The Impact of Website Quality on Customer Satisfaction

- A Research on Iranian Online Bookstores

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The Impact of Website Quality on Customer Satisfaction
A Research on Iranian Online Bookstores

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Abstract

The daily growth of the internet and e-commerce has changed the way of marketing and selling products and services. As a result of development in electronic information resources and the evolution of the “digital age” product sellers and information service providers face many new challenges. Internet is changing the way corporations conduct business with their consumers who are increasingly expecting higher services, becoming time saved, and wanting more convenience. In addition e-service quality is an essential strategy to gain success, according to the results of previous literatures, probably more important than a low price for online companies. Since one of the main duties of the internet as a communication channel is how to manage service quality, which holds a significant importance to customer satisfaction, the purpose of this research is to gain a better understanding of the impact of website quality factors on customer satisfaction. Also, through literature it is clear that there is a relation between e-trust, satisfaction and quality. For this reason based on a detailed literature review, and in order to find the impact of website quality factors on customer satisfaction, a model with four website quality factors was selected to be tested in online bookstores in Iran, and also e-trust item is added to this model in order to examine the relation of this factor with satisfaction and quality. Then a quantitative research was conducted and data were gathered through an online survey.

The results in our research suggest that quality has a strong impact on satisfaction and also e-trust has a reasonable impact on quality and through quality affects satisfaction. Our findings indicate that reliability is the most important indicator of quality from the Iranian online book shoppers’ perspective. In addition, since customer service is the only factor that directly affects satisfaction; it is a key strategy to increase the level of satisfaction straightaway.

The results presented in this research will help companies to locate their position against competitors, pin point their weak points and determine which website characteristics will improve their performance and also it can provide an evaluation of the
extent to which information and services comprehensible for all users and to extent to which the features and functions are necessary to provide an effective and efficient web site to meet the needs of a diverse population of users.

**Keywords:** e-commerce, impact of websites, customer satisfaction, quality, evaluation, online service quality, bookstores, trust, e-trust.
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# Table of Contents

1. **CHAPTER ONE: INTRODUCTION** .................................................................10  
   1.1 Background ........................................................................................................11  
      1.1.1 E-Commerce ..............................................................................................12  
      1.1.2 E-Commerce in Iran ..................................................................................13  
      1.1.3 Internet Retailing .......................................................................................13  
      1.1.4 Customer Satisfaction ...............................................................................14  
      1.1.5 Service Quality ..........................................................................................14  
      1.1.6 E-service Quality .......................................................................................15  
      1.1.7 Measuring Online Service Quality ............................................................16  
      1.1.8 Online Trust ...............................................................................................16  
   1.2 Problem Discussion .............................................................................................17  
   1.3 Research Objective & Research Questions ........................................................18  
   1.4 Research Deposition ..........................................................................................19  

2. **CHAPTER TWO: LITERATURE REVIEW** .................................................20  
   2.1 Customer Satisfaction .......................................................................................21  
      2.1.1 Satisfaction Foundations ...........................................................................22  
      2.1.2 Different Models of Customer Satisfaction .................................................24  
      2.1.2.1 Continues Growth in Customer Satisfaction Models .............................24  
      2.1.2.2 The Model of Proposed Drivers of Customer Satisfaction and Future  
            Intentions ..................................................................................................24  
      2.1.2.3 Antecedents and Customer Satisfaction of Cyber Shopping Store ......25  
      2.1.2.4 Updated Delon & Mclean IS Success Model for End User Satisfaction 26  
      2.1.2.5 E-Commerce Success Model for E-commerce Customer Satisfaction ...26  
      2.1.2.6 The Model for Expectation Disconfirmation Effects on Web Customer  
            Satisfaction ..............................................................................................27  
      2.1.2.7 Cognitive Model of the Antecedents and Consequences of Satisfaction  
            Decisions .................................................................................................28  
   2.2 Service Quality and Satisfaction ....................................................................29
2.2.1 The Link between Service Quality and Customer Satisfaction ..........29
  2.2.1.1 The Link between Satisfaction and Traditional Service Quality ....29
  2.2.1.2 The Link between Satisfaction and Service Quality in E-commerce ....30
2.3 Service Quality ..............................................................................................31
  2.3.1 Traditional Service Quality Definitions .................................................31
  2.3.2 Dimensions of Traditional Service Quality .............................................32
2.4 E-Service Quality ..............................................................................................36
  2.4.1 Definitions of E-Service Quality ...............................................................36
  2.4.2 Dimensions of E-Service Quality ............................................................36
  2.4.3 Different Models of Online Service Quality Dimensions .....................40
2.5 E-Trust .............................................................................................................47
2.6 The Conceptual Framework .............................................................................49
2.7 Chapter Summary .............................................................................................52

3. CHAPTER THREE: RESEARCH METHODOLOGY .................................54
  3.1 Research Purpose ...........................................................................................55
    3.1.1 Exploratory Research ...........................................................................55
    3.1.2 Descriptive Research ..........................................................................55
    3.1.3 Explanatory Research ..........................................................................56
  3.2 Research Approach ..........................................................................................56
    3.2.1 Deductive Approach ............................................................................57
    3.2.2 Inductive Approach .............................................................................57
    3.2.3 Quantitative Approach .......................................................................57
    3.2.4 Qualitative Approach .........................................................................58
  3.3 Research Strategy ............................................................................................59
    3.3.1 Survey ..................................................................................................60
  3.4 Sample Selection .............................................................................................60
  3.5 Data Collection ...............................................................................................63
  3.6 Statistical Analysis ..........................................................................................64
  3.7 Validity and reliability ....................................................................................64
    3.7.1 Reliability .............................................................................................65
3.7.2 Validity ........................................................................................................66
3.7.3 Factor Validity of Questionnaire .................................................................67
3.8 Chapter Summary ....................................................................................................67

4. CHAPTER FOUR: DATA ANALYSIS .............................................................68
4.1 Cronbach’s Alpha ...............................................................................................69
4.2 Descriptive Statistics..........................................................................................70
4.3 Condition of Quality Variables .........................................................................71
   4.3.1 Condition of Quality Variables According to One-Sample T-Test ..........72
4.4 Factor Validity of Questionnaire ........................................................................72
   4.4.1 Results of Exploratory Factor Analysis ....................................................73
4.5 Inferential Statistics ..........................................................................................76
   4.5.1 Regression and Confirmatory Factor Analysis for Quality .....................77
   4.5.2 Regression and Confirmatory Factor Analysis for Satisfaction .............82
   4.5.3 Regression and Confirmatory Factor Analysis for E-Trust .....................84
   4.5.4 Regression and Confirmatory Factor Analysis among Quality, 
       Satisfaction, and E-Trust.............................................................................86
   4.5.5 Direct Impact of Quality Factors on Satisfaction ....................................88
4.6 Comparing the Quality Dimensions according to the Number of Purchasing ....90
4.7 Condition of Satisfaction and Trust in the Sample ...........................................92
4.8 Chapter Summary .............................................................................................94

5. CHAPTER FIVE: DISCUSSION AND CONCLUSION..................................95
5.1 Theoretical Implications ...................................................................................96
5.2 Managerial Implications .................................................................................98
5.3 Limitations of this Research ..........................................................................102
5.4 Suggestions for Future Research ....................................................................103
5.5 Discussion ........................................................................................................103

REFERENCES ...........................................................................................................105
Appendix A. List of Bookstores ..............................................................................116
List of Tables:

Table 1 Dimensions of Service Quality .................................................................33
Table 2 Summary of Service Quality Dimension ....................................................39
Table 3 Research Strategies ..................................................................................59
Table 4 Overall Cronbach’s Alpha Test ...............................................................66
Table 5 Cronbach’s Alpha Test ..............................................................................69
Table 6 Sample Demographics .............................................................................70
Table 7 One-Sample Statistics .............................................................................71
Table 8 One-Sample T-Test ..................................................................................72
Table 9 Results of Exploratory Factor Analysis ....................................................73
Table 10 Results of Component Matrix and Extraction Communalities ...............74
Table 11 Results of Hypothesis Test for Quality ...................................................78
Table 12 Results of Hypothesis Test for Satisfaction ............................................82
Table 13 Results of Hypothesis Test for E-Trust ....................................................84
Table 14 Results of Hypothesis Test for the Relations between Trust, Quality, and Satisfaction ...........................................................................86
Table 15 Results of Hypothesis Test for the Direct Impact of Quality Factors on Satisfaction ..................................................................................88
Table 16 Comparison Based on the Number of Purchasing ..................................91
Table 17 Independent T-Test ...............................................................................91
Table 18 Results of Independent T-Test ...............................................................92
Table 19 One-Sample T-Test ...............................................................................93
Table 20 Percentage of People with High and Low Satisfaction ............................93
Table 21 The Importance of Quality Dimensions according to the Amount of Satisfaction .........................................................................................93
List of Figures

Figure 1 Dependence between Quality, Satisfaction & Profitability ...............................................21
Figure 2 Expectation – Disconfirmation Model ...............................................................................22
Figure 3 Proposed Drivers of Customer Satisfaction and Future Intensions .................................24
Figure 4 Antecedents of Customer Satisfaction in Cyber Shopping Store .................................25
Figure 5 E-Commerce Success Model for E-Commerce Customer Satisfaction ...............................27
Figure 6 Cognitive Model of the Antecedents and Consequences of Satisfaction Decision 28
Figure 7 Relationships between Service Quality and Customer Satisfaction .................................30
Figure 8 Measuring E-Commerce Effectiveness Using a Combination of User Satisfaction and Service Quality .........................................................................................................................31
Figure 9 E-Service Quality Model ..................................................................................................41
Figure 10 Conceptual Models for Delivering a Quality Website to Satisfy the Customer 43
Figure 11 The Relationship Among Overall Service Quality, Customer Satisfaction And Purchase Intension ............................................................................................................................................44
Figure 12 A Framework for Evaluating E-Commerce Website Quality .......................................45
Figure 13 Modeling E-Tail Quality as a Higher Order Factor ..........................................................46
Figure 14 Research Model (1) ........................................................................................................52
Figure 15 Research model (2) ..........................................................................................................77
Figure 16 Conceptual Model (1) .....................................................................................................77
Figure 17 Conceptual Model (2) .....................................................................................................78
Chapter 1
Introduction

1. Introduction

This chapter presents a background of the research area; it contains the general idea of e-commerce, e-commerce in Iran, internet retailing, customer satisfaction, service quality, and e-service quality, measurement of online service quality, and e-trust. This has been followed by the research problem, research objective as well as research questions. Finally the deposition of thesis has been delivered.
1.1 Background

Nowadays, the competition among online retailers has become more intensive (Yang et al., 2003). Therefore, more and more businesses are trying to gain competitive advantages by using e-commerce to interact with customers (Lee and Lin, 2005). According to Yang et al., (2004) it is much easier to compare the technical features and prices of products online than it is through traditional channels. So, people become more informed about optimal prices when seeking products and services. To offset price transparency disadvantage competitors have utilized three primary strategies (Chen and Hitt, 2000): geographic differentiation, service quality differences, and modest level of switching costs. On the other hand, by growing the online shopping the role of the physical geography and some implicit costs has reduced for many consumers. In short, the importance of service quality differentiation, in attracting and retaining customers has advanced (Zhang and Tang, 2006).

Today’s companies have moved their focuses from products and sales to customer oriented marketing and understanding customers has become more important issue of marketing because of the hard condition of competition in the market place (Lin, 2003). Moreover, businesses over the time more realize that the key determinant of the success or failure is the electronic service quality (Yang, 2001; Zeithaml, 2002). Customer service is an organization’s ability to supply their customers’ needs and wants and improving customer service involves learning both what customers’ needs and wants are, and also developing action planes and process to give customers what they really want and need (Hanson, 2000). With the increased importance of service quality, Hoffman and Bateson (2002) state that customer’ perceptions of service quality are drowning a major concern by both business managers and researchers.

Jessica (2003) believes that e-service quality can not only potentially increase the attractiveness, hit rate, customer retention, and positive word of mouth, but also maximize the online competitive advantages of the e-commerce. Thus, the e-service quality has become one of the key determinants of the success for online retailers (Jun et al., 2004). In addition, most online service providers’ problems and challenges in
conducting online service quality are due to service providers’ lack of experience in operations of the recent challenges and their limited understanding of online customers’ usage behaviors (Mols, 2000). Practitioners and academics eagerly like to measure service quality in order to better understand its essential antecedents and consequences, and, finally, establish methods for improving quality to achieve competitive advantage and build customer satisfaction (Palmer and Cole, 1995).

1.1.1 E-Commerce

With increasing the number of internet users and rapid developing the network technologies, the e-commerce is perceived as one of the most important applications of the computer and communication technologies (Zhang & Tang, 2006 referred to: Manvi and Venkataram, 2005). Zwasse’s (1996) definition of e-commerce is adopted describing internet commerce as: “the sharing of business information, maintaining business relationships and conducting business transactions by means of Internet-based technology”. The e-commerce improves communication channels and provides a virtual interactive environment where the suppliers and customers can exchange information and products (Gunasekaran and Ngai, 2005). Also, Evans and Wurster, (1997) acknowledge that e-commerce allows both customers and suppliers to reduce the transaction costs significantly and enables information to reach more people without sacrificing the richness of the content. Moreover, they believe that e-commerce improves the communications among partners along a value chain and offers an integrated business model by which companies can be more responsive and flexible to the changing markets and customers’ requirements (Zhang and Tang, 2006). The most common and popularized use of e-commerce is the replace or enhance traditional market channels by opening web-based storefronts. In this type of e-commerce, which referred to as “business to customer e-commerce”, organizations offer their products and services on the web and generate revenue from the actual sales of those products and services to their customers (Molla & Licker, 2001). In the last few years we have witnessed a substantial growth of internet based services, both from pure internet businesses and from traditional companies that are developing online services (khalifa and Liu, 2003). According to Molla and Licker (2001) satisfaction becomes an important issue while corporations
introduce service online. The technology of e-commerce determines what can be offered to customers, but only customers determine which those technologies will be accepted (Chia Chi Lin, 2003).

1.1.2 E-Commerce in Iran

Although, there is not any credible statistics in the e-commerce context in Iran, but most of the information indicates that the volume of e-commerce in Iran is low. For example in a research done by Economist Information in 2004, among 60 countries, about facility index and the amount of availability of e-commerce, Iran occupies the 58th stage. According to Iran Daily in September 19, 2006, the lightening pace of change is set to continue and the only way for Iran not to stay behind such a growing current in the world would be to come up with efficient and practical executive solutions at the earliest. Just like the rest of the world the Iranian officials have also started to take notes of the socioeconomic advantages of electronic trading and commerce. They have also taken a wide range of measures to set up and develop electronic trading facilities and venues across the country. Obviously, e-commerce is something new in our country and in order to help Iranian firms to reach the world standards there is a need to do many researches in different contexts of e-commerce such as online retailing in order to utilize opportunities and avoid the risks. Since based on Chia Chi Lin (2003) the key to success of e-commerce lies in knowing customers, studying customers’ point of view is very important.

1.1.3 Internet Retailing

Internet retailing continues to be the fastest growing retail channel (Hwan Kim and Kim and Lennon, 2006). Also, they report that in 2005, total internet retail sales increased 22 percent from 2004, and accounted for $172 billion, representing 5 percent of total retail sales. According to Forrester Research (2004) internet sales are projected to reach $316 billion and represent 13 percent of overall retail sales by 2010 (DMNews, 2006). According to the report of shop.org (2004) 73 percent of shoppers who use traditional stores prefer to research their purchases online and are more likely to purchase
items in-store that they have seen on the retailer’s website. King et al., (2004) believe that with the continued internet retail sales, Internet retailing is becoming a fast growing indispensable element in current competitive retailing environments.

### 1.1.4 Customer Satisfaction

During the last four decades, satisfaction has been considered as one of the most important theoretical as well as practical issues for most marketers and customer researchers (Jamal, 2004). Ho & Wo (1999) state that customer satisfaction is a critical issue in the success of any traditional or online business system. To fulfill this goal we need to know the definition of satisfaction by customers. According to Homburg et al, (2006) previous research has recognized that both cognition and affect significantly predict satisfaction. Process definitions of satisfaction emphasize on the disconfirmation paradigm and according to that paradigm, customers form expectations to which they compare performance; and this comparison will result in confirmation or disconfirmation (Oliver and Desarbo, 1988). A broad definition of satisfaction is that it is an emotional response to the use of a product or service; and it is also a complex human process which involves cognitive and affective processes as well as other psychological and physiological influences (Oliver, 1981). Early concepts of satisfaction research have typically defined satisfaction as a post choice evaluation judgment concerning a specific purchase decision (Oliver, 1980; Oliver and Desarbo, 1988).

In addition, Pitt et. al., (1995) believes that service quality is the key to measure user satisfaction. Thus, researchers have paid much attention to the close relationship between service quality and customer satisfaction (Bitner et al., 1990; Parasuraman et al., 1985; Parasuraman et al., 1988).

### 1.1.5 Service Quality

A basic agreement emanating from a wide range of literature on service quality and customer satisfaction is that service quality and customer satisfaction are conceptually distinct but closely related constructs (Parasuraman et. al., 1994; Dabholkar, 1995; Shemwell et al., 1998). Morre, (1987) believes that attention to service quality can
lead an organization and gain a lasting competitive advantage. Therefore, service quality has become a popular area of academic investigation, and has become recognized as a key factor in differentiating service products and building competitive advantage (Zeithaml et al., 1996). There are two main streams of research into the dimensions of service quality: the first is the Nordic perspective (Gronroos, 1982, 1984), which uses global, terms to define service quality in terms of functional quality and technical quality and the second is the US perspective (Parasuraman et al., 1988) which uses service encounter characteristics such as reliability, responsiveness, empathy, assurance and tangibles to describe service quality. Service quality according to Parasuraman et al., (1994a, p. 202) is “the degree of discrepancy between customers’ normative expectations for the service and their perception of the service performance”. Also, according to Santos (2003) two main conceptualization of service quality exist in the literature: one based on the disconfirmation approach and the other based on the performance-only approach. Among different researchers such as Gronroos (1983) and Parasuraman et al., (1985) and Pitt et al., (1999) who tried to discover the attributes of service which are more relevant to quality assessments the work of Parasuraman et al., (1985) has been regarded as the most prominent which reveals ten dimensions of the service quality: tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding the customer, and access. After 18 years, these 10 dimensions purified to 5 dimensions and based on these 5 items a measurement tool for service quality was made which called SERVQUAL.

Moreover, because the dimensions of measuring service quality differ between e-commerce and physical marketplace, more attention has been paid by researchers on service quality via internet (Parasuraman and Grewal, 2000).

1.1.6 E-Service Quality

As online retailing grows, service quality by influencing consumer’s online shopping experiences has become an important factor in determining the success or failure of online retailers (Yang, 2001). Santos, (2003) believes that e-service quality can potentially increase attractiveness, hit rate, customer retention, stickiness, and positive
word of mouth, and also it can maximize the competitive advantages of electronic commerce. Although, lots of researchers talk about the dimensions of the e-service quality (Zeithaml et al., 2000; Cox and Dale, 2001; Jun and Cai, 2001; van Riel et al., 2001; Yang et al., 2001; Kaynama and Black, 2002; Madu and Madu, 2002; Parasuraman, 2002; Wolfinbarger and Gilly, 2002; Yang and Jun, 2002; Zeithaml et al., 2002; Santos, 2003; Yang et al., 2003; Parasuraman et al., 2004; Lee and Lin, 2005), online retailers fail primarily due to the poor quality services, which are rendered to their customers (Zeithaml, 2002). E-service quality is important for two reasons: (1) it greatly influences customers’ satisfactions and intentions to shop online, and (2) the e-service quality is critical in attracting potential customers (Cai and Jun, 2003). Zeithaml (2002) believes that online companies should focus on all aspects of e-service quality before, during and after the transaction. According to his definition, e-service quality is “the extent to which a website facilitates, efficient and effective shopping, purchasing and delivery”.

1.1.7 Measuring Online Service Quality

Different and unique service delivery process in online services cause the traditional service quality dimensions can not directly apply to online services. Zeithaml, Parasuraman, and Malhotra (2000) provided the first formal definition of website service quality or e-SQ, to study how customers judge e-service quality. Liu and Arnett (2000) identified e-service quality as second important factor, involve quick response, assurance, empathy and follow up. Lociacono and Watson (2000) established a scale called WEBQUAL with twelve dimensions. Wolfinbarger and Gilly (2002) developed a scale named .comQ with four factors through focus group studies and online survey. SITEQUAL with four dimensions is another instrument for measuring online retailer’s websites quality.

1.1.8 Online Trust

Evidence suggest that, the principal reasons why people do not purchase via the internet are related to online security and policy, reliabilities of companies (Gefen, 2000),
and website technology (Chen and Barnes, 2007). The role of trust could be even more important in an e-commerce setting, since e-customers do not deal directly with the company, or its staff (Papadopoulou et al., 2001; Urban et al., 2000). Online trust is an important determinant for websites to succeed in marketplace (McKnight and Chervany, 2001). A high degree of trust not only stimulates and meets consumer’s high expectations of satisfying transactions but also eliminate uncertainty, perceived risks and interdependences in most online transactions (McKnight and Chervany, 2001; Pavlou, 2003). In addition, according to Gefen and Straube (2004) with increasing the level of consumers’ trust, we will have an increase in the degree of purchase intentions of consumers and it is easier for companies to retain customers. Moreover, Pavlou (2003), and Gefen and Straub (2004) believe that online trust plays a key role in creating satisfied and expected outcomes in online transactions.

Furthermore, as mentioned before one of the main challenges for online companies is retaining customers so, loyal customers are very important for them and next to satisfaction which is one of the main steps to achieve this goal, trust has been brought forward as a precondition for patronage behavior (Pavlou, 2003) and the development of long term customer relationships (Papadopoulou et al., 2001). Also, the quality elements of the e-service are expected to affect e-trust directly (Gronroos et al., 2000) because they represent trust cues that convey the trustworthiness of the site and the system to customers (Corritore et al., 2003). Furthermore, Corritore et al., (2003), call websites objects of trust and suggest that navigational architecture and design elements have a direct effect on trust.

1.2 Problem Discussion

According to Yang et al., (2003), competition among online retailers has become fiercer and fiercer thus, in such a competitive market place many companies realize it is more difficult to make their physical products differ from their competitors than before, so, based on Kotler, (2003) delivery superior service in order to make differentiation and in order to gain profitability is one of the important ways. This high service quality is the main step to have satisfied customers which has an important effect on customer
retention (Patterson et al., 1997; Sedon, 1997). Khalifa and Lui, (2003) acknowledge that retention is a major challenge particularly in internet based services, because customers can easily switch from one service provider to another at low cost and also, van Riel, (2001) state that acquiring new customers brings high costs and many online companies face high customer turnover. In addition, online trust is an important determinant for websites to succeed in market place (McKnight and Chervany, 2001). In order to satisfy customers’ needs, many companies have to setup websites that provide quality information and services to customers (Saha and Zhao, 2005). More research is needed to determine the dimensions of e-service quality and these studies also need to be conducted for different types of e-services (Zeithaml et al., 2000). Online retailers in our country like other online retailers in all around the world in order to survive in new electronic market need to move toward customer oriented marketing.

Also, regarding the expanded and varied website quality factors in different countries and in different industries and with attention to what discussed above, there is a critical need to measure online service quality and the importance of quality factors in our country and from Iranian customers’ perspective. Moreover, with regard to the important role of e-trust in customer retention and its relationship with satisfaction and quality there is a need to recognize the relation of e-trust, satisfaction, and quality.

1.3 Research Objective and Research Questions

Based on the above problem discussion the research objective is formulated as:

| To get a better understanding of website quality factors that affect customer satisfaction |

In order to cover this research objective the following research questions have been developed:

- What are the website quality factors in Iranian online bookstores that affect customer satisfaction?
- What is the importance of website quality factors from customers’ point of view?
- What is the effect of quality and quality factors on satisfaction?
What is the relation between quality, satisfaction, and e-trust in Iran?

1.4 Research Deposition

This thesis consists of five chapters:

Chapter 1: the first chapter presents a background of the research area and it is followed with the problem discussion, research objective and research questions.

Chapter 2: theories and previous studies related to our research area will be presented in this chapter. The last part of chapter two is the research framework which will be explained the road map of the study.

Chapter 3: methodology of research will be brought in this chapter which explains all the things about sampling and data collection method as well as reliability and validity tests of measurement tool.

Chapter 4: all the statistical tests such as constructs reliability and validity assessments and results of regression analysis and hypotheses tests will be delivered in this chapter.

Chapter 5: the theoretical and practical implications of research results and also limitations and suggestions for future research will be offered in this section.
2. Literature Review

This section consists of relevant literature and models used in previous studies. In this chapter, various concepts of customer satisfaction, formation and determinants of customer satisfaction, the relation between service quality and satisfaction and also traditional service quality dimensions, online service quality dimensions, as well as trust and e-trust will be presented.
2.1 Customer Satisfaction

Customer satisfaction is a collective outcome of perception, evaluation, and psychological reactions to the consumption experience with a product or service (Yi, 1990). According to Kottler (2000, P.36) “satisfaction is a person’s feelings of pleasure or disappointment resulting from comparing a product perceived performance or outcome in relation to his or her expectations”. Early concept of satisfaction research has typically defined satisfaction as a post choice evaluation judgment concerning a specific purchase decision (Churchill and Sauprenant, 1992; Oliver, 1980). Yang and Fang, (2004) believe that online customers still demand many services available through traditional channels even if they choose pure Internet-based suppliers with basic customer services. Although expectations seem to be of lesser importance as a comparison standard in e-commerce (Zeithaml et al., 2000), customers appear to use experience-based norms (Cadotte et al., 1987) and traditional services as comparison standards for e-services (Van Riel et al., 2001). Establishing and achieving customer satisfaction is the main goal of businesses nowadays because there is a strong relationship between the quality of product, customer satisfaction and profitability (Fecikova, 2004) (Figure 1).

![Figure 1: Dependence between Quality Satisfaction and Profitability](Source: Fecikova, 2004)

In order to achieve customer satisfaction, Companies should measure it because according to Ho, (1995) you can not manage something that you can not measure it. There are two principal interpretations of satisfaction within the literature, satisfaction as a process and satisfaction as an outcome (Parker and mathews, 2001). Solomon, (1991) recognizes customer satisfaction as the overall attitude of the individual toward the bought product. Also, customer satisfaction is defined as a customer’s overall evaluation of the performance of an offering to date. This overall satisfaction has a strong positive effect on customer loyalty intentions across a wide range of product and service categories (Gustafsson, 2005). Kottler (2003, p.36), states that there is a general
agreement that satisfaction is a person’s feelings of pleasure or disappointment resulting from comparing a product perceived performance (or outcome) in relation to his or her expectations.

### 2.1.1 Satisfaction Foundations

In different literatures related to customer satisfaction there are some different theories which are used as a base for different models of customer satisfaction. The disconfirmation theory is considered as the primary foundation for satisfaction models. According to this theory, satisfaction is determined by the discrepancy between perceived performance and cognitive standards such as expectations and desires (Khalifa and Liu, 2003). Before studying different satisfaction models some of these theories are presented to make a better understanding of the structure of customer satisfaction models.

**Expectation-Disconfirmation:**

According to expectation-disconfirmation theory contributed by Oliver (1980), satisfaction is a function of disconfirmation which in turn is a function of both expectations and performance. Figure 2 shows this approach.

![Expectation-Disconfirmation Model](source: Oliver referred to in Anderson and Sullivan, 1993 p.127)

This model suggests that the effects of expectations are primarily observed through disconfirmation, but they also have an effect through perceived performance as many studies have found a direct effect of perceived performance on satisfaction (Spreng
and Page, 2001). Perceived quality may either confirm or disconfirm pre-purchase expectation. Satisfaction is positively affected by expectations and the perceived level of disconfirmation. Disconfirmation and perceived quality also has strong impact on satisfaction (Oliver, 1980).

**Norm Theory:**

According to the Latour and Peat (1979) Norm Theory, norms serve as reference points for judging the product, and dissatisfaction comes into play as a result of disconfirmation relative to these norms. A good example of these norms is the hypothesis of Moharrer (2006) who states, leisure satisfaction is determined by the consumer's perceived disparity between actual leisure experiences as well as the perceptions of internal and external barriers that prevent the consumer from achieving the desired experience.

**Value Percept Disparity Theory:**

Value percept disparity theory (Westbrook and Reilly, 1983), which was developed in response to the problem that consumer, could be satisfied by aspects for which expectations never existed (Yi, 1990). This theory views satisfaction as an emotional response triggered by a cognitive-evaluation process (Parker and Mathews, 2001). In other words, it is a comparison of the “object” one values (needs and wants) rather than an expectation.

**Perceived Performance Theory:**

According to a perceived performance theory of Tse and Wilton (1988), consumer dissatisfaction is only a function of the actual performance, regardless of consumers’ expectations. It means that the actual performance and initial expectations should be considered independently, rather than comparing performance with past experiences.
2.1.2 Different Models of Customer Satisfaction

Many researchers, using a variety of diverse models have so far made their best efforts to classify and introduce different structures forming customer satisfaction, some of which are presented here in this part.

2.1.2.1 Continuous Growth in Customer Satisfaction Model

According to Zairi (2000), in order to have continuous improvement in customer satisfaction there is a cycle consisting of four parts: 1) listening to the voices of customers, 2) analyzing their comments, 3) developing actions and 4) implementing and monitoring.

2.1.2.2 Proposed Drivers Model of Customer Satisfaction and Future Intentions

This model suggests that perceived service quality and perceived value influence satisfaction which in turn, influences future intentions. In this model perceived service quality is viewed as consisting of two primary dimensions: core quality, the basic service “contracted” for or promised and relational quality, the way in which service is delivered (Gronroos, 1985; Morgan and Piercy, 1992) (Figure3).

![Figure 3: Proposed Drivers of Customer Satisfaction and Future Intentions](Source: Piercy, 1992)
Perceived value is viewed as benefits received relative to costs (Zeithaml, 1988). Customer satisfaction is viewed as the overall assessment of the service provider, while future intentions are the started like hood of returning to the service provider. The model parallels the “tripartite model” where the antecedents of satisfaction are the observed variables leading to an inferred state, satisfaction, leading to observed variables of future intentions (Eagly and Chaiken, 1993). Test of the model shows that the nature or characteristics of service influence the relative importance of the drivers of customer satisfaction (Piercy, 1992).

2.1.2.3 Antecedents and Customer Satisfaction of Cyber Shopping Store (CSS)

According to this model there are five antecedents of customer satisfaction which are appropriate for online shopping on the Internet. According to Ho and Wu (1999), customer satisfaction has five factors: 1) logistical support means quick response to customer’s needs, providing communication channels, quickly delivering goods, and providing after sales services. 2) Technological factors indicate modern computer and network facilities and well structured information systems. 3) Information factors means reliable output information and secure transaction. 4) Home page presentation includes ease of use of interface and detail information of goods and lower prices of goods. 5) Product characteristics indicate a variety of goods and lower prices for goods (Saha and Zhao, 2005, referred to: Ho and Wu, 1999) (Figure 4).

![Diagram of Antecedents of Customer Satisfaction in Cyber Shopping store](Source: Saha and Zhao referred to: Ho & Wo, 1999, p.4)
2.1.2.4 Updated Delone and Mclean IS Success Model (2003) for End User Satisfaction

The updated Delone and Mclean information system success model can be adapted to the measurement challenges of the new e-commerce world. This model is based on the updated Delon and Mclean (2003) original success model. In this model each of the dimensions contains some measurement variables:

- **System quality**: adaptability, availability, reliability, response time, usability
- **Information quality**: completeness, ease of understanding, personalization, relevance, security
- **Service quality**: assurance, empathy, responsiveness
- **Use**: nature of use, navigation patterns, number of sites visits, and number of transactions executed
- **User satisfaction**: repeat purchases, repeat visits users surveys
- **Net benefits**: cost savings expanded markets, incremental additional sales, reduced search costs, and time savings

Based on Saha and Zhao (2005) this model describes system quality, information quality, service quality singularly and jointly affect both use and user satisfaction. Furthermore the amount of use can affect the degree of user satisfaction positively or negatively.

2.1.2.5 E-Commerce Success Model for E-Commerce Customer Satisfaction

E-commerce success model by Molla and Licker (2001) proposed based on the Delone and Mclean information system success model (Figure 5). System item and information quality components in Delone and Mclean model are replaced by e-commerce system and content quality regularly. In addition, user satisfaction is replaced by customer e-commerce satisfaction and also two additional factors which are trust and service are added to capture the transactional and customer support components of e-commerce systems and customer e-commerce satisfaction (Molla and Licker, 2001) (Figure 5).
2.1.2.6 The Model for Expectation-Disconfirmation Effects on Web Customer Satisfaction (EDEWS)

Mckinney et al., (2002) present a model based on proposed models by Delone and Mclean (1992) and Spreng et al. (1996), and also based on the nature of website development for online shopping; and they state that web customer satisfaction has two distinctive sources: satisfaction with the quality of a web site’s information content and satisfaction with the web sites system performance in delivering information; And these two factors affected by customers’ prior expectations, possible discrepancies between such expectations, and the perceived performance of the web site (Saha and Zhao, 2005).

So, based on this paradigm, customer satisfaction has three main antecedents: expectation, disconfirmation, and perceived performance. Mckinney et al. 2002 identified five information quality (IQ) dimensions: (1) relevance, (2) timeliness, (3) reliability, (4) scope, and (5) perceived usefulness. In addition they identified four system quality (SQ) dimensions: (1) accesses, (2) usability, (3) navigation, and (4) interactivity. Mckinney et al., 2002 defined web information quality as the customer’s perception of the quality of information presented on a web site and web system quality as the customer’s perception of a web site’s performance in information retrieval and delivery (Saha and Zhao, 2005).
2.1.2.7 Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions

The model shows correlations existing among expectation, disconfirmation, satisfaction and the traditional criteria of attitude and purchase intention that has been performed to date. This model shows that the effect of expectation and disconfirmation on satisfaction and also post usage ratings of satisfaction appear to be the function of a linear combination of an adaptation level component (expectation or prior attitude) and disconfirmation. According to Oliver (1980) in this model, disconfirmation only occurs after product exposure and that subsequent cognitive reactions probably follow soon thereafter. In this model satisfaction is measured at a point in time subsequent to and separate from the disconfirmation assessment. The disconfirmation effect is at least as potent as the effect attributed to expectation.

In order to measure satisfaction in this model, all items were emotional in content (Hunt, 1977), and included references to the respondents’ outright satisfaction, regret, happiness, and general feelings about their decision.
2.2 Service Quality and Satisfaction

Among academics the satisfaction construct is recognized as being distinct and has developed along fairly independent lines from service quality (Oliver, 1980). As a process in time, service quality takes place before, and leads to overall customer satisfaction. Service quality has been found to be an important input to customer satisfaction (Caruana, 2002). Hoffman and Bateson, (1997), state, there is this agreement among experts that customer satisfaction is a short-term transaction specific measure, whereas service quality is an attitude formed by a long-term overall evaluation of a performance. Although, service quality and customer satisfaction are separate constructs but according to Parasuraman et al., (1988) there is a close relationship between them.

2.2.1 The Link between Satisfaction and Service Quality

There are some different models showing the relation between customer satisfaction and service quality. In this part, two models will be introduced. One of them shows such relation in a traditional service quality perspective while the other one discusses such relation in the e-commerce world.

2.2.1.1 The Link between Satisfaction and Traditional Service Quality

According to Jamali, (2005), customer satisfaction measures both cognitive and affective components. The cognitive components involve an assessment of the quality dimensions (which can be based on objective or subjective data), while affective assessment include other variables known to contribute to satisfaction, such as emotions, attributions, and perceptions of equity (Dean and Kiu, 2002). In other words, customer satisfaction is initially affected by a cognitive comparison between expectations and perceptions of basic service quality dimensions; and it confirms the point that satisfaction and quality can be separated even though they are related. Thus; we should measure service quality in order to measure satisfaction (Figure 7).
2.2.1.2 The Link between Satisfaction and Service Quality in E-Commerce

According to Pather, Ervin, and Remenyi (2003), the relation between satisfaction and service quality lies in delivering an online service; the customer is essentially being delivered an information system product. Thus, they proposed a model incorporates both measurement of user satisfaction and measurement of service quality to measure the quality of the information systems product (Figure 8).
According to the authors, this model provides an appropriate basis to investigate a relevant scale to measure effectiveness in the e-commerce environment by providing a basis for an evaluation of how relevant dimensions of traditional service quality scales are (Saha and Zhao, 2005, p. 15).

### 2.3 Service Quality

A better understanding of traditional service quality and online service quality dimensions will be discussed in this part which will also be followed by different models respectively.

#### 2.3.1 Traditional Service Quality Definitions

According to Gronroos (1982), total service quality is customer’s perception of difference between expected service and perceived service. Later in 1984, he has
described service quality of the service encounter as two different dimensions: one is technical or output quality and the next one is functional or process quality.

Similarly, Gefan (2002) defined service quality as the subjective comparison between the quality of the service that they want to receive and what they actually get. Parasuraman et al., (1988) also believe that service quality is determined by differences between customer’s expectations of service provider’s performance and their evaluation of the services they received.

In addition, Page and Spreng (2002), believe that performance is a much stronger indicator of service quality than expectation, and performance-only measure is superior, because it is more reliable and defensible.

2.3.2 Dimensions of Traditional Service Quality

Many researchers have tried to uncover different attributes of services that significantly related to quality assessments in the traditional service environment (e.g. Hedvall and Paltschik, 1989; Kettinger and Lee, 1997; Parasuraman et al., 1985, 1988; Paulin and Perrien, 1996; Pitt et al., 1999; Sasser et al., 1978).

Brady and Cronin (2001) have developed a third order factor model comprised of interaction quality, physical environment quality, and outcome quality. These dimensions draw on the work of Gronroos (1982), Rust and Oliver (1994), and others who have suggested that exploring both what is delivered (Gronroos’ technical quality) and how it is delivered (Gronroos’ functional quality) are important aspects of service quality.

Berry and Parasuraman identified 5 dimensions to cover the human elements in service quality. These dimensions for service quality are:

- **Tangibles**: deals with the appearance of physical facilities, equipment, personnel and communication materials.
- **Reliability**: deals with the dependability, and accuracy of service.
- **Responsiveness**: deals with the ability to provide prompt services and support to customers.
- **Assurance**: deals with the trust and confidence with the service provider based primarily on the knowledge and courtesy of employees.
- **Empathy**: deals with the provisions of caring and individualized attentions to customers.

Furthermore, Johnston (1995) provides 18 service dimensions and their definitions: access, aesthetics, attentiveness, availability, care, cleanliness/tidiness, comfort, commitment, communication, competence, courtesy, flexibility, friendliness, functionality, integrity, reliability, responsiveness, and security.

Among different studies in the service quality field, the work done by Parasuraman et al. (1985) is more common. They reveal ten detailed dimensions through focus group studies: tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding the customer, and access. Later, these ten dimensions were purified and distilled to five: tangibles, reliability, responsibility, assurance, and empathy, which constitute the base of a global measurement for service quality, SERVQUAL (Parasuraman et al., 1988).

When Parasuraman et al., (1988) purified and distilled these ten dimensions to five, the researchers based on these five dimensions developed 22-item service quality scale. On an operational level service quality research has been dominated by the SERVQUAL instrument which commonly groups quality determinants into five basic clusters illustrated in table 1 (Parasuraman, et al., 1985; Ghobadian et al., 1994; Curry and Herbert, 1998; Wisniewski, 2001):

<table>
<thead>
<tr>
<th>Quality cluster</th>
<th>Requirement</th>
<th>Description</th>
<th>Example from the postal sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>Reliability</td>
<td>Consistency of service/dependability i.e. the ability to provide the service on time, accurately and dependably</td>
<td>Next day delivery first class mail and delivery of mail in good condition</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Responsiveness</td>
<td>Willingness/readiness of employees; i.e. the ability to deal effectively with complaints and promptness of services</td>
<td>Dealing quickly and effectively with a customer’s inquiry or complaint</td>
</tr>
</tbody>
</table>
In addition, a conceptual model of service quality which includes five gaps is proposed by Parasuraman et al. (1985), and Zeithaml et al. (1988). In their model Gap one is about managers’ perceptions of customers’ expectations on service quality.
Managers think they know what customers really want, but actually there is a gap between customers’ expected service and management perceptions of customers’ expectations. Gap two is about service quality standards. Because there is no clear-cut approach that managers can use to translate their perceptions into service quality standards, a gap is inevitable. Gap three is the difference between service quality standards and the level of service actually delivered. Gap four is the difference between service providers’ service delivery and service providers’ promises through external communications. And gap five is the difference between expected service and perceived service from customers’ points of view. This conceptual model is useful in that it is easy for practitioners to understand service quality components.

Gronroose (1982) then introduced the notion of “total service quality” as being the perception by a customer of the difference between the expected service and the perceived service. Gronroose (1982) argue that service quality should include three dimensions:

1. *The technical quality of outcome*. That is the actual outcome of the service encounter.
2. *The functional quality of the service encounter*. This element is concerned with the interaction between the provider and the recipient of the service and is often perceived in a subject manner.
3. *The corporate image*. This is concerned with consumers’ perceptions of the service organization. This image depends on: technical and functional quality, price, external communications, and physical location, appearance of the site and the competence and behavior of service firm’s employees (ibid).

While extensive research has been conducted on service quality in traditional retailing settings (Gronroos, 1982; Parasuraman et al., 1988), service quality in online retailing is a relatively new topic. Whereas traditional service quality refers to the quality of service based on human interactions and experiences in non-web-based settings, online service quality encompasses interactions between humans and technology, so in the next section the quality dimensions in e-commerce will be discussed.
2.4 E-service Quality

In this part, definitions of e-service quality and e-service quality dimensions will be presented.

2.4.1 Definitions of E-Service Quality

With the increasing amount of research in internet marketing and electronic commerce, service quality in online environments has become recognized as an important factor as determining the success or failure of electronic commerce (Yang, 2001). E-service can be defined as the role of service in cyber space (Rust and Lemon, 2001). Based on Santos (2003), e-service quality can be defined as the consumer’s overall evaluation and judgment of the excellence and quality of e-service offerings in the virtual market place. Van Riel et al., (2001) believe that in contrast to customers’ evaluation of traditional service offerings, customers are less likely to evaluate each sub-process in detail during a single visit to a website and they prefer to perceive the service as an overall process and outcome. According to Zeithaml, et al. (2000), e-service quality is comprehended both from pre-and post-web site service perspectives. They defined online service quality as “the extent to which a website facilitates effective and efficient shopping, purchasing, and delivering of products and services”. Parasuraman (2000) proposed flexibility, convenience, efficiency and enjoyment as examples of major positive themes in the online environment.

2.4.2 Dimensions of Online Service Quality

Previous studies have revealed that service quality in online environments is an important determinant of the effectiveness of e-commerce (Yang, 2001; Janda et al., 2002). Increased e-service quality on the web can make online companies more effective and appealing, and can help them to achieve higher levels of customer satisfaction and retention (Gronroose et al., 2000). However, little research has been done on the quality determinants of e-service. A commercial web site must compete with thousands of other sites on the web (Santos, 2003).
Dholakia and Rego (1998) suggested a list of features that they considered to be important for effective websites:

- Frequency of changes
- Number of links to and from a website
- Complexity and extensiveness
- Number of pictures (especially clickable pictures)
- Enhancements (for example, Java applets and gift animations)
- Number of advertising banners of other firms

Yang (2001) proposed the 7 potential factors of online service quality that align with those of the SERVQUAL instruments: reliability, responsiveness, access, ease of use, attentiveness, credibility, security.

Moreover; Zeithaml et al. (2000) have developed E-SERVQUAL with eleven dimensions in a series of focus group interviews: access, ease of navigation, efficiency, flexibility, reliability, personalization, security / privacy, responsiveness, trust / assurance, site aesthetics, and price knowledge to measure online service quality. In their research, they found the core dimensions of regular service quality like efficiency, fulfillment, reliability, and privacy were the same as online; and at the same time, they offer that responsiveness, compensation, and real time access to help as core dimensions of service recovery for online services. In addition, they noted that empathy was less important online unless there were service problems happened (ibid).

Yang et al. (2004) have uncovered six key online service quality dimensions: reliability, access, ease of use, attractiveness, security, and credibility-employed by internet purchasers to evaluate e-tailors’ service quality. The descriptions of these factors are as follow:

1. **Reliability**: it consists of correctness of order fulfillment, prompt delivery, and billing accuracy.

2. **Attentiveness**: It is included individualized attention, personal thank-you notes from online retailers and availability of message area for customer questions or comments.
3. **Ease of use:** It is related to well organized, well structured, and easy to follow catalogues, site navigability, and concise and understandable contents, terms and conditions.

4. **Access:** It is included the list of the company’s street and e-mail address, phone and fax number, accessibility of service representatives, availability of chat room, bulletin board and other communication channels.

5. **Security:** It is included security of personal information and minimal online purchase risks.

6. **Credibility:** It refers to the business history of online retailers, special rewards, and referral banners on other website.

In the first attempt to adapt the SERVQUAL dimensions to e-services, Kaynama and Black (2000) subjectively evaluated the online services of 23 travel agencies and seven dimensions derived from SERVQUAL: responsiveness, content and purpose (delivered from reliability), accessibility, navigation, design and presentation (all derived from tangibles), background (assurance), and personalization and customization (derived from empathy).

In addition, Madu and Madu (2002) proposed 15 dimensions of online service quality based on literature review: performance, features, structure, aesthetics, reliability, storage capacity, serviceability, security and system integrity, trust, responsiveness, product/service differentiation, and customization, web store policies, reputation, assurance and empathy.

Yang and Fang (2004) identified online service quality dimensions and their relationship with satisfaction: their proposed factors are: reliability, responsiveness, ease of use, and competence.

Griffith and Krampf referred by Zeithaml (2002) found that the access and responsiveness of the website are the key indicators of service quality delivered through the web. Liu and Arnett (2000) identified information and service quality, system use, playfulness, and system design quality as key dimensions of web site quality. Huizingh (2000) named two types of web quality: content and design. Wan (2000) recognized four categories of web site quality attributes: information, friendliness, responsiveness, and
reliability. Misic and Johnson (1999) suggested such web-related quality criteria as finding contact information (e.g. e-mail, people, phones, and mail address), finding main page, speed, uniqueness of functionality, ease of navigation, counter, currency, wording, and color and style. It is clear that the range of online service quality dimensions is really expanded.

Saha and Zhao (2005: 20), compare traditional service quality dimensions with online service quality dimensions among the researchers who worked on both of them the results of their comparison are shown in table 2:

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Online service quality</th>
<th>Service quality</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>Y</td>
<td>Y</td>
<td>Parasuraman et al., (1985)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Liu and Arnett (2000)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Riel et al. (2001)</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Y</td>
<td>Y</td>
<td>Parasuraman et al. (1985)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Zeithaml et al. (1988, 2002)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Kaynama and Black (2000)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Delone and Mclean (2003)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Arnett (2000)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Riel et al. (2001)</td>
</tr>
<tr>
<td>Competence</td>
<td></td>
<td>Y</td>
<td>Parasuraman et al. (1985)</td>
</tr>
<tr>
<td>Accessibility</td>
<td>Y</td>
<td>Y</td>
<td>Parasuraman et al. (1985)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Kaynama and Black (2000)</td>
</tr>
<tr>
<td>Courtesy</td>
<td></td>
<td>Y</td>
<td>Parasuraman et al. (1985)</td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td>Y</td>
<td>Parasuraman et al. (1985)</td>
</tr>
<tr>
<td>Credibility</td>
<td></td>
<td>Y</td>
<td>Parasuraman et al. (1985)</td>
</tr>
<tr>
<td>Security</td>
<td></td>
<td>Y</td>
<td>Parasuraman et al. (1985)</td>
</tr>
<tr>
<td>Understanding the customer</td>
<td></td>
<td>Y</td>
<td>Parasuraman et al. (1985)</td>
</tr>
<tr>
<td>Tangibles</td>
<td></td>
<td>Y</td>
<td>Parasuraman et al. (1985)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Zeithaml et al. (1988)</td>
</tr>
<tr>
<td>Content</td>
<td></td>
<td>Y</td>
<td>Kaynama et al. (2000)</td>
</tr>
<tr>
<td>Accuracy</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Timeliness</td>
<td></td>
<td>Y</td>
<td>Zeithaml et al. (2002)</td>
</tr>
<tr>
<td>Efficiency</td>
<td></td>
<td>Y</td>
<td>Zeithaml et al. (2002)</td>
</tr>
</tbody>
</table>
2.4.3 Different Models of Online Service Quality Dimensions

Superior service quality measurably increases a firm’s overall profitability, its price premium, and its perceived and actual market share (Zeithaml et al., 1996). However, most organizations have limited understanding of how to design a customer-centered web site that can help them establish better commercial relationships with their customers and to secure the success of their e-Business initiative. Most organizations would like to understand more closely the nature of the influence of quality aspects of their web sites on purchasing decisions of web consumers so, different researches by providing different models have tried to show these relationships. Smith and Merchant (2001) believe that e-commerce firms depend on people visiting their sites, purchasing their products, and, more importantly, becoming repeated customers.

There is a model which presented by Santos, (2003) that provides a comprehensive framework of e-service quality and its determinants. The author by using focus group interviews and insight from previous researches found a conceptual model of

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Online service quality</th>
<th>Service quality</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fulfillment</td>
<td>Y</td>
<td></td>
<td>Zeithaml et al. (2002)</td>
</tr>
<tr>
<td>Privacy</td>
<td>Y</td>
<td></td>
<td>Zeithaml et al. (2002)</td>
</tr>
<tr>
<td>Compensation and contact</td>
<td>Y</td>
<td></td>
<td>Zeithaml et al. (2002)</td>
</tr>
<tr>
<td>Navigation</td>
<td>Y</td>
<td></td>
<td>Kaynama and Black (2000)</td>
</tr>
<tr>
<td>Page design and presentation</td>
<td>Y</td>
<td></td>
<td>Kaynama and Black (2000)</td>
</tr>
<tr>
<td>Background</td>
<td>Y</td>
<td></td>
<td>Kaynama and Black (2000)</td>
</tr>
<tr>
<td>Personalization and customization</td>
<td>Y</td>
<td></td>
<td>Kaynama and Black (2000)</td>
</tr>
<tr>
<td>Assurance</td>
<td>Y</td>
<td>Y</td>
<td>Zeithaml et al. (1988)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Delone and Mclean (2003)</td>
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<td></td>
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<td>Arnett (2000)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Riel et al. (2001)</td>
</tr>
<tr>
<td>Empathy</td>
<td>Y</td>
<td>Y</td>
<td>Zeithaml et al. (1988)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Delone and Mclean (2003)</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>Arnett (2000)</td>
</tr>
</tbody>
</table>

(Source: Saha and Zhao, 2005, P. 20)
e-service quality. The model proposed that e-service quality consists of an incubative dimension and an active dimension. The incubative dimension and the active dimension each consist of five or six related (and potentially) overlapping determinants. Customers often divide service-quality dimensions into various sub-dimensions (Carman, 1990), and a hierarchical conceptualization of service quality is appropriate (Brady and Cronin, 2001). The findings from the focus group research implied that the active dimensions are as important as the incubative dimensions. The sequence of determinants in both the incubative dimensions and active dimensions are presented according to their importance as they emerged from the focus groups, either explicitly or implicitly (Figure 9).

Figure 9: E-Service Quality Model
(Source: Santos, 2003)

The incubative dimensions are defined as the proper design of a web site, how technology is used to provide consumers with easy access, understanding, and attraction
of a web site. The majority of elements in the incubative dimensions can be developed before a web site is launched. The active dimensions are defined as the good support, fast speed, and attentive maintenance that a web site can provide to its customers. The active dimensions must be achieved consistently throughout the period that a web site remains active. It can increase customer retention and encourage positive word-of-mouth referral (Santos, 2003).

Perhaps the most empirically grounded of the scales that focus specifically on the website interface is WebQual (Loiacono et al., 2002). By interviewing both consumers and website designers and using undergraduates to rate e-commerce sites, Loiacono et al. identified 12 dimensions of website quality which they claimed have sufficient discriminate validity: informational fit-to-task, interactivity, trust, response time, ease of understanding, intuitive operations, visual appeal, innovativeness, flow/emotional appeal, consistent image, online completeness and better than alternative channels.

Another scale that measures the website interface is Yoo and Donthu’s (2001) SITEQUAL. The authors find a mere four rather than twelve dimensions; ease of use, aesthetic design (site creativity with multimedia and color graphics), processing speed (promptness of online processing and interactive responsiveness to consumer requests) and security of personal and financial information.

Chen and Wells (1999) suggest a measure of web site success that they term “attitude toward the site” or AST. The measure is global and includes five attributes rather than developing factors or dimensions: website relationship building, intentions to revisit, satisfaction with service, comfort in surfing, and the judgment that surfing the website is a good way to spend time. While the measure is reliable, the authors concede that AST is unlikely to convey a complete picture concerning online buyers’ judgments of their online experiences.

Liu and Arnett (2000) surveyed webmasters, asking about factors critical to website success. They found that webmasters believe that information and service quality, system use (including ease of use and privacy), playfulness and system design
quality (including processing speed and balance between security and ease-of-use for payment method) are important for a successful website.

Cox and Dale (2002) detail the key quality factors (KQFs) and then puts forward a categorization of the KQFs in the form of a conceptual model for delivering a web site to satisfy customer requirements. Then they have been grouped these KQFs into four categories that each category relates to a different part of the web site experience and serves to enhance customer satisfaction to the extent that the customer will return (Figure 10).

Figure 10: Conceptual Model for Delivering a Quality Web Site to Satisfy the Customer
(Source: Cox and Dale, 2002)
In that model, this can be considered as a guide, that how to define the value proposition of the web site before deciding which KQFs are appropriate in the assessment.

Lee and Lin (2004), used the revised SERVQUAL scale items to establish dimensions of e-service quality through web site design, reliability, responsiveness, trust, and personalization. The relationship among the e-service quality dimensions, overall service quality and customer satisfaction is hypothesized and discussed (Figure 11).

Liu and Arnett (2000) derive a framework from IS and marketing literature. They identify four factors that are critical to web site success in e-commerce: information quality, system use, playfulness and system design quality. They use following framework to relate web site quality to customers’ perceived usefulness and perceived ease of use, and further to customers’ preference and intention to reuse the site. The framework is built upon TAM, SERVQUAL and the concept of trust (Delone and McLean, 1992; Parasuraman et al., 1985; Davis, 1989; Lin and Lu, 2000; Chen et al., 2002) (Figure 12).
In addition, Kim and Kim and Lennon (2006) identify online service attributes that facilitate efficient and effective shopping, purchasing, and delivery based on the modified E-S-QUAL scale (Parasuraman et al., 2005) and, evaluate the extent to which current online retailers provide such service attributes as an objective measure of service performance. Since, their study identifies an extensive list of all available online service attributes encompassing the consumers’ entire shopping process, the E-S-QUAL scale provides a useful framework to categorize comprehensive service quality attributes provided by online retailers.

The last model in this section which we are going to study and is considered as one of the most completed models in this part is Wolfinbarger and Gilly model (2003).

Wolfinbarger and Gilly (2003) offers important implications for the measurement of consumer perceptions of an online purchase experience. Their analyses suggest that judgments concerning the quality of an online site are most strongly related to website design factors and fulfillment/reliability. In their model 14 items chosen, measure the four factors at a global level. Most surprising is the role of security/privacy, which is not
significant in predicting quality, except among the most frequent buyers at the website. Their findings show that inferences of security/privacy are initially obtained from other quality factors, particularly website design, when shoppers are new to a website. They claim that it also, appears initially consumers’ judge security/privacy based on elements such as the professional look and feel of the website, as well as functionality of a website, and company reputation. Their eTailQ scale can be compared to the SERVQUAL scale (Parasuraman, Zeithaml, & Berry, 1988). According to writers, an overarching difference between them is that consumer perceptions of employees play a central role in SERVQUAL, while the company as an entity is the focus of eTailQ. The dimensions themselves also have key differences. Website design is a new dimension that strongly affects consumer perceptions of their buying experience. Reliability as defined in SERVQUAL entails consistency of performance and dependability. In contrast, fulfillment/reliability in eTailQ focuses on the accuracy of the depiction of the product on the website, the accuracy of the order and on-time delivery, attributes peculiar to e-tailors. Privacy/security does not come into play in SERVQUAL, although trust (in employees rather than firms) is one attribute of their assurance dimension. Because of fears such as identity theft and spam, e-tail consumers are particularly sensitive to privacy and security in ways that differ from how consumers develop trust in individual service employees (Wolfinbarger and Gilly, 2003).

![Figure 13: Modeling E-Tail Quality as a Higher Order Factor](Source: Wolfinbarger and Gilly, 2003)

The four factors extracted in Wolfinbarger and Gilly model are defined as follow:
• Fulfillment/reliability is (a) the accurate display and description of a product so that what customers receive is what they thought they ordered, and (b) delivery of the right product within the time frame promised.
• Website design includes all elements of the consumer’s experience at the website (except for customer service), including navigation, information search, order processing, appropriate personalization and product selection.
• Customer service is responsive, helpful, willing service that responds to customer inquiries quickly.
• Security/privacy is security of credit card payments and privacy of shared information.

2.5 E-Trust

In e-commerce context, loyal customers are considered extremely valuable. And loyalty generally attributed to satisfaction with the quality of service (Ribbink, van Riel, Liljander and Streukens, 2004). Also they believe that since, online transaction involves many uncertainties for the customers, trust is a condition for exchange. In business studies, trust has been found to be important for building and maintaining long-term relationships (e.g. Rousseau et al., 1998; Singh and Sirdeshmukh, 2000). A research done by Lewicki et al., (1998, p. 439), associated trust with a “confidence in the other’s intentions and motives”. Another definition which is suitable in offline and online services defines trust as the “degree of confidence or certainty the customer has in exchange options” (Zeithaml and Bitner, 2000, p. 327). Ribbink, van Riel, Liljander and Streukens (2004), state that e-trust is defined as the degree of confidence customers have in online exchange or in online exchange channel. Moreover Mayer et al., (1995) define trust as “the willingness of a party to be vulnerable to the actions of another party based on the expectations that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party”.

Gefen (2003), summaries the conceptualization of trust from prior research as follow:

1. A set of distinct beliefs consisting of integrity, benevolence, and ability;
2. A general belief or trusting intentions that another party could be trusted, or “the willingness of a party to be vulnerable to the actions of another” (Mayer et al.,1995, p. 712);
3. “Feelings of confidence and security in the caring response of the other party” (Rempel et al., 1985, p. 96); and
4. A combination of these factors

Yoon (2002) describes the mechanisms of online trust as: security assurance, reputation, web searching, fulfillment (i.e. willingness to customize), presentation (i.e. web quality), technology, and interactions (e.g. e-forums). These mechanisms are categorized into three dimensions of online trust:

1. Technical-based: web searching, technology and presentation;
2. Uncertainty of transactions and security: security assurance; and

Also according to Mukherjee and Nath (2007), online trust is different from offline trust on the following parameters:

- Physical distance between buyer and seller, absence of salespeople, and
- Separation between buyer and products (Yoon, 2002);
- Absence of simultaneous existence in time and space;
- Absence of human network attributes (i.e. audio, video, and sensual); and

According to Sultan et al., (2002), there are some factors in order to building trust:

- **Navigation**: it is clarity in website layout and browsing, for example it should be easy for customers to navigate and access the target web page.
- **Advice**: it is useful recommendations-questions asked for preferences in the website, for example introducing any product that customer may need based on his/her previous purchase.
- **No errors**: it is no busy server massages or no errors or crashing in the website.
- **Order fulfillment**: it is order confirmation (via e-mail) and delivery options available, for example this process should be in a way that customer feel comfortable about the whole purchase to delivery process.
- **Community**: it is about chat rooms or bulletin-boards available in the website, for example customers should be able to communicate together to find out more about the website and product news.
- **Privacy/security**: it means easy to understand policy-use of consumer information explained, privacy is to explain the privacy policy and the use of customer information explicitly and clearly and security means to
guarantee the security of payment process or personal information transmission.

- **Trust seals**: it presents third party ratings.
- **Brand**: it is quality of advertised brands consistent with company quality-carrying reputable brand names.
- **Presentation**: artistic or creative site – engaging site.

It should be mentioned that there are different types of trust and a distinction needs to be made between a person’s disposition, or propensity to trust, system based trust and interpersonal trust (Grabner-Krauter and Kalusha, 2003). Dispositional trust plays a particularly important role in the interaction between unfamiliar actors (Bigley and Pearce, 1998), and is therefore essential for the initial use of electronic retailers (Grabner-Krauter and Kalusha, 2003), as well as for purchases of goods and services that score high on credence and experience qualities. System-based trust equals e-trust and deals with customer’s trust in purchasing or searching for good/service information online. According to Geyskens et al., (1996), customer satisfaction is closely related to interpersonal trust (Garbarino and Johnson, 1999). Satisfaction with a specific application of the system the (e-tailor) will increase confidence in the system as a whole. It is therefore expected that electronic satisfaction directly and positively affects e-trust (Pavlou, 2003). On the other hand, Gummerus et al., (2004), develop four dimensions that come out to be important to all online services: the quality of the user interface, responsiveness, need fulfillment, and security. They believe if these four dimensions fulfilled, then the customer trusts the online service or company which can lead to satisfaction and finally loyalty.

### 2.6 The Conceptual Framework

This part aims to provide a conceptual framework coupled with theoretical overview by explaining the key factors, variables, and relationships among theories or models in order to give a better understanding of the process in this research.

The main purpose of this research is to find the impact of website quality on satisfaction of website users in general and website quality factors in particular. It is also intended to find the importance of such factors from an Iranian customer’s perspective.
Based on the literature review in the last part of this section, it was mentioned that quality and customer satisfaction are conceptually distinct but closely related structurally (Parasuraman et. al., 1994; Dabholkar, 1995; Shemwell et al., 1998). On the other hand, the continuous growth of competition in the market place has highlighted the understanding of customers as an important issue in marketing. So, today’s companies have shifted their focuses from products and sales to customer oriented marketing (Lin, 2003), in order to survive in such a highly competitive world. Also, there is an increasing pressure to better understand the issue of online quality since with consumer experience; expectations of online businesses are increasing (Yoo & Donthu, 2001). In addition; having customers satisfied primarily depends on the balance between customer's expectations and experiences with the products and services (Zeithaml et al., 1990). Because customers have ever increasing expectations, it is necessary for companies to continuously improve their quality and hence, customers’ experiences with the company. Companies offer quality to satisfy their customers (Dale, 1999). As a Website is part of the connection between a company and its customers, it is evident that it should reflect the quality efforts that are in place throughout the company.

Besides this reason, there is another reason why companies should provide high quality Websites to its customers: there is no human contact through Web sites. The interaction via the Internet between a company and a customer is always through technology. This means that the “moment of truth” between a company and a customer is the Website. Although, companies may try to emulate human behavior through technology, the interaction remains different because some aspects of human interaction cannot be replaced with technology, e.g. courtesy, friendliness, helpfulness, care, commitment, flexibility and cleanliness (Cox and Dale, 2001, 2002). The absence of such aspects of human interaction which are normally delivered to customers through quality will have to be compensated by a better performance on other quality factors or by excellent performance on “new” specific Web quality factors. Moreover; a website should reflect the value proposition and address whether it is trying to satisfy the customers' needs to ensure frequent visits from the customer in the hope of gaining customer loyalty. The result should be a common ground between the goals sought by the
website and the customers' goals leading to a pleasant experience on the part of the customers (Creative Good, 2000).

In the last part, different satisfaction models and also website quality models have been introduced. It is clear that in most cases, we can see a combination of satisfaction and quality, as the separation of these two structures can be a bit difficult in e-commerce. However, Oliver (1980) states that, these structures are separate therefore; we have tried to focus on the models independently in order to measure satisfaction and quality respectively. To this effect, the model presented by Wolfinbarger and Gilly (2003) has been selected to measure quality. The reason behind this selection is the fact that this model, from the researcher's point of view, is considered as one of the most complete models which just measures the quality of websites for online retailing. In their model website quality consists of four factors:

1. **Website design:** with five sub dimensions about the elements of the consumer’s experience at the website such as navigation, information search, order process, personalization and product selection.
2. **Fulfillment/reliability:** with three sub dimensions about the accurate display and description of a product and delivery of the right product with in the time frame promised.
3. **Security privacy:** with three sub dimensions about the security of credit card payments and privacy of shared information.
4. **Customer service:** with three sub dimensions about responsive, helpful and willing service that responds to customers inquiries quickly.

For customer satisfaction, the model presented by Oliver (1980), has been used as it is amongst models which tries to measure satisfaction separately from service quality and expectations. To this end, he has used some emotional questions, and these questions included references to the respondents’ outright satisfaction, regret, happiness, and general feelings about their decision. In this part we have 12 questions.

Also, customer satisfaction, according to literature review, is closely related to interpersonal trust (Garbarino and Johnson, 1999). Moreover; as many of antecedents of trust are common with website quality items, the relationship of e-trust with satisfaction and quality is also examined in our research. For this section, a part of vanRiel et al., (2004), questionnaire for e-trust has been used.
So, the proposed conceptual model to find the impact of website quality on customer satisfaction has been shown in figure 14:

In this model, various relations existing among the process components of the impact of website quality on satisfaction including website design, reliability, security, customer service and e-trust as an added factor have been hypothesized and examined.

2.7 Chapter Summary

The first section of this chapter dedicated to literature review as related to our research context. The literature review starts with a general definition of e-commerce, online retailing, customer satisfaction, satisfaction foundation and satisfaction models, the link between service quality and satisfaction as well as traditional service quality, online service quality and e-trust. Model of Wolfinbarger and Gilly (2003) called E-tail quality; the definition of Oliver (1980) for satisfaction and the definition of vanRiel et al., (2004), for e-trust have been chosen in this research.
The second part of this chapter delivers a conceptual framework for the thesis and further shows the models examined followed by the hypotheses and structures of model used in this research.
Chapter 3:
Research Methodology:

3. Research Methodologies:

This chapter will present detailed idea about how the research will be conducted, and which method and techniques will be implemented for conducting this research. Research method is defined as the collection of rules, tools, and reliable and well ordered ways to study the realities, to disclose the passivity, and to acquire the solutions (Khaki, 2000: 201). This includes the purpose of the research, research approach, research strategy, sample selection methods, data collection methods, and data analysis methods.
At the end of this part validity and reliability issues will be discussed to follow the quality standards of the research.

3.1 Research Purposes:

According to Yin (2003), a research purpose is to state what should be accomplished by conducting research and how the results from the research can be used. Research purposes can be classified in various ways. Accordingly Saunders, Lewis, and Thornhill (2003) stated that they are most often classified as exploratory, descriptive, or explanatory. On the other hand Cooper and Schindler (2003) categorized it in descriptive and causal. If the research is concerned with finding out who, what, where, when or how much, then the study is descriptive and in a causal study we try to explain relationships among variables.

3.1.1 Exploratory Research

Exploratory research is useful when the research questions are vague or when there is little theory available to guide predictions. Also it is useful at times; researcher may find it impossible to formulate a basic statement of the research problem. Exploratory research is used to develop a better understanding (Hair, Babin, and Money & Samouel, 2003). Exploratory studies are a valuable means of finding out what is happening, to seek new insight, to ask questions, and to assess phenomena in a new light. It is particularly useful if researcher wish to clarify the understanding of a problem. There are three principal ways of conducting exploratory research: a search of the literature, talking to experts in the subject, conducting focus group interviews (Saunders, Lewis & Thornhill, 2003).

3.1.2 Descriptive Research

Some researches have a purpose of describing different kinds of phenomena. For example stages assurance, course of events and actions. A descriptive study presents a complete description of a phenomenon in its context (Yin, 1994).
The objective of descriptive research is to portray an accurate profile of persons, events or situations (Martinson, 2005). It is necessary to have a clear picture of the phenomena on which researcher wish to collect data prior to the collection of the data (Saunders, Lewis, and Thornhil, 2003). In other words the who, what, where, why and some times how aspects of the research should be defined. Moreover descriptive research is often used when a problem is well structured and there is no intention to investigate cause/effect relations (Paul & Eriksson, 1999). Descriptive research is recommended when you search data often secondary, in order to describe a few aspects of a clearly structured problem (ibid).

3.1.3 Explanatory Research

“Explanatory type of research is grounded in theory, and theory is created to answer why and how questions. In business research we often find that the cause-effect relationship is less explicit. We are more interested in understanding, explaining, predicting and controlling relationships between variables than we are in detecting causes. Explanatory studies go beyond description and attempts to explain the reasons for the phenomenon that the descriptive study only observed. In an explanatory study, the researcher uses theories or hypotheses to account for the forces that caused a certain phenomenon to occur” (Darabi, 2007, p.46). Explanatory studies are designed to test whether one event causes another (Hair, Babin, and Money & Samouel, 2003).

Our research purpose and questions reveal the fact that this study is descriptive. A large scale survey has been applied to identify the impact of website quality factors on customer satisfaction. The related data has been collected and analyzed to verify the hypothesis of the research.

3.2 Research Approach

There are different types of approaches for conducting a research. The knowledge claims, the strategies and the method all contribute to a research approach that tends to be more quantitative, qualitative, or mixed (Creswell, 2003). On the other hand the research project will involve the use of theories; and the extent to which a researcher is clear about
the theory at the beginning of the research raises an important question concerning the
design of the research project. This is whether the research should use the deductive
approach or inductive approach. Here chosen approach of this study will be presented.

3.2.1 Deductive Approach

In deductive approach, researchers develop a theory and hypothesis, and design a
research strategy to test the hypothesis. Deduction emphasizes scientific principals,
moving from theory to data, the need to explain causal relationships between variables,
the collection of quantitative data, the application of controls to ensure validity of data,
the operationalization of concepts to ensure clarity of definition, researcher independence
of what is being researched and the necessity to select samples of sufficient size in order
to generalize conclusion (Ghezelayagh, 2007, p.39).

3.2.2 Inductive Approach

In inductive approach, researcher would collect data and develop theory as a
result of data analysis. Induction emphasizes a close understanding of the research
context, the collection of qualitative data, and a more flexible structure to permit changes
of research emphasis as the research progresses, a realization that the researcher is part of
the research process and less concern with the need to generalize (Ghezelayagh, 2007,
p.39).

3.2.3 Quantitative Approach

Quantitative approach is one in which, the investigator primarily uses post
positivist claims for developing knowledge (i.e., cause and effect thinking, reduction to
specific variables, and hypothesis and questions, use of instrument and observation, and
test of theories), employs strategies of inquiry such as experiments and surveys and
collects data on predetermined instrument that yield statistical data (Creswell, 2003).

According to Newman and Benz (1998), quantitative research is frequently
referred to as hypothesis testing research. Characteristically, studies begin with
statements of theory from which research hypothesis are derived. Then an experimental
design is established in which the variables in question (the dependent variables) are
measured while controlling for the effects of selected independent variables. Subject
included in the study are selected at random in desirable to reduce error and to cancel
bias. The sample of subjects is drawn to reflect the population.

The nature of quantitative methodology is deductive, contributing to the scientific
knowledge base by theory testing. Because true experimental designs require tightly
controlled conditions, the richness and depth of measuring for participant may be
sacrificed. As a validity concern, this may be a limitation of quantitative designs
(Newman and Benz, 1998).

3.2.4 Qualitative Approach

Qualitative research is multi method in focus, involving an interpretive,
naturalistic approach to its subject matter. This means that qualitative researchers study
things in their natural settings, attempting to make sense of, or interpret, phenomena in
terms of the meanings people bring to them (Newman & Benz, 1998).

Qualitative approach is one in which the inquirer often makes knowledge claims
based primarily on constructivist perspectives (i.e., the multiple meaning of individual
experiences, meaning socially and historically constructed, with an intent of developing a
theory or pattern) or advocacy/participatory perspectives (i.e., political, issue oriented,
collaborative or change oriented) or both. It also uses strategies of inquiry such as
narratives, phenomenology, ethnography, grounded theory studies or case studies. The
researcher collects open-ended emerging data with the primary intent of developing
themes from the data (Creswell, 2003).

The most important difference between the two approaches lies in the use of
numbers and statistics. Choosing a research approach technically depends on the
definition of research problems and the data needed to solve such problems. In this study,
the purpose is to understand the impact of website quality dimensions on customer
satisfaction and to elaborate on existing relations between customer satisfaction and
website quality factors. For this reason, quantitative approach is found to be more appropriate.

3.3 Research Strategy

Research strategy will be a general plan of how researcher will go about answering the research questions that has been set by researcher. It will contain clear objectives, derived from research questions specify the sources from which researcher intend to collect data and consider the constraints that researcher will inevitably have such as access to data, time, location and money, ethical issues (Thornhill et. al., 2003).

According to 1) form of research questions 2) requires control over behavioral events and 3) focus on contemporary events five research strategies were identified. They consist of – experiments, surveys, archival analysis, histories and case studies (table 3).

Table 3: Research Strategies

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Form of research question</th>
<th>Requires control over behavioral events</th>
<th>Focuses on contemporary events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>How, Why</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Survey</td>
<td>Who, What, Where, How many, How much</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Archival analysis</td>
<td>Who, What, Where, How many, How much</td>
<td>No</td>
<td>Yes/ No</td>
</tr>
<tr>
<td>History</td>
<td>How, Why</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Case study</td>
<td>How, Why</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

(Source: Yin, 1994, P.6)

Identifying the type of research question is the most important condition for selecting research strategy. “who”, “what”, “where”, “how”, and “why” are the categorization scheme for the types of research questions. Two possibilities need to investigate by asking the “what” question. First some types of what questions are justifiable for conducting some an exploratory study and the goal is to develop pertinent hypothesis and propositions for further inquiry. Any of the five research strategies can be
used in that situation—exploratory survey, exploratory experiment, or an exploratory case study. The second type of what question is actually form a “how many” or “how much” line of inquiry and the outcomes from a particular situation. The survey or archival analysis is more favorable than other strategies. If the researcher needs to know the “how” question, the better strategy will be doing history or a case study (Yin, 1994).

Given the fact that the research questions in this study are What-question type in nature and also the researcher may have no control over the actual behavioral events, Survey, as one of the most appropriate tools for quantitative studies, is found to be a more effective instrument in order to get a better understanding of the theme under study.

### 3.3.1 Survey

The survey strategy is a common strategy in business research that is usually associated with the deductive approach. Questionnaire, structured observation and structured interviews are different methods of this strategy (Thornhill et. al., 2003). In this study a survey has been done.

### 3.4 Sample Selection

The basic idea of sampling is that by selecting some of the elements in a population, researcher may draw conclusions about the entire population. Lower cost, greater accuracy of results, greater speed of data collection, and availability of population selection are different reasons for sampling (Cooper and Schindler, 2003).

**Selecting the sampling method:**

Selection of the sampling method to use in a study depends on a number of related theoretical and practical issues. Therefore considering the nature of the study, the objectives of the study, and the time and budget available are important. Traditional sampling method can be divided into two categories: probability and non-probability sampling (Samuel et. al., 2003).
**Probability sampling:**

Probability sampling is most commonly associated with survey-based research where, researcher needs to make inferences from the sample about a population to answer the research questions or to meet research objectives (Saunders et. al., 2003). In probability sampling, sampling elements are selected randomly and the probability of being selected is determined ahead of time by the researcher. If done properly, probability sampling ensures that the sample is representative (Hair et. al., 2003).

**Non-probability sampling:**

Provide a range of alternative techniques based on researcher subjective judgment (Saunders et. al., 2003). In non-probability sampling the selection of elements for the sample is not necessarily made with the aim of being statistically representative of the population. Rather the researcher uses the subjective methods such as personal experience, convenience, expert judgment and so on to select the elements in the sample. As a result the probability of any element of the population being chosen is not known (Samuel et. al., 2003).

According to Saha and Zhao (2005, p.33) refer to Samuel et. al., (2003), most non-probability sampling methods are as follow:

**Convenience sampling:**

According to Hair et. al., (2003), Convenience sampling involves select sample members who can provide required information and who are more available to participate in the study. Convenience samples enable the researcher to complete a large number of interviews cost effectively and quickly but they suffer from selection bias because of difference of target population.

**Judgment sampling:**

Some times researcher’s judgment is used to select sample element and it involves for a specific purpose. Group of people who have knowledge about particular problem
can be selected as sample elements. Sometimes it referred as purposive sample because it involves a specific purpose. Judgment sampling is more convenience and low cost involvement (Hair et. al., 2003).

**Quota sampling:**

Objective of quota sampling is to have proportional representation of the strata of target population for the total sample and the certain characteristics describe the dimensions of the population (Cooper and schindler, 2003). In quota sampling the researcher defines the strata of the target population, determines the total size and set a quota for the sample elements from each stratum. The findings from the sampling can not be generalized because of the choice of elements is not done using a probability sampling method (Samuel et al., 2003).

The purpose of this research is to find the most important website quality factors in online shopping from the Iranian book shoppers’ perspective as well as finding the impact of these factors on the level of their satisfaction from the website. So, our focus is on online customers of bookstores. In order to get access, we needed a list of existing online bookshops. As there existed no lists of online bookstores in Iran, a complete search had been done through the Internet resulting in a list of 91 Iranian online bookshops (appendix A). Having contacted and negotiated with all of them some 40 websites have been chosen as others were not active in selling books online. Due to the fact that all 40 bookshops had no reliable databases of their customers, and some of them could not load the questionnaire on their sites, 20 out of the 40 websites agreed to load the questionnaire on their websites. As the size of the population under study is unknown, the sample size has been determined using the following formula (Bazargan, 2001), for unlimited population and thus, 240 questionnaires were gathered out which 219 were eventually accepted.

\[
n = \frac{z^2 \alpha^2 pq}{\sigma^2} = \frac{(1.96)^2 (0.5)(0.5)}{(0.07)^2} = 196
\]
3.5 Data Collection:

There are two major approaches to gather information about a situation, person, problem or phenomenon. Sometimes information required is already available and only need to be extracted. However there are times when the information must be collected. Based upon these broad approaches for information gathering, data are categorized as: secondary data and primary data. Secondary data are collected from secondary sources such as publications, personal records, census (Ranjit Kumar, 1996) and primary data are collected through observation, interviews and/or questionnaire (Hair et. al., 2003). According to Creswell (2003) data collection procedure in qualitative research involve four basic types: observations, interviews, documents, and audio-visual materials.

In this study quantitative survey is used as data collection method. Based on our research objective, a questionnaire was prepared to elicit customers’ experiences in online book shopping. The questionnaire was developed based on our research questions and framework of reference.

Measurement of the structures and pilot test:

The questionnaire consists of four parts (Appendix B). Part one gathered general information about the respondents’ gender, age, education, the average amount of time spent on the Internet, the average number of books bought through the Internet over a period of one year, as well as their experiences in purchasing books from other websites. Part two asked the respondents to answer 14 website quality questions, including website design, fulfillment/ reliability, security/privacy, and customer service questions in order to measure the amount of existing quality in a special website. Part three explores the amount of respondent's satisfaction toward a website by asking 12 questions. Finally, part four tries to measure electronic trust of respondents to a website through 5 questions. Questions in parts two, three, and four were assessed using a seven point Lickert scale with end points of ‘strongly disagree’ and ‘strongly agree’. Also the questions in the last three parts were selected exactly the same as those in the valid questionnaires of the three articles namely the questionnaire of Wolfinbarger and Gilly (2003) for quality part, the
questionnaire of Oliver (1980) for satisfaction part, and a part of the questionnaire of van Riel et al., (2004), for e-trust part.

Once the questionnaire was developed, it was translated into Farsi in order to make the items compatible with Iranian business culture. Then a pilot test was conducted to assess the questionnaire in order to eliminate possible problems created as a result of translation. The preliminary questionnaire was administered to a group of students of marketing and e-commerce and 5 managers of different online bookstores as well as 5 MBA students. As a result of the pilot test, several questions were reworded, and a few statements were made more applicable to the Iranian environment. On the other hand, before the questionnaire was widely distributed, it was administered to 20 customers for the second phase of the pilot test and as per their responses, further amendments with regard to the Iranian culture was made in the questionnaire.

3.6 Statistical Analyses

After collecting the data the process of analysis begins. Analysis of data in this research was done by using LISREL XIII, Which is one of the SEM techniques. Structural Equation Modeling (SEM) techniques such as LISREL are second generation of data analysis techniques that can be used to test the extent to which information system research meets, recognized standards for high quality statistical analysis (Gefen, 2000). The capability of SEM for simultaneous analysis differs greatly from most first generation of regression models, and enable researchers to answer a set of interrelated research questions in a single, systematic, and comprehensive analysis by modeling the relationship among multiple and dependent constructs simultaneously. The statistics results will be presented with detail description in chapter 4.

3.7 Validity/ Reliability

In order to reduce the possibility of getting wrong answers, pay attention to validity and reliability in designing the research is essential (Saunders et. al., 2003).
3.7.1 Reliability

Reliability refers to the degree to which data collection method or methods will yield consistent findings, similar observations, or conclusions reached by other researchers or the amount of transparency in how sense was made from the raw data (Saunders et al., 2003). Cooper and Schindler (2003) have defined reliability as many things to many people, but in most contexts the notion of consistency emerges. A measure is reliable to the degree that it supplies consistent results. Reliability is a necessary contributor to validity but is not a sufficient condition for validity.

Reliability can be assessed by the following questions (Easterby-Smith et. al., 2002, p.53):

1. Will the measures yield the same results on other occasions?
2. Will similar observation be reached by other observers?
3. Is there transparency in how sense was made from the raw data?

According to Mostaghel (2005, p.54) SPSS software offers “reliability analysis statistics”; Reliability analysis allows us to study the properties of measurement scales and the items that make them up. The reliability analysis procedure calculates a number of commonly used measures of scale reliability and also provides information about the relations between individual items in the scale. The following models of reliability are available:

1. Alpha (Cronbach): this is a model of internal consistency, based on the average inter-item correlation.
2. Split-half: this model split the scale into two parts and examines the correlation between the parts.
3. Guttman: this model computes guttman’s lower bounds for true reliability.
4. Parallel: this model assumes that all items have equal variances and equal error variances across replications.
5. Strict parallel: this model makes the assumptions of the parallel model and also assumes equal means across items.

The followings are the steps taken to ensure the reliability of this study:

1. Questionnaire was divided into four parts in order to enable respondents to better concentrate on each question and to answer the questions with
adequate knowledge and understanding of each single field of the questions.
2. The theories selected for the study were clearly described.
3. Alpha Cronbach test has also been applied to all questions in addition to that of each single section of questions. As shown in table 1, the result for the whole questions is 0.920 which is more than 0.7 confirming the reliability of questions.

<table>
<thead>
<tr>
<th>Cronbach’s Alpha</th>
<th>Cronbach’s Alpha Based On Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.920</td>
<td>.934</td>
<td>33</td>
</tr>
</tbody>
</table>

A tool that has alpha Cronbach more than the minimum quantity level which suggested through Nunnally (0.7) is considered reasonable from reliability aspect (Jamal & Naser, 2002, p.154).

**3.7.2 Validity**

Saunders et. al., (2003) state that validity is concerned with whether the findings are really about what they appear to be about. They defined validity as the extent to which data collection method or methods accurately measure what they were intended to measure. Cooper and Schindler (2003) believe that validity refers to the extent to which a test measures what we actually wish to measure. There are two major forms: external and internal validity. The external validity of research findings refers to the data’s ability to be generalized across persons, settings, and times. Internal validity is the ability of a research instrument to measure what is proposed to measure (Cooper and Schindler, 2003).

These are different steps were taken to ensure the validity of this study:

- Data was collected from the reliable sources, from respondents who are experienced to purchase books online.
- Survey question were made base on literature review to ensure the validity of the results.
• Questionnaire has been pre tested by at least 20 persons before starting the survey.
• Data has been collected through 4 weeks without any changes in the websites.

3.7.3 Factor Validity of Questionnaire

Factor validity is a kind of Construct validity that is acquired through factor analysis. Factor analysis is a statistical art that is applied extensively in humanities. Indeed, use of this analysis is essential and necessary in the offshoots that are used in the tests and questionnaires. The use of factor analysis distinguishes that whether the questionnaire tests the proposed characteristics (Aghamiri, 2007). In this analysis, questions that are planned to assess an indicator or a particular character; must possess the joint factorial load. In the present research, about 14 questions were designed for assessing website quality, 12 questions were designed for customer satisfaction, and 5 questions were designed for e-trust.

3.8 Chapter Summary

Quantitative research approach was adopted in this study, and then measurements of constructs were developed according to prior studies. The pilot test was conducted and target population was defined, a sample of 20 Iranian online bookstores was identified by a complete research in the Internet. The contact persons were the customers of these websites who had at least purchased once through their websites. In the first phase, 266 questionnaires were gathered and after invalid responses had been filtered, the number of questionnaires decreased to 219. Cronbach’s Alpha and factor analysis were achieved using SPSS, while LISREL was applied for statistical analysis. Multiple regression (examining dependence relations) and confirmatory factor analysis were used to estimate a series of interrelated dependence relations simultaneously.
Chapter 4
Data Analysis

4. Data Description and Analysis

Information analysis is considered to be the most important part of the research process. This chapter presents the data that has been collected through quantitative survey. In addition, the demographic and descriptive statistics, reliability and validity assessment and the results of hypothesis tests are delivered. To analyze the collected data, first Cronbach’s Alpha Method will be used to show the reliability of the questionnaire, then descriptive statistics will be assessed to examine the sociological
variables including gender, age, education, the average number of books purchased online over a year, as well as the experience of purchasing books from other websites. Analytical statistics are prepared, in which, first the suitability of the measurement tool of service quality with the application of substantial factor analysis (measurement model in structural equations modeling) is confirmed. After calculating factors score, the study is conducted on the relations among quality, satisfaction, and e-trust of online bookstore’s customers by applying the structural equation modeling.

4.1 Cronbach’s Alpha

Cronbach’s Alpha method is applied to calculate the reliability of measurement tool e.g. questionnaire or tests which measure different characteristics. According to Jamal & Naser (2002:154) a tool with Cronbach’s Alpha greater than the minimum quantity level 0.7 suggested by Nunnally (1987) is considered reasonable from reliability aspect.

To assess the reliability of the questionnaire in this research, Cronbach’s Alpha was used. The results of reliability test by using SPSS software for the whole questionnaire is 0.93, which is more than the minimum level (0.7). The reliability numbers for each factor of quality, customer satisfaction section, as well as e-trust section have been presented in table 5:

<table>
<thead>
<tr>
<th>Constructs and variables</th>
<th>Cronbach’s Alpha based on standardized items</th>
<th>Number of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>All of the questions</td>
<td>0.934</td>
<td>33</td>
</tr>
<tr>
<td>Website design</td>
<td>0.815</td>
<td>5</td>
</tr>
<tr>
<td>Reliability</td>
<td>0.667</td>
<td>3</td>
</tr>
<tr>
<td>Security</td>
<td>0.835</td>
<td>3</td>
</tr>
<tr>
<td>Customer service</td>
<td>0.920</td>
<td>5</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>0.732</td>
<td>12</td>
</tr>
<tr>
<td>E-trust</td>
<td>0.795</td>
<td>5</td>
</tr>
</tbody>
</table>
Theses numbers show that the reliability of proposed questionnaire is high and it is suitable, except for the reliability part which its Cronbach’s Alpha is 0.667 and it is less than 0.7. For this reason one question in this section will be omitted in our factor analysis. Thus, the Cronbach’s Alpha for reliability will increase to around 0.7.

4.2 Descriptive Statistics

In this section, the way of statistical sample distribution with regard to the variables such as gender, age, education, the average number of books purchased on the internet over a year, as well as the experience of purchasing books from other websites is studied (Table 6).

Table 6: Sample Demographics

<table>
<thead>
<tr>
<th>Measure</th>
<th>Items</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>154</td>
<td>70.3</td>
</tr>
<tr>
<td>Gender</td>
<td>Female</td>
<td>65</td>
<td>29.7</td>
</tr>
<tr>
<td>Gender</td>
<td>Total</td>
<td>219</td>
<td>100.0</td>
</tr>
<tr>
<td>Age</td>
<td>X&lt;20</td>
<td>29</td>
<td>13.25</td>
</tr>
<tr>
<td>Age</td>
<td>20 - 24</td>
<td>87</td>
<td>39.72</td>
</tr>
<tr>
<td>Age</td>
<td>25 - 34</td>
<td>75</td>
<td>34.25</td>
</tr>
<tr>
<td>Age</td>
<td>35 - 44</td>
<td>22</td>
<td>10.0</td>
</tr>
<tr>
<td>Age</td>
<td>45 – 54</td>
<td>6</td>
<td>2.73</td>
</tr>
<tr>
<td>Age</td>
<td>Total</td>
<td>219</td>
<td>100.0</td>
</tr>
<tr>
<td>Education</td>
<td>Under diploma</td>
<td>19</td>
<td>8.7</td>
</tr>
<tr>
<td>Education</td>
<td>Diploma, above</td>
<td>84</td>
<td>38.4</td>
</tr>
<tr>
<td>Education</td>
<td>B.A.</td>
<td>85</td>
<td>38.8</td>
</tr>
<tr>
<td>Education</td>
<td>M.A.</td>
<td>24</td>
<td>10.9</td>
</tr>
<tr>
<td>Education</td>
<td>PHD</td>
<td>7</td>
<td>3.1</td>
</tr>
<tr>
<td>Education</td>
<td>Total</td>
<td>219</td>
<td>100.0</td>
</tr>
</tbody>
</table>
According to table 6, 70.3% of respondents are men and 29.7% of them are women. The highest frequency is related to the age group 20 to 24 and the lowest frequency is related to the age group 45 to 54. Furthermore, 38.8% of them have B.A. degree and the lowest frequency for education is related to those with PHD. Also, number of purchases for the majority of respondents is 1 or less than 1 time in a year and 59.4% of them have had the experience of shopping from more than one website.

### 4.3 The Condition of Quality Variables

In table 7, the condition of four quality variables with regards to descriptive statistics have been shown.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Items</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of purchases</strong></td>
<td>X&lt; 1 in year</td>
<td>81</td>
<td>37.0</td>
</tr>
<tr>
<td></td>
<td>2 – 4 in year</td>
<td>65</td>
<td>29.7</td>
</tr>
<tr>
<td></td>
<td>5 – 7 in year</td>
<td>26</td>
<td>11.9</td>
</tr>
<tr>
<td></td>
<td>8 – 10 in year</td>
<td>15</td>
<td>6.8</td>
</tr>
<tr>
<td></td>
<td>X &gt; 10 in year</td>
<td>32</td>
<td>14.6</td>
</tr>
<tr>
<td><strong>Experience of shopping from different sites</strong></td>
<td>One</td>
<td>89</td>
<td>40.6</td>
</tr>
<tr>
<td></td>
<td>More than one</td>
<td>130</td>
<td>59.4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>219</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASE</td>
<td>218</td>
<td>5.2511</td>
<td>1.35506</td>
<td>.09178</td>
</tr>
<tr>
<td>RELI</td>
<td>217</td>
<td>5.5507</td>
<td>1.38601</td>
<td>.09409</td>
</tr>
<tr>
<td>SECU</td>
<td>215</td>
<td>5.1829</td>
<td>1.26402</td>
<td>.08621</td>
</tr>
<tr>
<td>CS</td>
<td>217</td>
<td>5.2258</td>
<td>1.43801</td>
<td>.09762</td>
</tr>
</tbody>
</table>

Note: EASE represents: website design
RELI represents: reliability
SECU represents: security
CS represents: customer service

Table 7: Sample Demographics (continued)
4.3.1 Condition of Quality Variables According to One-Sample T-Test

Table 8 shows the results of one-sample t-test. This test is used to assess the condition of quality variables in one population.

\[ H_0 : \mu = 4 \]
\[ H_1 : \mu \neq 4 \]

<table>
<thead>
<tr>
<th>Variable</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASE</td>
<td>13.633</td>
<td>217</td>
<td>.000</td>
<td>1.25115</td>
<td>1.0703, 1.4320</td>
</tr>
<tr>
<td>RELI</td>
<td>16.481</td>
<td>216</td>
<td>.000</td>
<td>1.55069</td>
<td>1.3652, 1.7361</td>
</tr>
<tr>
<td>SECU</td>
<td>13.722</td>
<td>214</td>
<td>.000</td>
<td>1.18295</td>
<td>1.0130, 1.3529</td>
</tr>
<tr>
<td>CS</td>
<td>12.557</td>
<td>216</td>
<td>.000</td>
<td>1.22581</td>
<td>1.0334, 1.4182</td>
</tr>
</tbody>
</table>

In order to find the position of each quality factor in the research model, as table (7) shows, one sample t-test is used. According to this test since the significant numbers for all the factors are zero and they are less than the error level which is 0.05, (H0) is rejected. Also since all the lower and upper limits are positive, \( \mu \) is greater than 4 (\( \mu > 4 \)), and we can state that the condition of website design, reliability, security and customer service are suitable in our model from the customers point of view.

4.4 Factor Validity of Questionnaire

Factor validity is a construct to assess the validity of questionnaires and it is acquired through factor analysis. In each questionnaire, questions that are planned to assess an indicator or a particular character, must possess the joint factorial load. Factor analysis consists of four steps: (1) Preparation of correlation matrix: the number in the main diameter of this matrix is called communality which is indicator of proportion of communal variance between each variable and factor. Communality quantity varies
between 0 and 1. (2) *Factors extraction:* the aim of this stage is to get the main factor which has caused changes in the proposed variables (Bazargan, Sarmadi, Hejaji, 2002:271-72). The most common method for factor extraction is principle component method. The factor loads for each item in this matrix show the role or the amount of correlation of each question in a special dimension related to that question. (3) *Selection and rotation of factors:* the aim of factor analysis is to explain the proposed phenomena with the first few variables. In the first turn, the objective to determine the number of factors is that it will be kept in the analysis. According to Kaiser’s basis, only factors are being kept, that their total factor load square (special quantity) will be one or more. In the Kettle method, special quantity graph is drawn for each factor; in this questionnaire Kaiser’s method is used. After selecting the factors, their rotation in order to reach to a simple structure of them is necessary. (4) *Interpretation:* finally the results of factor analysis will be acquired (Aghamiri, A., 2007).

### 4.4.1 The Results of Exploratory Factor Analysis

In this part, in order to measure the validity of questionnaire the results of the first and second rank of exploratory factor analysis have been presented in tables 8 and 9:

<table>
<thead>
<tr>
<th>Variables</th>
<th>KMO</th>
<th>Significant Bartlett’s test</th>
<th>Cumulative total variance %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website design</td>
<td>0.777</td>
<td>0.000</td>
<td>69.686</td>
</tr>
<tr>
<td>Reliability</td>
<td>0.611</td>
<td>0.000</td>
<td>76.700</td>
</tr>
<tr>
<td>Security</td>
<td>0.707</td>
<td>0.000</td>
<td>75.241</td>
</tr>
<tr>
<td>Customer service</td>
<td>0.744</td>
<td>0.000</td>
<td>82.021</td>
</tr>
<tr>
<td>Quality</td>
<td>0.785</td>
<td>0.000</td>
<td>69.426</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>0.880</td>
<td>0.000</td>
<td>67.962</td>
</tr>
<tr>
<td>E-trust</td>
<td>0.725</td>
<td>0.000</td>
<td>77.451</td>
</tr>
</tbody>
</table>

KMO: Kaiser-Meyer-Olkin Measure of Sampling Adequacy
Extraction Method: Principal Component Analysis
Note: Significant Level = 0.05 and Suitable KMO > 0.6
KMO numbers and Bartlet’s test show that the data are reasonable for execution of factor analysis for Website Design (KMO = 0.777, sig = 0.000), Reliability (KMO = 0.611, sig = 0.000), Security (KMO = 0.707, sig = 0.000), Customer Service (KMO = 0.744, sig = 0.000), Quality (KMO = 0.785, sig = 0.000), Satisfaction (KMO = 0.880, sig = 0.000), and E-Trust (KMO = 0.725, sig = 0.000). As, for all of them KMO is bigger than 0.6 and significant Bartlet’s test is smaller than significant level which is 0.05, that indicate correlation matrix possessing significant information. In addition, the Total Variance shows that the questions of website design totally form one factor which covers 69.686% of website design variance, the questions of reliability totally form one factor which covers 76.700% of reliability variance, the questions of security totally form one factor which covers 75.241% of security variance, and the questions of customer service totally form one factor which covers 82.021% of customer service variance. Furthermore, four quality variables totally form one factor which covers 69.426% of quality variance. More over, the questions of satisfaction and e-trust form two factors, the two factors of satisfaction totally cover 67.962% of its variance and the two factors of trust totally cover 77.451% of e-trust variance.

Table 10 shows the ratio of questions communality and the results of exploratory factor analysis to test the validity of questionnaire.

Also in this research simple mean method is used to acquire the extracted factor scores.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Communalities</th>
<th>Factor loads</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First</td>
<td>Second</td>
</tr>
<tr>
<td>Website design 1</td>
<td>0.777</td>
<td>0.784</td>
</tr>
<tr>
<td>Website design 2</td>
<td>0.733</td>
<td>0.782</td>
</tr>
<tr>
<td>Website design 3</td>
<td>0.607</td>
<td>0.659</td>
</tr>
<tr>
<td>Website design 4</td>
<td>0.232</td>
<td>-</td>
</tr>
<tr>
<td>Website design 5</td>
<td>0.602</td>
<td>0.562</td>
</tr>
<tr>
<td>Reliability 1</td>
<td>0.631</td>
<td>0.767</td>
</tr>
<tr>
<td>Reliability 2</td>
<td>0.719</td>
<td>0.767</td>
</tr>
<tr>
<td>Reliability 3</td>
<td>0.460</td>
<td>-</td>
</tr>
</tbody>
</table>
### Table 10: Results of Component Matrix and Extraction Communalities (continued)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Communalities</th>
<th>Factor loads</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First</td>
<td>Second</td>
</tr>
<tr>
<td>Security 1</td>
<td>0.786</td>
<td>-</td>
</tr>
<tr>
<td>Security 2</td>
<td>0.792</td>
<td>-</td>
</tr>
<tr>
<td>Security 3</td>
<td>0.680</td>
<td>-</td>
</tr>
<tr>
<td>Customer service 1</td>
<td>0.807</td>
<td>-</td>
</tr>
<tr>
<td>Customer service 2</td>
<td>0.807</td>
<td>-</td>
</tr>
<tr>
<td>Customer service 3</td>
<td>0.846</td>
<td>-</td>
</tr>
<tr>
<td>Website design</td>
<td>0.696</td>
<td>-</td>
</tr>
<tr>
<td>Reliability</td>
<td>0.788</td>
<td>-</td>
</tr>
<tr>
<td>Security</td>
<td>0.529</td>
<td>-</td>
</tr>
<tr>
<td>Customer service</td>
<td>0.765</td>
<td>-</td>
</tr>
<tr>
<td>Satisfaction 1</td>
<td>0.740</td>
<td>-</td>
</tr>
<tr>
<td>Satisfaction 2</td>
<td>0.723</td>
<td>-</td>
</tr>
<tr>
<td>Satisfaction 4</td>
<td>0.675</td>
<td>-</td>
</tr>
<tr>
<td>Satisfaction 6</td>
<td>0.502</td>
<td>-</td>
</tr>
<tr>
<td>Satisfaction 7</td>
<td>0.812</td>
<td>-</td>
</tr>
<tr>
<td>Satisfaction 8</td>
<td>0.785</td>
<td>-</td>
</tr>
<tr>
<td>Satisfaction 11</td>
<td>0.660</td>
<td>-</td>
</tr>
<tr>
<td>Satisfaction 12</td>
<td>0.688</td>
<td>-</td>
</tr>
<tr>
<td>Satisfaction 3</td>
<td>0.586</td>
<td>-</td>
</tr>
<tr>
<td>Satisfaction 5</td>
<td>0.674</td>
<td>-</td>
</tr>
<tr>
<td>Satisfaction 9</td>
<td>0.748</td>
<td>-</td>
</tr>
<tr>
<td>Satisfaction 10</td>
<td>0.562</td>
<td>-</td>
</tr>
<tr>
<td>E-trust 1</td>
<td>0.679</td>
<td>-</td>
</tr>
<tr>
<td>E-trust 2</td>
<td>0.804</td>
<td>-</td>
</tr>
<tr>
<td>E-trust 3</td>
<td>0.736</td>
<td>-</td>
</tr>
<tr>
<td>E-trust 4</td>
<td>0.832</td>
<td>-</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis

a. Component Extracted  /  b. Rotation Converged in 3 Iterations
Rotation Method: Varimax with Kaiser Normalization
The ratio of questions first communality is bigger than 0.50 for all the questions except question four in the website design section which relates to the level of personalization and question three in the reliability section which relates to the on time delivery, and it is the indicator of suitability of rest of the questions. In the second rank of exploratory factor analysis question four in website design section and question three in reliability part which has the lowest communality, comparing the other questions, eliminated and factor analysis has been done one more time. Also, questions number 3, 5, 9, and 10 in customer satisfaction part are negative questions and during analysis they were changed to a positive form. Finally, the results of component matrix show that which variables with which factor loads are related to the constructs.

4.5 Inferential Statistics

In this part, after doing exploratory factor analysis and calculating factor loads for all the research variables, we should be sure about the accuracy of our measurement tool by using confirmatory factor analysis technique. Then we are going to test the research hypothesis by using regression analysis via LISREL software. This part of research is done through structural equation modeling, because there are some independent variables that may influence the dependent variables, and Structural Equation Modeling is one of the basic methods for analyzing the complex data structures. According to Hoyle (1995), Structural Equation Modeling is a comprehensive statistical process for testing the hypothesis about the relationships between observed and latent variables. Here, when the model is estimated, software will produce statistical standards (RMSEA, standard error, t-value, and etc.) about the proportional assessment of the model. If the model is credible but it doesn’t have proportion to data, modification index (χ²) that is a reasonable medium for assessing proposed changes in model will be applied. According to Lavee (1988) the model is suitable when χ² is small, because it shows the difference between data and model. Also the model is suitable when RMSEA which is one of the secondary indexes is small, because it is a standard to show the difference mean between observed data and model.
Here, based on our research model, the results of hypothesis tests and confirmatory factor analysis will be presented for each section of the model (Figure 15).

4.5.1 Regression and Confirmatory Factor Analysis for Quality

In order to get a better understanding of relationships in different parts of research model a conceptual model will be presented, and then the results will be shown in a table.
The conceptual models show that the relations between quality factors and their sub dimensions have been assessed in Table 11, (see models in appendix C).

<table>
<thead>
<tr>
<th>Items</th>
<th>Correlations</th>
<th>T-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality – website design</td>
<td>0.84</td>
<td>11.90</td>
</tr>
<tr>
<td>Quality – Reliability</td>
<td>1.07</td>
<td>13.99</td>
</tr>
<tr>
<td>Quality – Security</td>
<td>0.70</td>
<td>9.12</td>
</tr>
<tr>
<td>Quality – Customer Service</td>
<td>0.88</td>
<td>12.27</td>
</tr>
<tr>
<td>Website design – eas 1</td>
<td>0.84</td>
<td>-</td>
</tr>
<tr>
<td>Website design – eas 2</td>
<td>0.84</td>
<td>14.47</td>
</tr>
<tr>
<td>Website design – eas 3</td>
<td>0.77</td>
<td>12.81</td>
</tr>
<tr>
<td>Website design – eas 5</td>
<td>0.68</td>
<td>10.83</td>
</tr>
<tr>
<td>Reliability – reli 1</td>
<td>0.77</td>
<td>-</td>
</tr>
<tr>
<td>Reliability – reli 2</td>
<td>0.69</td>
<td>10.54</td>
</tr>
</tbody>
</table>
Table 11: Results of Hypothesis Test for Quality (Continued)

<table>
<thead>
<tr>
<th>Items</th>
<th>Correlations</th>
<th>T-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security – secu 1</td>
<td>0.81</td>
<td>-</td>
</tr>
<tr>
<td>Security – secu 2</td>
<td>0.90</td>
<td>13.09</td>
</tr>
<tr>
<td>Security – secu 3</td>
<td>0.65</td>
<td>9.70</td>
</tr>
<tr>
<td>Customer service – CS1</td>
<td>0.84</td>
<td>-</td>
</tr>
<tr>
<td>Customer service – CS2</td>
<td>0.84</td>
<td>13.10</td>
</tr>
<tr>
<td>Customer service – CS3</td>
<td>0.87</td>
<td>13.71</td>
</tr>
</tbody>
</table>

\[
\chi^2 = 135.34 \quad df = 50 \\
P - Value = 0.0000 \\
RMSEA = 0.088
\]

| Website Design - Reliability | 0.94 | 24.07 |
| Website Design - Security   | 0.51 | 8.29  |
| Website Design – Customer Service | 0.73 | 16.98 |
| Reliability – Security      | 0.74 | 13.41 |
| Reliability – Customer Service | 0.92 | 22.13 |
| Security – Customer Service | 0.71 | 15.55 |

\[
\chi^2 = 119.26 \quad df = 48 \\
P - Value = 0.0000 \\
RMSEA = 0.083
\]

According to suitable statistics standards for the second rank of confirmatory factor analysis, which have acquired as follow: 2.70 < 3 (authorized limit) and 0.088 < 0.1.

\[
\frac{\frac{135.34}{50}}{2.70} = 2.70
\]

\[
RMSEA = 0.088
\]
the measurement tool is suitable and we can recover the model based on proposed corrections by LISREL(Appendix C). Research hypotheses in this part are as follow:

**Secondary Hypothesis:**

1. There is a significant and positive effect between each of the quality factors and their sub dimensions.

**Main Hypothesis:**

2. There is a significant and positive effect between quality and website design.
3. There is a significant and positive effect between quality and reliability.
4. There is a significant and positive effect between quality and security.
5. There is a significant and positive effect between quality and customer service.

In this section, Standard Estimation has been used to compare the influence rate of each question in the questionnaire on website quality factors. Standard Estimate Model gives us the possibility to compare the model’s variables because in this model the measurement units of the variables are similar. Therefore, through acquired factors (correlation between variables) among the website quality questions, questions 1 and 2 (ease1 & ease2) have possessed the highest percentage of correlation (0.84). It means that, $(0.84)^2$ of website design variance will be explained through questions 1 and 2. So, website design 1 and website design 2 are the most important questions, which are related to navigation and information search.

Among the reliability questions, reliability 1 (reli 1), which relates to the accurate display and description of a product has possessed the highest percentage of correlation.

Also, security 2 (sec 2), among security questions and customer service 3 (cs 3), among customer service questions have possessed the highest percentage of correlation, which respectively related to safe feelings over the transaction and quick answer to inquiries.

Furthermore, among the quality dimensions: reliability, customer service, website design, and security respectively have the highest amount of correlation. Therefore, quality of an online bookshop strongly related to reliability and customer service in Iran.
Moreover, a parameter should be significant and the acquired numbers for that parameter should be coincidental by chance and opposed to zero in order to confirm the hypotheses. For this reason, significant parameter model has been used. As it is obvious, in table 11 all the models parameters are significant. It means that, the T-Value for each parameter is bigger than 1.96. So, we can state that all of the main and secondary hypotheses in this section of research model are confirmed.

For the first rank of confirmatory factor analysis according to suitable statistics standards which have acquired as follow: $2.484 < 3$ (authorized limit) and $0.083 < 0.1$.

\[
\frac{\chi^2}{df} = \frac{119.26}{48} = 2.484
\]

\[RMSEA = 0.083\]

the model is suitable from the point of evaluation of fit indicators view. Although, the measurement tool is suitable but we can recover the model based on proposed corrections by LISREL (Appendix C). Research hypothesis in this section of model are:

**Main hypothesis:**

6. There is a significant and positive effect between website design and reliability.
7. There is a significant and positive effect between website design and security.
8. There is a significant and positive effect between website design and customer service.
9. There is a significant and positive effect between reliability and security.
10. There is a significant and positive effect between reliability and customer service.
11. There is a significant and positive effect between security and customer service.

According to correlation numbers in table 11, at first customer service and reliability, and then website design and reliability, have possessed highest percentage of correlation (0.99 & 0.94).

In addition, according to t-values all of the models parameters are significant. It means that the significant number of each parameter is bigger than 1.96. Therefore, all the hypotheses are confirmed.
4.5.2 Regression and Confirmatory Factor Analysis for Satisfaction

Table 12 indicates the results of hypotheses tests for satisfaction part as well as the first and second rank of confirmatory factor analysis of research model.

Table 12: Results of Hypothesis Test for Satisfaction

<table>
<thead>
<tr>
<th>Items</th>
<th>Correlations</th>
<th>T- Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fsatis 1 – satis 1</td>
<td>0.86</td>
<td>-</td>
</tr>
<tr>
<td>Fsatis 1 – satis 2</td>
<td>0.81</td>
<td>15.24</td>
</tr>
<tr>
<td>Fsatis 1 – satis 4</td>
<td>0.81</td>
<td>15.07</td>
</tr>
<tr>
<td>Fsatis 1 – satis 6</td>
<td>0.60</td>
<td>9.24</td>
</tr>
<tr>
<td>Fsatis 1 – satis 7</td>
<td>0.90</td>
<td>18.59</td>
</tr>
<tr>
<td>Fsatis 1 – satis 8</td>
<td>0.87</td>
<td>17.20</td>
</tr>
<tr>
<td>Fsatis 1 – satis 11</td>
<td>0.79</td>
<td>14.54</td>
</tr>
<tr>
<td>Fsatis 1 – satis 12</td>
<td>0.81</td>
<td>15.11</td>
</tr>
<tr>
<td>Fsatis 2 – satis 3</td>
<td>0.58</td>
<td>-</td>
</tr>
<tr>
<td>Fsatis 2 – satis 5</td>
<td>0.68</td>
<td>7.46</td>
</tr>
<tr>
<td>Fsatis 2 – satis 9</td>
<td>0.88</td>
<td>8.23</td>
</tr>
<tr>
<td>Fsatis 2 – satis 10</td>
<td>0.68</td>
<td>7.39</td>
</tr>
<tr>
<td>Satisfaction – Fsatis 1</td>
<td>0.57</td>
<td>5.08</td>
</tr>
<tr>
<td>Satisfaction – Fsatis 2</td>
<td>0.83</td>
<td>4.84</td>
</tr>
</tbody>
</table>

Chi–Square = 223.50
df = 52
P-Value = 0.0000
RMSEA = 0.123
Table 12: Results of Hypothesis Test for Satisfaction (Continued)

<table>
<thead>
<tr>
<th>Items</th>
<th>Correlations</th>
<th>T- Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fsatis 1 – Fsatis 2</td>
<td>0.47</td>
<td>7.65</td>
</tr>
</tbody>
</table>

Chi – square = 223.50  
df = 53  
P- value = 0.0000  
RMSEA = 0.121

Research hypotheses for this part of model are:

**Main hypothesis:**

12. There is a significant and positive effect between Satis1 and Fsatis1.  
13. There is a significant and positive effect between Satis2 and Fsatis1.  
14. There is a significant and positive effect between Satis4 and Fsatis1.  
15. There is a significant and positive effect between Satis6 and Fsatis1.  
16. There is a significant and positive effect between Satis7 and Fsatis1.  
17. There is a significant and positive effect between Satis8 and Fsatis1.  
18. There is a significant and positive effect between Satis11 and Fsatis1.  
19. There is a significant and positive effect between Satis12 and Fsatis1.  
20. There is a significant and positive effect between Satis3 and Fsatis2.  
21. There is a significant and positive effect between Satis5 and Fsatis2.  
22. There is a significant and positive effect between Satis9 and Fsatis2.  
23. There is a significant and positive effect between Satis10 and Fsatis2.

As it was mentioned before, satisfaction consists of two factors and the results of second rank of factor analysis show that the second factor (Fsatis 2) which consists of negative questions has possessed the highest percentage of correlation. Among the questions of the first factor of satisfaction, question 7 which is about the intension to revisit the site, and among the questions of second factor of satisfaction question 9 which is about a bad feeling about the decision of online purchasing, has possessed the highest percentage of correlation. Moreover, all of the coefficients and parameters of this part of the model has become significant because T-Values are more than 1.96. So, all the hypotheses in this part are confirmed.

In the second rank of confirmatory factor analysis, research hypothesis is:
Hypothesis:

24. There is a significant and positive effect between Fsatis1 and Fsatis2

According to table 12, the amount of correlation between the two factors that satisfaction consists of them is, 0.47. It means that if we have one unit changing in one factor we can observe 0.47 units changing in the second factor. In addition, as it has been observed, all the coefficients and parameters of this part of the model have become significant and they are more than 1.96. Therefore the hypothesis in this part is confirmed.

4.5.3 Regression and Confirmatory Factor Analysis for E-Trust

Table 13 shows the results of hypotheses tests for e-trust item, as well as the first and second rank of confirmatory factor analysis.

<table>
<thead>
<tr>
<th>Items</th>
<th>Correlations</th>
<th>T - values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fe-trust 1 – e-trust 1</td>
<td>0.66</td>
<td>-</td>
</tr>
<tr>
<td>Fe-trust 1 – e-trust 4</td>
<td>0.86</td>
<td>9.60</td>
</tr>
<tr>
<td>Fe-trust 1 – e-trust 5</td>
<td>0.83</td>
<td>9.56</td>
</tr>
<tr>
<td>Fe-trust 2 – e-trust 2</td>
<td>0.61</td>
<td>-</td>
</tr>
<tr>
<td>Fe-trust 2 – e-trust 3</td>
<td>0.91</td>
<td>4.65</td>
</tr>
<tr>
<td>E-trust – Fe-trust 1</td>
<td>0.66</td>
<td>5.30</td>
</tr>
<tr>
<td>E-trust – Fe-trust 2</td>
<td>0.74</td>
<td>3.87</td>
</tr>
</tbody>
</table>

Chi – Square = 27.17
df = 3
P- Value = 0.0000
RMSEA = 0.192
Table 13: Results of Hypothesis Test for E-Trust (Continued)

<table>
<thead>
<tr>
<th>Items</th>
<th>Correlations</th>
<th>T - values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fe-trust 1 – Fe-trust 2</td>
<td>0.49</td>
<td>6.47</td>
</tr>
</tbody>
</table>

Chi – Square  =  27.17  
df  =  4  
P- Value  =  0.0000  
RMSEA  =  0.163

Research hypotheses in the second rank of confirmatory factor analysis are:

Main hypothesis:

25. There is a significant and positive effect between Fe.t1 and E-Trust1.  
26. There is a significant and positive effect between Fe.t1 and E-Trust4.  
27. There is a significant and positive effect between Fe.t1 and E-Trust5.  
28. There is a significant and positive effect between Fe.t2 and E-Trust2.  
29. There is a significant and positive effect between Fe.t2 and E-Trust3.  

As it was mentioned before, e-trust consists of two factors and between these two factors the second factor (Fe.t.2), has possessed the highest percentage of correlation. Among the questions of the first factor of e-trust, question 4, which is about the professionalism of the site, and among the questions of the second factor of e-trust question 3, which is about paying in advance, has possessed the highest percentage of correlation. Also, as it is observed in table 13, all the coefficients and parameters of this part of the model has become significant which are more than 1.96. So, all the hypotheses in this part are confirmed.

The main hypothesis in the first rank of confirmatory factor analysis is:

Hypothesis:  
30. There is a significant and positive relationship between Fe.t1 and Fe.t2.  

The amount of correlation between the two factors that e-trust consists of them is, 0.49. It means that if we have one unit changing in one factor we can observe 0.49 units changing in the second factor. It is clear that, all of the coefficients and parameters of
this part of the model has become significant and they are more than 1.96. Therefore, we can state that the hypothesis in this part is confirmed.

4.5.4 Regression and Confirmatory Factor Analysis among Trust, Satisfaction, and Quality

The results of hypotheses tests in order to find the relations and links between e-trust, satisfaction and quality are presented in table 14.

Table 14: Results of Hypothesis Test for the Relations between Trust, Quality, and Satisfaction

<table>
<thead>
<tr>
<th>Items</th>
<th>correlations</th>
<th>T-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-trust - Quality</td>
<td>0.92</td>
<td>21.49</td>
</tr>
<tr>
<td>E-trust – satisfaction</td>
<td>0.92</td>
<td>15.87</td>
</tr>
<tr>
<td>Quality – satisfaction</td>
<td>0.96</td>
<td>21.58</td>
</tr>
</tbody>
</table>

Chi – Square = 38.01  
df = 17  
P- Value = 0.00245  
RMSEA = 0.075

<table>
<thead>
<tr>
<th>Link of E-trust – quality</th>
<th>0.89</th>
<th>10.22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Link of E-trust –</td>
<td>0.06</td>
<td>0.55</td>
</tr>
<tr>
<td>satisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Link of quality –</td>
<td>0.95</td>
<td>7.32</td>
</tr>
<tr>
<td>satisfaction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chi – Square = 46.13  
df = 17  
P- Value = 0.00016  
RMSEA = 0.89
In this part of the research model hypotheses are as follow:

**Hypothesis:**

31. There is a significant and positive effect between e-trust and quality.
32. There is a significant and positive effect between e-trust and satisfaction.
33. There is a significant and positive effect between quality and satisfaction.

According to suitable statistics standards, which have acquired as follow: the ratio of $\frac{\chi^2}{df}$ is equal to 2.23 which is less than 3 and RMSEA is equal to 0.075 which is less than 0.1, the measurement tool is suitable but we can recover the model based on proposed corrections by LISREL (Appendix C). Also, there is a positive and significant correlation among quality, satisfaction and e-trust. The amount of this correlation between trust and satisfaction as well as trust and quality is 0.92, and between quality and satisfaction is 0.96. It means that, any changing in each of these variables leads to a positive changing in the two other variables in the same direction. In addition, all the coefficients and parameters of this part of the model have become significant and they are more than 1.96. So, all the hypotheses in this section are confirmed.

In the next step, in order to find the links between different variables the hypotheses are studied as follow:

**Hypotheses:**

34. Trust has a direct, positive, and significant effect on quality.
35. Quality has a direct, positive, and significant effect on satisfaction.
36. Trust has a direct, positive, and significant effect on satisfaction.
37. Trust through quality has a direct, positive, and significant effect on satisfaction.

According to suitable statistics standards, which have acquired as follow: the ratio of $\frac{\chi^2}{df}$ is equal to 2.713 which is less than 3 and RMSEA is equal to 0.089 which is less than 0.1, the measurement tool is suitable and we can recover the model based on proposed corrections by LISREL. Furthermore, as it is obvious in table 14, trust affect
quality by 0.89, it means that, with one unit increase in trust we have 0.89 units increase in quality. Also, quality affects satisfaction by 0.95. On the other hand, the effect of trust on satisfaction is very small and it is not significant, but trust through quality has an indirect and significant effect (0.89 * 0.95 = 0.84) on satisfaction. Moreover, based on t-values just the direct effect of trust on quality, the indirect effect of trust on satisfaction and the direct effect of quality on satisfaction are confirmed because the significant number of them are more than 1.96, but the direct effect of trust on satisfaction is not confirmed (0.55 < 1.96).

4.5.5 Regression and Confirmatory Factor Analysis for the Direct Impact of Quality Factors on Satisfaction

In this section, we are going to recognize which one the quality factors has a direct impact on satisfaction (Table 15).

Table 15: Results of Hypothesis Test for the Direct Impact of Quality Factors on Satisfaction

<table>
<thead>
<tr>
<th>Items</th>
<th>Correlations</th>
<th>T-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website Design – Satisfaction</td>
<td>0.13</td>
<td>0.66</td>
</tr>
<tr>
<td>Reliability – Satisfaction</td>
<td>-0.17</td>
<td>-0.62</td>
</tr>
<tr>
<td>Security – Satisfaction</td>
<td>0.13</td>
<td>0.74</td>
</tr>
<tr>
<td>Customer service - Satisfaction</td>
<td>0.83</td>
<td>4.16</td>
</tr>
</tbody>
</table>

Chi – square = 125.43
<df = 67
P-value = 0.0000
RMSEA = 0.063
Table 15: Results of Hypothesis Test for the Direct Impact of Quality Factors on Satisfaction (Continued)

<table>
<thead>
<tr>
<th>Items</th>
<th>Correlations</th>
<th>T-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website design – Satisfaction</td>
<td>1.54</td>
<td>-0.30</td>
</tr>
<tr>
<td>Reliability – Satisfaction</td>
<td>3.85</td>
<td>0.38</td>
</tr>
<tr>
<td>Security – Satisfaction</td>
<td>-0.74</td>
<td>-0.33</td>
</tr>
<tr>
<td>Customer service - Satisfaction</td>
<td>-0.90</td>
<td>-0.22</td>
</tr>
</tbody>
</table>

Chi – square = 135.06  
\( df = 67 \)  
P- value = 0.0000  
RMSEA = 0.107

<table>
<thead>
<tr>
<th>Items</th>
<th>Correlations</th>
<th>T-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website design – satisfaction</td>
<td>0.14</td>
<td>0.54</td>
</tr>
<tr>
<td>Reliability – satisfaction</td>
<td>-0.19</td>
<td>-0.49</td>
</tr>
<tr>
<td>Security – satisfaction</td>
<td>0.13</td>
<td>0.73</td>
</tr>
<tr>
<td>Customer service - satisfaction</td>
<td>0.84</td>
<td>4.01</td>
</tr>
</tbody>
</table>

Chi – square = 130.08  
\( df = 67 \)  
P- value = 0.0000  
RMSEA = 0.085

Research hypotheses are as follow:

38. Website design has a positive and significant effect on satisfaction.
39. Reliability has a positive and significant effect on satisfaction.
40. Security has a positive and significant effect on satisfaction.
41. Customer service has a positive and significant effect on satisfaction.

According to suitable statistics standards which have acquired as follow: $1.87 < 3$ (authorized limit) and $0.063 < 0.08$.

$$\frac{\chi^2}{df} = 1.87$$

$$RMSEA = 0.063$$

the model is in a suitable position and we can recover the model based on proposed corrections by LISREL.

In addition, it is clear that just customer service has the positive and significant impact on customer satisfaction. This effect is equal to 0.83. The effects of other two variables (security and website design) are 0.13 but, they are not significant, as their significant numbers are greater than 1.96 or smaller than -1.96. So, just the forth hypothesis is confirmed. On the other hand, comparing this relationship in two groups of customers (the ones with the experience of purchasing from one website and the ones with the experience of purchasing from more than one website) indicates that in the group of customers with the experience of shopping from more than one website, customer service has a significant impact on satisfaction, but, in the group of customers with the experience of purchasing from just one website there isn’t any direct relationship between quality factors and satisfaction.

4.6 Comparing the Quality Factors According to the Number of Purchasing

In this section, the condition of research model variables (website design, reliability, security, customer service, e-trust, and satisfaction) with regard to the number of purchases by customers has been assessed.
Since these means are principally related to proposed sample, we have conducted the independent t-test to study the significant difference between them. Independent t-test

<table>
<thead>
<tr>
<th>Table 16: Comparison based on the Number of Purchases (Group Statistics)</th>
</tr>
</thead>
</table>
| \( H_0 : \mu_1 = \mu_2 \)  
| \( H_1 : \mu_1 \neq \mu_2 \)  |

<table>
<thead>
<tr>
<th></th>
<th>exper</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASE</td>
<td>one</td>
<td>88</td>
<td>5.0398</td>
<td>1.61614</td>
<td>.17228</td>
</tr>
<tr>
<td></td>
<td>more than once</td>
<td>130</td>
<td>5.3942</td>
<td>1.12966</td>
<td>.09908</td>
</tr>
<tr>
<td>RELI</td>
<td>one</td>
<td>89</td>
<td>5.0955</td>
<td>1.66152</td>
<td>.17612</td>
</tr>
<tr>
<td></td>
<td>more than once</td>
<td>128</td>
<td>5.8672</td>
<td>1.05271</td>
<td>.09305</td>
</tr>
<tr>
<td>SECU</td>
<td>one</td>
<td>86</td>
<td>5.2519</td>
<td>1.38142</td>
<td>.14896</td>
</tr>
<tr>
<td></td>
<td>more than once</td>
<td>129</td>
<td>5.1370</td>
<td>1.18264</td>
<td>.10413</td>
</tr>
<tr>
<td>CS</td>
<td>one</td>
<td>88</td>
<td>5.0114</td>
<td>1.74011</td>
<td>.18550</td>
</tr>
<tr>
<td></td>
<td>more than once</td>
<td>129</td>
<td>5.3721</td>
<td>1.17399</td>
<td>.10336</td>
</tr>
<tr>
<td>trust</td>
<td>one</td>
<td>89</td>
<td>4.3839</td>
<td>1.36067</td>
<td>.14423</td>
</tr>
<tr>
<td></td>
<td>more than once</td>
<td>127</td>
<td>5.1614</td>
<td>1.15779</td>
<td>.10274</td>
</tr>
<tr>
<td>satis</td>
<td>one</td>
<td>89</td>
<td>4.9026</td>
<td>1.25562</td>
<td>.13310</td>
</tr>
<tr>
<td></td>
<td>more than once</td>
<td>130</td>
<td>5.0248</td>
<td>1.13426</td>
<td>.09948</td>
</tr>
</tbody>
</table>

| Table 17: Independent T-Test |

Since these means are principally related to proposed sample, we have conducted the independent t-test to study the significant difference between them. Independent t-test
is used to assess the condition of one variable in two independent populations. In table 16, at first we have a test for equality of variances. In this test if the significant level for each variable is smaller than the error level (0.05) we assume, the variances are not equal, and if the significant level is bigger than 0.05 equal variances are assumed. In the next step, with attention to the fact that significant levels (2-tailed) are less or greater than error level (0.05) we assume the means of these factors are equal or not. So, for the ones with sig > 0.05, H0 is accepted. With the respect to this point that the lower and upper limits are negative or positive, we can state that $\mu_1 < \mu_2$ or $\mu_1 > \mu_2$. A summary of the results of this test has been shown in table 17.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Comparing Quality Factors according to the Number of Purchasing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website Design</td>
<td>Equal</td>
</tr>
<tr>
<td>Reliability</td>
<td>The group with more experience</td>
</tr>
<tr>
<td>Security</td>
<td>Equal</td>
</tr>
<tr>
<td>Customer Service</td>
<td>Equal</td>
</tr>
<tr>
<td>Trust</td>
<td>The group with more experience</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Equal</td>
</tr>
</tbody>
</table>

It is obvious that although, among the research model variables, website design, security, customer service and satisfaction are equal in two groups, the amount of reliability and trust for the group of respondents with more number of purchasing are higher.

### 4.7 The Condition of Satisfaction and Trust in the Sample

In order to extract the level of trust and satisfaction with regard to the present level of quality among Iranian online book shoppers one-sample t-test is used.

\[
H_0 : \mu = 4 \quad \quad \quad H_1 : \mu \neq 4
\]
It is clear that, since the significant number for trust and satisfaction is zero which is less than error level (0.05), H0 is rejected and because the lower and upper limits are positive, for both of them $\mu$ is greater than 4. So, the level of trust and satisfaction among Iranian online book shoppers are suitable.

Table 20: Percentage of People with High and Low Satisfaction

<table>
<thead>
<tr>
<th>satisfaction level</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>low</td>
<td>48</td>
<td>21.9</td>
</tr>
<tr>
<td>high</td>
<td>171</td>
<td>78.1</td>
</tr>
<tr>
<td>Total</td>
<td>219</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 21: The Importance of Quality Dimensions according to the Amount of Satisfaction

<table>
<thead>
<tr>
<th>satisfaction</th>
<th>Website design</th>
<th>reliability</th>
<th>security</th>
<th>customer service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Mean</td>
<td>4.2448</td>
<td>4.2604</td>
<td>4.4681</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>48</td>
<td>48</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>1.63692</td>
<td>1.73509</td>
<td>1.62507</td>
</tr>
<tr>
<td></td>
<td>Minimum</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>7.00</td>
<td>7.00</td>
<td>7.00</td>
</tr>
<tr>
<td></td>
<td>Variance</td>
<td>2.679</td>
<td>3.011</td>
<td>2.641</td>
</tr>
<tr>
<td>High</td>
<td>Mean</td>
<td>5.5353</td>
<td>5.9172</td>
<td>5.3829</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>170</td>
<td>169</td>
<td>168</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>1.11519</td>
<td>1.00842</td>
<td>1.06579</td>
</tr>
<tr>
<td></td>
<td>Minimum</td>
<td>1.00</td>
<td>1.00</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>7.00</td>
<td>7.00</td>
<td>7.00</td>
</tr>
<tr>
<td></td>
<td>Variance</td>
<td>1.244</td>
<td>1.017</td>
<td>1.136</td>
</tr>
</tbody>
</table>
Finally, based on table 19, 78.1% of respondents are satisfied from the present level of quality and 21.9% of them are dissatisfied. In addition, according to table 21, the arrangement of quality factors which lead to low satisfaction are customer service, website design, reliability, and security and the arrangements of these factors which lead to high satisfaction are reliability, customer service, website design and security.

4.8 Chapter Summary

This chapter presented the results of data analysis. Demographic profile of respondents as well as the average number of books purchased online over a year, and the experience of purchasing books from other websites has been presented. Structural Equation Modeling using LISREL has been employed to test the research model. In the reliability and validity testing stage the questions related to personalization and on time delivery are omitted due to their low communalities. Regression analysis for all paths was conducted and confirmatory factor analyses support the results. The results show that the research model is a reliable and suitable model to assess website quality which has a strong impact on customer satisfaction.
Chapter 5
Discussion and Conclusion

5. Conclusion

The growth of the online shopping has caused companies to face many new challenges in their relations with the customers in order to survive. It is clear that in the process of an online transaction, a website is part of the connection between a company and its customers and the absence of human interaction has to be compensated by other quality factors, therefore; finding and classifying website quality factors from the customers' point of view is very important in this process. Furthermore; website quality dimensions are different in different countries and industries. As online book purchasing,
after online banking, has shown a higher growth rate than other online markets in Iran and as online book selling is known as one of the pioneer industries in the e-commerce context, Iranian online booksellers need to get to know the most important web quality factors from their customers' perspective in order to run an effective and efficient website. For sure, such understanding will enable the booksellers to promote their position among other online booksellers and also retain their customers. To this end, having presented a relatively complete literature and a conceptual research pattern, a model, to assess the impact of website quality on satisfaction, has been developed and data was collected through an online questionnaire.

In this chapter, statistical analysis will be presented using the results of data analysis in chapter 4 followed by suggestions based on research findings. Suggestions for future researches and limitations of this research will be later reflected.

5.1 Theoretical Implications

This research has some theoretical and managerial implications. The main contributions to theoretical implications involve the confirmation of some of the hypothesized relations among website quality, customer satisfaction and e-trust.

Based on the results of this research, four quality factors (website design, reliability, security, customer service), with regard to the relatively high and significant factor loads of these dimensions have been introduced as the most important quality factors.

The results of regression analysis indicate that website quality, customer satisfaction and e-trust are strongly correlated to each other, although the correlation between quality and satisfaction is much stronger than the others. In addition it should be mention that e-trust directly affects quality and quality directly affects satisfaction. However; e-trust has an indirect and significant effect on satisfaction through quality.

There is a positive and significant relation between each of the website quality dimensions (website design, reliability, security, customer service) and quality.
Moreover; standard coefficients of regression model indicate that among the four website quality dimensions, reliability has held the highest percentage of correlation with quality and thus customer service, website design and security are in the next stages respectively.

On the other hand, our results suggest that providing in-depth information in the site and having a user-friendly structure that does not waste users' time have possessed the highest percentage of correlation with website design. Product presentation in the website is the most important factor holding the highest correlation with reliability, and feeling safe in the online transaction through a website has the highest percentage of correlation with security/privacy. Also having inquiries of the users promptly answered is the most important activity in the customer service part.

Furthermore, there are some correlations between website quality factors: the highest percentage of correlation is between reliability and website design. This is mainly because of the correlation existing between the designs of the website in such a way that provides users with adequate information on the products, and saves users’ time which would certainly lead to the acquisition of the customers' reliability. Also, the relation between the design of the website with an aim to save customers’ time and, answering to inquiries promptly in the customer service part, is the reason for the 0.92 correlations between reliability and customer service.

As it was mentioned in chapter 4, satisfaction consists of two factors and out of these; factor 2 consisting of negative questions possessed the highest percentage of correlation with satisfaction. Among different questions related to the first factor consisting of positive questions of satisfaction, customers’ intentions to revisit the site and among the questions of the second factor of satisfaction or negative questions, having bad feeling about the decision of purchasing from a website have possessed the highest percentage of correlation. Also, standard coefficient show that there is 0.47 correlation between positive questions and negative questions in the satisfaction part which means that with one unit changing in one factor we will have 0.47 change in the second factor.
The study of the relations between e-trust dimensions through regression analysis shows that e-trust consists of two factors and the second factor has possessed the highest percentage of correlation with trust. Between two questions of second factor customer’s willingness to pay in advance for purchasing products through a website is the most important factor; and among the questions of the first factor this belief that the website is professional in its job has possessed the highest correlation. Also there is a correlation between the two factors of e-trust and with one unit changing in one factor we can observe 0.49 units changing in the next factor.

Moreover, with regards to the results of this research among all quality variables only customer service has a direct, significant and positive effect on satisfaction in the overall sample. However, a comparison show that for customers with experience in shopping just from one website, all the website quality dimensions affect satisfaction through quality while by increasing the shopping experience from different websites; the customer service directly affects customer satisfaction.

Finally, by increasing the number of purchases done by customers, the level of quality is assessed much better. Therefore; the level of quality in the customers group with number of purchases more than 3 times is assessed better than the other groups. In addition; statistical tests in this part show that among different variables in the website quality part, the amount of reliability and trust in the customer group with number of purchases more than 3 times is higher than the second group. Also most of the respondents are satisfied with this level of quality and the main factor behind such satisfaction is reliability although, about 21.9% of them are not satisfied and the main reason for such dissatisfaction is poor service, customers receive.

5.2 Managerial Implications

There are a number of implications for practicing managers. The model as a tool has the ability to be utilized for all of the Iranian online bookstores to measure website quality and it also offers important implications to measure customer’s perceptions of an online purchase experience.
Since there is a high correlation between quality and satisfaction and as quality directly affects satisfaction, online bookstores should try to increase their quality by using suggestions reflected in the next steps in order to meet the needs of their customers. Also, since e-trust directly affects quality and through quality affects satisfaction, over the time, online bookstores can use this trust to increase their quality and consequently their customers’ satisfaction.

There is a positive and significant relation between quality and website design, reliability, security and customer service, online bookstores should focus on all these factors but one of the most important factors to increase quality in such websites is reliability, therefore; online bookstores should try to represent their books accurately in the website enabling the customers to choose what exactly they want. This will also help bookshops deliver appropriate products.

The next item which helps increase quality in the Iranian online bookstores is the customer service. As we are experiencing the first steps of e-commerce, our customers need to be taken care of during their online transactions and thus this would reveal the significance of the customer service. So; online bookstores, in the second step, should try to answer inquiries as promptly as possible, they should show a sincere interest in solving customers’ problems and furthermore; they should show their willingness to respond to the needs raised by the customers.

In the third step to increase the quality of the website, providing in-depth information and also having a clear and easy structure which do not waste users' time, and having a good selection of books in the site is very important. These will also help bookshops to have an appropriate website design.

Since reliability is the most important factor in increasing quality and as there is a high correlation between website design and reliability, and also between customer service and reliability, online bookstores can use both of these items in order to indirectly increase reliability. Therefore all elements of consumer’s experience at the website including navigation, information search, order processing and product selection as well
as responsive, helpful, willing service that responds to customer inquiries quickly are very important activities in order to have reliable and consequently satisfied customers.

Most of the managers in online bookstores think that security is a very important factor in their job believing in the fact that most of their problems root in the lack of a reliable reference such as the government to guarantee such security. However; it seems that as books are not expensive products, security stands last in this industry. Moreover, security/privacy is correlated with website design, reliability and customer service; it appears that inferences of security privacy are initially obtained from other quality factors, particularly reliability and customer service. It also seems that consumer’s judge security/privacy based on elements such as the willingness and speed of website to answer their inquiries and problems.

Although, 78.1% of customers are satisfied with the level of quality in the Iranian bookshops websites, by increasing the number of purchases, judgments on security decrease. As such; websites managers should increase the level of security in their sites.

Based on the research results, among four website quality dimensions only customer service has a direct, significant, and positive effect on satisfaction for customers having online shopping experience from more than one website, therefore online bookstores should bear in mind that the level of services they offer specially their prompt responses to the customers' enquiries and requests specially over the time is very important in directly increase the customer satisfaction.

In satisfaction part, online bookstores should try to create good feelings in customers prior to their purchase from the site, when they decide to purchase this will prevent them from getting confused by having mixed feelings about the site and also they should try to get customers happy after the purchase. In the next step, customers’ willingness to revisit the website is also the most important indicator of satisfied customers. In general, negative performance on attributes has been shown to have a greater impact on overall satisfaction and repurchase intensions than does positive performance (Mittal, Ross, &Baldasare, 1998).
According to research results, in the e-trust part, online bookstores should be professional in their job, and try to fulfill their promises, because it encourages customers to trust websites and give their private information to the site, and thus the best indicator of customers' trust is their willingness to pay in advance when shopping online.

Furthermore, our research results suggest that, the level of trust and reliability of customers with more purchases is higher than those with fewer ones, so repeated customers for a website and loyal customers with higher level of trust and reliability and consequently higher level of satisfaction which has been acquired over a period of time are very valuable to online bookstores. Therefore; online bookshops should try to keep these customers. Since the main reason behind the dissatisfaction of many customers is the poor customer services, the main gaps between satisfied and dissatisfied customers lie in the reliability and customer service part, and because there is a relatively high correlation between customer service and reliability, online bookshops should seriously develop and improve the level of their customer services.

As a result of population mean test, much of the satisfaction was acquired for high level of reliability in the Iranian online bookstores. As such; it is suggested that these bookshops focus more on website design, customer services and security. Therefore; in order to have customers more satisfied by improving the website quality, the following suggestions are offered:

Customer service:

- Online bookstores should be flexible and ready for some changes in their websites in order to respond to customers' requests, and therefore the customer services department should be more willing to respond to needs raised by the customers.
- Customers’ questions should be answered through website as soon as possible allowing customers to have access 24/7, especially on holidays.
- Problems raised by Customers should be sincerely attended before, during and after the transaction.

Website design:

- The website should provide guidance information on the structure of the site and the process of online transaction.
- The website should also have a rich and complete archive of books related to its field of activity.
- The structure of the website should be clear, easy and do not waste users' time when searching for a book or completing a transaction.

Security:

- The website should have adequate security features and also should introduce these features to their customers. This helps customers feel safer over the transaction through the website.

Reliability:

- The website should represent accurate information about books (abstract, publisher, translator, price, edition...).
- The orders should be handled appropriately.
- The website should be responsible for its promises

5.4 Limitations of This Research

The limitations of this research will be discussed here. Firstly, due to the fact that online book purchasing was at its infancy in Iran, comparing the importance of website quality factors among information searchers and product buyers was a difficult job. As, information searchers can be our potential customers this comparison is important.

Secondly, as a result of previous reason finding the different perspectives about website quality features among goal oriented and browsers were very time consuming.

Thirdly, as there existed no database for online booksellers and online book purchasers in Iran, the correct number of them was difficult to estimate.

Fourthly, the previous limitation resulted in an impossibility, getting connected with many unsatisfied customers or the ones who did not purchase from the sites during that special period of time.

Fifthly, some of the online bookshops in Iran, due to lack of a computer specialist in their offices, could not put the questionnaire on their websites as it is costly for them.
Finally, most of the online purchasers did not have the experience of using personalization/customization. Thus, they could not have any idea about this different online service.

Despite these limitations, this research provides a foundation for future research in this area.

5.3 Suggestions for Future Research

With regard the research limitations, following suggestions are recommended for future research:

- To focus on the differences of the impact of website quality factors among information searchers and product buyers to provide more precise practical implications.
- To recognize the different importance of website quality factors for goal oriented customers or browsers.
- To focus on dissatisfied customers who may have purchased once and may have not revisited the site again to provide more precise practical implications.
- To study the condition and importance of personalization for customers after a period of time.
- To use other models in order to confirm the results of this research or maybe complete it.

5.5 Discussion

The results of the present research, like other researches in other service sub-sector have emphasized the fact that quality has a significant and positive effect on satisfaction. In addition, results show that judgments concerning the quality of an online site are most strongly related to the reliability and customer services, which confirm a part of Wolfinbarger and Gilly (2003) findings. Their analysis suggest that these judgments are highly related to website design factors and fulfillment/reliability and customer service is mildly related to the quality because customers do not need customer services in each transaction but it seems that since the online transaction is still in its infancy period in our country, customer service is considered important. Moreover; they find that security/privacy is not significant in predicting quality because it appears that
inferences of security are initially obtained from other quality factors especially website design, although it is significant in this research, it stands the last from customer's point of view. The correlation between security and reliability is higher than the correlation with website design in our research. Also, according to our results, customer service is the only factor of quality which directly affects satisfaction and confirms the importance of this factor for the Iranian online book shoppers.

Furthermore like the results of Wolfinbarger and Gilly (2003), negative performance on attributes has been shown to have a greater impact on overall satisfaction than the positive performance does (Mittal, Ross and Baldasar, 1998), according to Wolfinbarger and Gilly (2003), “that may be true with respect to e-tailing quality and it deserves further investigation”.

Findings of this research confirm the results of those researches who believe in the effect of e-trust on satisfaction although e-trust through quality affects satisfaction in this research.

Finally, most of the Iranian online bookstores do not have a complete database of their customers that can provide complete information on customers such as name, age, job, education, interests, as well as the history of their purchasing. Having such a database is a valuable capital for online bookstores when shifting toward customer oriented marketing and also when they want to add more value to their customers by using online facilities such as customization and personalization.
References:


Appendix A: List of Bookstores

8. www.tebyan.net
11. http://bekhan.com
12. www.abaaba.com
17. http://www.ketab.com
27. http://www.ketabac.com
32. http://www.iranbin.com
34. http://www.ansariyan.org
36. http://www.samt.ac.ir
42. http://www.poroshot.com
43. http://iranebooks.com
44. http://www.nazdik.com
45. http://www.hamrahbook.com
46. http://ketabdar.org
47. http://www.ketabkadeh.com
48. www.takzang.ir
52. http://www.toospub.com
57. http://www.qoqnoos.ir
58. www.efeh.com
60. www.caravan.ir
63. http://www.ketab.ir
64. http://www.ketabonline.com
68. http://www.saaher.com
70. http://www.academybookshop.com
73. http://www.amirkabir.net
74. http://www.parsbyte.com
75. http://fara-online.com
76. http://www.irpdf.com
77. http://cwcsop.ir/catalog
78. http://www.fxacm.com
79. http://laklak.ir
82. http://www.eshraghi.ir
83. http://www.entesharat.vaseghi.de/contact.html
84. http://www.rasashop.com
85. http://www.behtarinketab.com
86. http://www.birdco.ir
87. http://www.iran111.com
88. www.piranepand.com
89. http://shirazuniversity.farsshop.ir
90. http://www.olomrayaneh.ne
91. http://pnu.ac.ir
Appendix B: Questionnaire

Please, evaluate present bookstore’s website based on how well, you think, it performs on the listed below items. Please, indicate your opinion by marking the appropriate box on the seven point scale where, (1) equals to strongly disagree and (7) equals to strongly agree.

1             2             3              4            5             6             7
Strongly Disagree                                    Neutral                                  Strongly Agree

Section one:  
Personal Information

<table>
<thead>
<tr>
<th>1. Gender</th>
<th>□ Female</th>
<th>□ Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Age</td>
<td>□ Under 20</td>
<td>□ 20-24</td>
</tr>
<tr>
<td></td>
<td>□ 45-54</td>
<td>□ 55-64</td>
</tr>
<tr>
<td>3. Educational Level</td>
<td>□ Less than Diploma</td>
<td>□ Diploma and Above</td>
</tr>
<tr>
<td></td>
<td>□ Bachelor</td>
<td>□ Master</td>
</tr>
<tr>
<td>4. How many times do you buy books through the Internet over a year in general?</td>
<td>□ Once or less than once a year</td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ 2-4 times in a year</td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ 5-7 times in a year</td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ 8-10 times in a year</td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Over 10 times in a year</td>
<td></td>
</tr>
<tr>
<td>5. If you have the experience of purchasing books from other websites, please write the websites addresses.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Section Two: Website Quality**

Please, put down the number which best describes the usage of the following quality concepts in this website.

<table>
<thead>
<tr>
<th>Section</th>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Website Design</strong></td>
<td>1. The websites provides in-depth information.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. The site does not waste my time.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. It is quick and easy to complete the transaction at this website.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. The level of personalization at this site is about right, not too much or too little.</td>
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</tr>
<tr>
<td></td>
<td>5. This website has good selection.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fulfillment/Reliability</strong></td>
<td>6. The product/service that came was represented accurately by the website.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. I get, what I ordered from this site.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>8. The product is delivered by the time promised by the company.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Security/Privacy</strong></td>
<td>9. I feel like, my privacy is protected at this site.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10. I feel safe, with my transaction with this website.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11. The website has adequate security features.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Website Quality Questions (Continued)

<table>
<thead>
<tr>
<th>Section</th>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Service</td>
<td>12. The company is willing and ready to respond to customer needs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13. When I have a problem, the website shows a sincere interest in solving it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14. Inquiries are answered promptly.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15. The company is willing and ready to respond to customer needs.</td>
<td></td>
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</tr>
</tbody>
</table>

## Section three: Customer satisfaction

For the following questions, put down the number which best describe your feeling about the site and your online purchase.

### Customer Satisfaction Questions

<table>
<thead>
<tr>
<th>Section</th>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Satisfaction</td>
<td>1. This is one of the best websites, I could have bought from.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>2. The website is exactly what I need.</td>
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<tr>
<td></td>
<td>3. This website has not worked out as well as thought it would.</td>
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<td></td>
<td>4. I am satisfied with my most recent decision of purchasing from this website.</td>
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<td></td>
<td>5. Some times I have mixed feelings about purchasing from this website.</td>
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<td></td>
<td>6. My choice to purchase from this website was a wise one.</td>
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<td></td>
<td>7. If I could do it over again, I would buy from a different website.</td>
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</tbody>
</table>
### Customer Satisfaction Questions (Continued)

<table>
<thead>
<tr>
<th>Section</th>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8. I have truly enjoyed of this website.</td>
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<td></td>
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<tr>
<td></td>
<td>9. I feel bad (guilty) about my decision to purchase from this website.</td>
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<tr>
<td></td>
<td>10. I am not happy, that I made my most recent online purchase from this website.</td>
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<tr>
<td></td>
<td>11. I am sure it was the right thing to make my most recent online purchase at this website.</td>
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<tr>
<td></td>
<td>12. I am generally pleased with this company’s online services.</td>
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</tr>
</tbody>
</table>

### Section four

**E-Trust**

Please put down the number which best describe the amount of your trust on this site.

<table>
<thead>
<tr>
<th>Section</th>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. I am prepared to give my private information to this online company.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-Trust</td>
<td>2. I am willing to give my credit card number to this online company.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. This website is professional in its branch.</td>
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</tr>
<tr>
<td></td>
<td>4. This online company intends to fulfill its promises.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. It is not a problem to pay in advance for purchased products/services.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix C: Statistics Models

Figure 1: Standard Estimate Model for Quality Section (second rank)
Figure 2: Significant Parameters (T-Value) for Quality Section (second rank)
Figure 3: Proposed Corrections Model for Quality Section (second rank)
Figure 4: Standard Estimate Model for Quality Factors (first rank)
Figure 5: Significant Parameters (T-Value) for Quality Factors (second rank)

Chi-Square=119.26, df=48, P-value=0.00000, RMSEA=0.083
Figure 6: Proposed Corrections Model for Quality Factors (second rank)
Figure 7: Standard Estimate Model for Satisfaction Section (second rank)
Figure 8: Significant Parameters Model for Satisfaction Section (second rank)
Figure 9: Proposed Corrections Model for Satisfaction (second rank)
Figure 10: Standard Estimate Model for Satisfaction (first rank)
Figure 11: Significant Parameters Model for Satisfaction (first rank)
Figure 12: Proposed Corrections Model (first rank)
Figure 13: Standard Estimate Model for E-Trust Section (second rank)

Figure 14: Significant Parameters for E-Trust Section (second rank)
Figure 15: Proposed Corrections Model for E-Trust Section (second rank)

Chi-Square=27.17, df=3, P-value=0.00001, RMSEA=0.192

Figure 16: Standard Estimate Model for E-Trust Section (first rank)

Chi-Square=27.17, df=4, P-value=0.00002, RMSEA=0.163
Figure 17: Significant Parameters Model for E-Trust Section (first rank)

Figure 18: Proposed Corrections Model for E-Trust section (first rank)
Figure 19: Standard Estimate Model for Relations between Trust, Satisfaction, and Quality

Figure 20: Significant Parameters Relations between Trust, Satisfaction, and Quality
Figure 21: Proposed Corrections for the Relations between Trust, Satisfaction, and Quality

Figure 22: The Recovered Model for the Relations between Trust, Satisfaction, and Quality
Figure 23: Standard Estimate Model for the Links between Variables

Chi-Square=46.13, df=17, P-value=0.00016, RMSEA=0.089

Figure 24: Significant Parameters for the Links between Variables

Chi-Square=46.13, df=17, P-value=0.00016, RMSEA=0.089
Figure 25: Proposed Corrections for the Links between Variables

Chi-square=46.13, df=17, P-value=0.00016, RMSEA=0.089

Figure 26: Recovered Model for the Links between Variables

Chi-Square=30.00, df=16, P-value=0.01800, RMSEA=0.063
Figure 27: Standard Estimate Model for the Direct Impact of Quality Factors on Satisfaction
Figure 28: Significant Parameters Model for the Direct Impact of Quality Factors on Satisfaction
Figure 29: Proposed Corrections for the Direct Impact of Quality on Satisfaction
Figure 30: Number of Purchasing

Figure 31: Experience of Purchasing from Different Websites
## Appendix D: Descriptive Statistics

### Descriptive Statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Std. Deviation</th>
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<tr>
<td>Website Design(ease) 1</td>
<td>5.1841</td>
<td>1.51689</td>
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<tr>
<td>Website Design(ease) 2</td>
<td>5.2637</td>
<td>1.46462</td>
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<tr>
<td>Website Design(ease) 3</td>
<td>5.4627</td>
<td>1.58425</td>
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<tr>
<td>Website Design(ease) 4</td>
<td>3.9552</td>
<td>1.65620</td>
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<tr>
<td>Website Design(ease) 5</td>
<td>5.1791</td>
<td>1.65159</td>
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<tr>
<td>Reliability(reli) 1</td>
<td>5.1524</td>
<td>1.64727</td>
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<tr>
<td>Reliability(reli) 2</td>
<td>5.9810</td>
<td>1.45741</td>
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<tr>
<td>Reliability(reli) 3</td>
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<td>security1</td>
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<td>security2</td>
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<td>security3</td>
<td>4.5512</td>
<td>1.63406</td>
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<tr>
<td>Customer Service(cs) 1</td>
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<td>1.63113</td>
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<td>satis1</td>
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