variety of products within any given category online)

Usefulness (Online shopping improves your shopping performance and experience)

Ease of Use (It is easy to interact with the online shopping website and you are able to finish shopping task without much effort)

Time saving (Online shopping can save you time and effort)

Cost saving (Online shopping can save you money)

When you are using a specific online shopping website, the importance of the following factors is…

System Efficiency (The ease and speed of accessing and using the site)

Availability (The site is always available and the technical functions works fine).

Information Quality (The product/service information provided by the website is accurate, updated, complete, easy of understanding, and appropriated)

Website Aesthetic Design Quality (Refers to the aesthetic appearance of the website, which including graphic style related to color, layout, animation and organization of content, number of photographs and graphics)

Privacy/Security (security of credit card payments and privacy of shared information)

When you are interacting with a specific seller online, the importance of the following factors is…

Reliability (Online retailers provide on-time, reliable services and deliver the products/services as promised to customers.)

Responsiveness (Online retailers provide prompt responses to customers.)

Assurance (Online retailers provide professional services to customers, which inspire confidence and trust)

Empathy (Online retailers provide personalized services to customers)

Product Quality (the product you purchased online is of good quality, or at least of equal quality of the product in the physical stores.)

Contact (You can access representatives or sellers easily through telephone or Internet.)

Return (How well the sellers handle problems and return effectively and efficiently.)

Compensation (How retailers compensate customers to recover the problems.)

APPENDIX B

PATH COEFFICIENT DIFFERENCE COMPARISON METHOD

The procedure I used here to test the significant difference between the male sample and the female sample is from Keil et al. (2000) and Li et al. (2006). The *t* value is calculated based on equation (1):

$$t = \frac{x_1 - x_2}{S_{x1*x2*}\sqrt{1/n_1 + 1/n_2}} \quad (1)$$

Where n_i is the sample size for the male and female, ($n_1 = 402$ for the male sample; $n_2 = 300$ for the female sample);

X_i is the path coefficient in the structural model for the male sample (i=1) and the female sample (i=2). S_{x1*x2} is the estimator of pooled variance, which I can calculate using equation (2):

$$S_{x1*x2} = \sqrt{\frac{(n_1 - 1)*SE_1^2 + (n_2 - 1)*SE_2^2}{n_1 + n_2 - 2}} \quad (2)$$

Where SE_i is the standard error of path in the structural model for the male sample (i=1) and the female sample (i=2).

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