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The Impact of Online Trading on Customer Satisfaction in Tehran Stock Exchange

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In the Name of God
the Compassionate, the Merciful

I dedicate this thesis to my dear mother and father.

Abstract

Online services offer customers a splendid display of benefits such as enhanced control, ease of use and reduced transaction charges. Consequently, online services have grown rapidly and have emerged as a leading edge of service industry. Providing online services in developed stock exchange such as USA, France, Singapore and Turkey has lead market to become more competitive. Therefore, brokerages compete in offering superior service quality.

Tehran Stock Exchange (Tehran SE) was established in April 1968 and has experienced quick expansion in recent years. It seems that applying conventional trading system can not manage increasing amount of trades and drown serious insufficiency. These problems cause traders' dissatisfaction and the lack of technological foundations creates an inefficient market and with no doubt, traders leave the market where there is no appropriate surveillance in it and as a result no assurance of fair trading system for everyone. It seems that providing and recovering service quality in this market may enhance traders' satisfaction and encourage investing more and more. This exploratory research intends to gain a better understanding of the service quality dimensions that affect customer satisfaction in Tehran SE.

This research covers a brief literature regarding related subjects. The main body of research is allocated to research stages. Four research questions will be answered and in order to collect data numerous methods, such as interviews, statistic data, questionnaire and also demo-software presentation were used. For the sake of analyzing data, SPSS software was employed. Results show that there is a meaningful difference between traders' satisfaction in conventional stock exchange and stock exchange based on online trading system; moreover, existence of online trading system in stock exchange can raise the degree of traders' satisfaction. Obviously satisfied traders tend to invest more and more and this is desirable.

Finally, the findings of this research are mostly useful to those (stock market's officials, brokers, traders, etc.) who intend to expand the Iranian stock exchange. The results indicate how Iranian traders' rank service quality factors and if online trading

system could enhance their satisfaction level or not? Also factors which lead to dissatisfaction were collected and proper recommendations were given. In next step a basic online trading model were offered which propose to replace with current system. Lastly, roles of each involved party were identified in proposed online system.

Key words: Customer satisfaction, Online trading, Servqual, Stock exchange, Trader.

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I extend my thanks to my lovely Mom and Dad that have supported and encouraged me through out my life. Their warm supports always create full of hope to continue hard working.

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Chapter 1:
Introduction

1 *Introduction*

The first chapter in this thesis deals with the background of the selected area. This will be followed by a motivation and research problem area that help reader to understand the insight of the research area. Further, specific research questions will be presented. The remainder of this chapter presents chapter's orders.

1.1 Background

This section is intended to offer sufficient background of the research area that covers the general idea of e-commerce and the position of online trading as one of the major element of each economy and describes the impact of online trading on customer satisfaction.

1.1.1 E-commerce and the position of online trading

In business today electronic commerce (e-commerce) is one of the common topics being discussed (Daniel et al., 2002). Kalakota and Whinston (1996) defined e-commerce as "The buying and selling of information, products and services via computer networks, the computer networks primarily being the Internet. It is streamlining business processes, restructuring whole industries and re-shaping of customer and supplier relationship (Daniel et al., 2002). In order to perform one or

more of the business functions Internet based e-commerce systems use World Wide Web based application solutions. In fact electronic commerce is a way of conducting, managing and running business transaction using computer and Internet. Based on the significant power of World Wide Web and global e-commerce, the numbers of internet users' have been rapidly increasing and have widely spread into all aspects of life. It has opened up tremendous business opportunities for its users (Ho and Wu, 1999). The most common use of e-commerce is to replace or enlighten conventional transaction methods and in the last few years a substantial growth of internet-based services being experienced. According to an Angusreid group study (2004) of Internet users in 34 countries nearly 120 million of the estimated 300 million worldwide Internet users have already made a purchase or transactions online. Stock exchange was influenced by Internet technology as well as other business sectors. Stock exchange as a critical pillar of each economy, acts exactly the same as a thermometer of economical condition of the country. The volume of stock transactions, the index growth and tendency of individuals and legal entities crystallized if the economy of a country is flourishing or on the other hand continue recession conditions. Therefore, providing a flow trading process and accelerating the transaction settlement can create more motivation for traders to join stock trading exchange likewise cooperate and invest in companies and finally, in this manner, internet creates an opportunity of reaching these goals.

1.1.2 Online trading and customer satisfaction

Applying conventional trading systems in Iran leads to many aspects of problems like manipulation, lot's of paperwork, insiders' illegal activities and etc. These problems cause traders' dissatisfaction and the lack of technological foundations creates an inefficient market. Stock market is growing up and the number of traders rapidly increasing, therefore following conventional method in handling and controlling the market, may in turn directs us to loose the potential power of this market in order to integrate the traders' small capital. With no doubt, traders leave the market where there is no appropriate surveillance over the activities because the dissatisfied customer will not take all the risk in stock market. So it is clear that if stock market as a supervision organization could not offer suitable services to the traders, market expansion is meaningless. In other words, it seems that providing and

recovering service quality in this market may enhance traders' satisfaction and encourage investing more and more. But how the traders' satisfaction can be measured and how can be proved that, there is a dramatically gap between what traders looking for and what traders receive as a service?

1.1.3 Different models for measuring service quality

According to literature, service quality dimensions identified by different authors. These dimensions are measured in order to find out the degree of satisfaction in current market and find the relationship between service quality dimensions which online trading can provide and traders' satisfaction.

Berry et al. (1985) identified ten determinant of service quality. There are: reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding and tangibles.

Reliability involves consistency of performance and dependability. It means that the firm performs the service right the first time. It also means the firm honors its promises. Especially it involves: accuracy in billing, keeping records correctly, and performing service at the designated time. *Responsiveness* concerns the willingness or readiness to provide service. It involves timeliness of services that means – mailing a transaction slip immediately, calling the customer back quickly and giving prompt service. *Competence* means possession of the required skills and knowledge to perform the services. It involves: knowledge and skill of the contact personnel, knowledge and skill of operational support personnel, research capability of the organization. *Access* involves approach, ability and ease of contact. It means: the service is easily accessible, waiting time to receive service is not extensive, hours of operation are convenient and location of service facility is convenient. *Courtesy* involves politeness, respect, consideration, and friendliness of contact personnel. It includes – consideration for the customer's property, clean and neat appearance of public contact personnel. *Communication* means keeping customers informed in language they can understand. It also means listening to customers. It may mean that the company has to adjust its language for different customers- increasing the level of sophistication with well- educated customer and speaking simple and plainly with a novice. It involves: explaining the service itself, explaining how much the service will

cost and assuring the customer that a problem will be handled. *Credibility* involves trusts worthiness, believability, honesty; it involves having the customer's best interests at heart. Security is the freedom from danger, risk or doubt. It involves: physical safety, financial security and confidentiality. *Understanding* the customer means making the effort to understand what the customer's needs are. It includes: learning the customers specific requirements, providing individualized attention and recognizing the regular custom. *Tangibles* includes the physical evidence of the service: physical facilities, appearance of personnel, tools or equipment used to provide the service, physical representations of the service, such as a plastic credit card or bank statement, other customers in the service facilities. (Berry et al. 1985)

A number of research workers, Parasuraman et al. (1985, 1988); Johnson (1995) and others have tried to identify key determinants by which a customer assesses service quality and consequently result in satisfaction or not.

Parasuraman et al. (1988) came up with five determinants that can be used to measure service quality. This scale named SERVQUAL and has been developed for the service sector. It has five generic dimensions or factors and are stated as follows:

1. Tangibles: Physical facilities, equipment and appearance of personnel.
2. Reliability: Ability to perform the promised service dependably and accurately.
3. Responsiveness: Willingness to help customers and provide prompt service.
4. Assurance (including competence, courtesy, credibility and security): Knowledge and courtesy of employees and their ability to inspire trust and confidence.
5. Empathy (including access, communication, understanding the customer): Caring and individualized attention that the firm provides its customers.

Gronroos (1990) postulated six criteria of perceived good service quality; professionalism and skills; attitudes and behaviors; accessibility and flexibility; reliability and trustworthiness; recovery; reputation and credibility. Johnson (1995) provides 18 service quality dimensions – Attentiveness/helpfulness, responsiveness, Care, Availability, Reliability, Integrity, Friendliness, Courtesy, Communication,

Competence, Functionality, Commitment, Access, Flexibility, Aesthetics, Cleanness/tidiness, Comfort and Security.

1.2 Motivation

As it was mentioned, stock exchange plays a critical role in each country's economy and understanding of traders' needs, as a main customer of this market, becomes an important factor. In this situation, satisfaction has great effect on traders retention and more important attract potential traders and as a result reach to more efficient market and the possibility of market expansion will be feasible. Good customer service quality is the main factor in creating satisfaction and enhances the level of traders' satisfaction. So it is desirable for responsible in stock exchange to uncover what attributes traders utilized in their assessment of service quality and satisfaction and which attributes are more important.

Recently many stock exchanges all over the world have used the Internet as a new tool to offer their customers a variety of services 24 hours a day and offer better services to traders. But these steps are not passed in Iran yet and traders suffer from insufficient services. Conventional trading system, poor surveillance power, limit services and so many others short comings, create a situation that increase the risk of investing in this market, create a suitable situation for price manipulation, wash sales and so many other frauds which in return lead to traders dissatisfaction and inefficiency of Tehran stock exchange.

1.3 Research Problem and Research Questions

Based on the discussion in previous part the research problem is formulated as follows:

> To gain a better understanding of the service quality dimensions that affect customer satisfaction in Tehran stock exchange.

Research questions:

Based on above stated research problem the following research questions have been developed:

Major Question:

1. How online trading impacts on customer satisfaction in Tehran Stock Exchange?

   Minor Questions:
2. What are the factors which effect on traders' dis/satisfaction?
3. What are the roles of different involved parties in this new online trading system?
4. What are the potential abilities of Online trading which affect customer satisfaction?

1.4 Terminology and definition

Some of particular words and expressions will be defined in this part:

- *Customer satisfaction:* Is an experience-based assessment made by the customer of how far his own expectations about the individual characteristics or the overall functionality of the services obtained from the provider have been fulfilled.(Bruhn, 2003)
- *Online trading:* A process of trading financial products especially stocks over the Internet, and online stock trading site is a web site that helps traders or customers to buy and sell the financial products over the Internet (Fan et al., 2000).
- *Servqual:* A popular model that Parasuraman et al. (1988) came up with five determinants that can be used to measure service quality. This scale named SERVQUAL and has been developed for the service sector. It has five generic dimensions or factors and are stated as follows: Tangibles, Reliability, Responsiveness, Assurance, Empathy
- *Stock Exchange:* An association of stockbrokers who meet to buy and sell stocks and bonds according to fixed regulations. (www.answers.com/topic/stock-exchange)
- *Trader:* Entities who buy and sell stocks and bonds to take advantage of price changes within a time period. In this research, traders should have more than two transactions in three months.

1.5 Thesis Chapter Structure

This thesis is divided into five chapters. In the first chapter the background of the selected research area is presented followed by a motivation part which discusses the notability of this subject that ends with a research problem and the research questions. In chapter two, theories and studies related to the topic and also the theoretical models will be presented. Chapter three focused on research method and contains research approach, research strategy, data collection methods and validity and reliability of the research. In chapter four, research data description and analysis and also the results will be discussed. Finally, chapter five devoted to discussion parts, conclusions and implication for further research.

Chapter 2:
Literature review

1 *Literature review*

This chapter brings up relevant literature required to find answers and connect to our research questions. First, vital literature about online trading along with key concepts of different terms, drivers of growth and the necessity of its existence will be presented so that it becomes easier to understand the research area. Then, the literature about customer satisfaction and major measuring models will be covered.

1.1 Online Trading

Countries all over the world have invested heavily to leverage the Internet and transform their conventional businesses into e-businesses. E-businesses are defined as the use of Internet based information and communication technologies (ICT) by organizations to conduct transactions, share information and maintain relationships (Poon and Swatman, 1999). New technologies such as World Wide Web have made a profound on all business around the world. E-business enables organizations to reduce cost, increase demand and create new business models (Dunt and Harper, 2002)

E-commerce is a subset of e-business and defined as buying and selling of goods and services on the Internet, especially the World Wide Web (www.dotcom-

productions.com). In fact, any commerce carried out using computer networks are called electronic commerce and has created an opportunity to do business and handle transactions electronically and stock trading domain makes the most of its chance all over the world. As, the time factor play a critical role in this business, internet quicken and streamline the trading process. Creating more convenience, saving time and money and paperless process are the most significant goals of online trading.

1.1.1 Definitions of online trading

The Internet revolution has been changing the fundamentals of the society. It changes the shape of communication and also trading process. It shifts closer and closer to vital sources of information and new trading environment by the name of "online trading". It provides users with means to directly interact with service-oriented computer systems tailored to their specific needs; therefore, they can serve themselves better by making their own decisions. There are lots of definitions for online trading. Hereby, four main definitions are mentioned:

Referring to two websites which are active in trading fields (www.investorwords.com and www.advfn.com) they define online trading in this manner: The increasingly popular activity of buying and selling securities over the internet, or to a lesser extent, through a broker's proprietary software. Likewise Fan et al. define it in this way: The 'online trading' is defined as a process of trading financial products especially stocks over the Internet, and online stock trading site is a web site that helps traders or customers to buy and sell the financial products over the Internet (Fan et al., 2000).

Also online trading is described as service offered on the internet for purchase and sale of shares. In the real world you place orders with your stockbroker. In online trading, you will access a stockbroker's website through your internet-enabled PC and place orders through the broker's internet-based trading engine. These orders are routed to the Stock Exchange without manual intervention and executed thereon in a matter of a few seconds. (www.investsmartindia.com)

Furthermore there is another definition for online trading which defines it in this way: Online trading is placing an order for a trade using the internet. Online

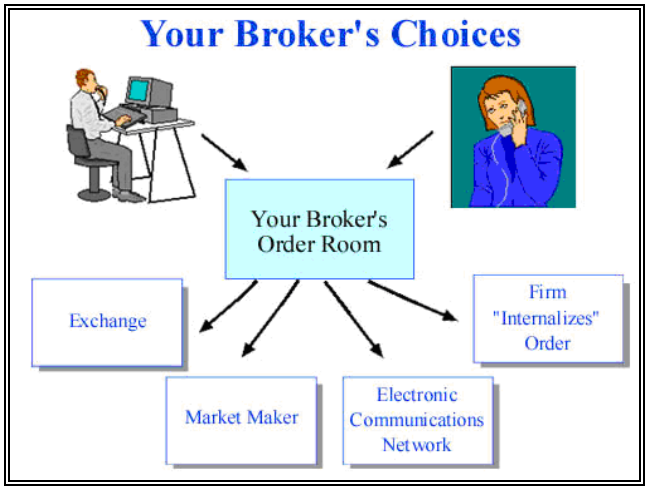
trading is not a strategy, but a means to enter a trade. Online trading can be used to enter a short trade or day trade, or a longer-term position in a stock, bond, commodity or option. (www.trendtraders.com)

Each of these definitions describe online trading from somehow different aspect, but something is common and that the services which have provided to traders. They divided into three categories:

- Full-service
- Discount
- Online

Investors who do not have time to research investments on their own will likely rely on a full-service broker to help them construct an investment portfolio, manage their investments, or make recommendations regarding which investments to buy. Full-service brokers have access to a wide range of reports and analyses from the company's large staff of financial analysts. These analysts research companies and recommend investments to people with different financial needs. Persons who prefer to select their own investments generally use a discount or online broker and pay lower commission charges. Discount firms usually do not offer advice about specific securities. Online brokerage firms make their trades over the Internet in order to keep costs down and fees low. Discount brokerage firms usually have branch offices, while online firms do not. Most brokerage firms now have call centers staffed with both licensed sales agents and customer service representatives who take orders and answer questions at all hours of the day. (www.trendtraders.com)

There are two basic ways to day trade electronically. The first is through "Conventional Online Trading", using your Internet browser and a Web based broker. The second is by way of "Direct Access Trading systems", using specialized software and a private network. It is important for day traders to understand the key features of, and the differences between, these two forms of electronic trading. Trend Trader offers a choice of trading platforms:



Source: Derived from trendtraders website (www.trendtraders.com)

Figure 1: Brokers in online system.

To have an overview on the evolution of online trading, the growth and trend of it has presented:

1.1.2 The growth of online trading

The number of online investors has grown considerably since the first electronic brokerage opened its virtual doors in 1994(Fahri and Movassaghi, 2001*)*. These e-brokerages have attracted 12 million investors in less than five years, now accounting for over 33% of retail stock trades (Konana, 2000). The number of e-brokerages has also grown-from only 12 in 1994 to more than 120 in 1999, according to Gomez Advisors (www.gomez.com).

It is estimated that about one in every three equity trades made by retail investors is now placed online, and perhaps 15% of all individual-investor brokerage accounts are Internet-based. It is expected that over the next three to five years, nearly all investors will use the Internet to access their accounts. In 1996 only 8% of retail trades were placed online with only 12 Internet brokers in existence (Carey, 2000). By 2000, according to U.S. Bancorp Piper Jaffray Inc. (www.pjc.com), 48% of trades are done online and over 100 firms are in business. It is reported that the number of daily transactions was just under 900,000 per day. Certainly, Online trading in America has shown amazing growth.

According to The Economist, the number of online brokerage accounts increased from zero in 1994 to more than 5 million in 1998 (The Economist, 1998).

Online trading has become so popular that several companies are now building systems to allow investors to trade electronically after normal stock-exchange hours; others are using pagers and other wireless devices to let customers trade anytime, anywhere (Cullen, 1999).

With the overseas exchanges lagging behind the U.S. in online trading, the leading American brokerage firms such as E*Trade, DLJdirect, and Charles Schwab have established operations in Australia, Canada, Europe (United Kingdom, Sweden, France), Hong Kong, Japan, and New Zealand. The European exchange alone, according to Fletcher Research, could reach to 110 million by 2003 compared to the 38 million who were online at the end of 1998, an amazing four-fold increase in less than five years (Epstein, 1999).

1.1.3 Online Trading trends

- **Security issues fading:** Concerns centered on security issues (encryption) and customer service issues (upgraded server and network equipment) are fading as consumers become accustomed to using the internet on a weekly or even daily basis for many types of transactions.
- **Pricing stabilization:** The online brokerage industry has seen severe price competition over the last two years, with every competitor lowering commission rates in an attempt to gain as many new accounts as possible. There is a belief that, prices have started to stabilize and further price reductions are unlikely from the present level. While new entrants will have to align commission rates lower to be competitive, rates of established online brokerages will be stable over the next year

1.1.4 Online Trading characteristics

- **High amounts spent on advertising:** Because of relatively low barriers to entry, companies in this industry spend heavily on advertising in order to create a "brand" or "portal destination". The industry is in a race to lock up as many customers as possible, with the idea that a company can retain those customers by creating switching costs. Each company could create switching

costs by customizing the company portal, making it costly for a customer who switches to competitors' site.

- **Importance of technology:** Companies in the industry compete on speed of access, speed of order processing, and system reliability. Conventional brokerages are not accustomed to dealing with this additional layer of complexity. Established online brokerages have an advantage over newly entering conventional brokerages in this area.
- **Scale is important:** With the large conventional brokerages entering the online business, gaining economies of scale will be important. Heavy advertising costs will need to be spread over a larger number of accounts. How successful a brokerage is at gaining and retaining customers over the next year will determine which online brokerages survive as independent businesses.
- **Different service proposition:** Online brokerages offer a different bundle of features compared to conventional brokerages. Convenient, twenty-four hours access for trading and research are defining characteristics of the online business. Convenience and low cost trades have been two primary drivers responsible for the significant transfer of investors from conventional brokerages to online brokerages.

1.1.5 Advantages and disadvantages of online trading

Trading online the same as other systems has advantages and also disadvantages. Below the main points are summarized:

Advantages:

- **Quick access/Convenience:** You can place your orders from anywhere and at any time. All you need is a personal computer. When you trade online, you save yourself a lot of time. You need not call your stockbroker to give your orders or to find out what happened to your trade.
- **Control/Transparency:** With online trading, power is literally at your fingertips. With a few keystrokes, you can place your orders and get all the information you need without any assistance or intervention of a stockbroker. You do not have to discuss or reveal your trades or plans with your stockbroker. You become an empowered, self-directed investor.

- **Efficiency:** Getting information or feedback used to take minutes, sometimes even days. With online trading, you get these faster because you get online, real-time information on your account balance, order status, and stock quotes with the best three levels of bids and offers.
- **Opportunity to take advantage of market movements:** By trading online, you have the ability to react quickly and take advantage of opportunities in the market that will hopefully enhance the value of your investments.

Disadvantages:

Despite all the advantages of Online Trading there are a few disadvantages. However, these disadvantages only apply to certain investors, the inexperienced investor, the traditional investor, and the busy investor.

- **Expertise:** Nobody involved in financial markets claims to know all the right moves, but everyone involved in the markets has an understanding of how things work. For an individual who knows nothing about stocks and nothing to look for might have a problem with online trading. Online trading does provide investors with sufficient research to make educated investments, but investors must be able to interpret the research and put it to use. Those individuals who do not have an understanding of the information might be better off letting a broker make the decisions.
- **Time:** There are a lot of investors out there that are very well educated in the financial markets but are too busy doing other things. Online trading require an individual to do his or her own analysis. The research is provided by the online company, but the investor must go through the information and determine what is valuable to their investment strategies. This often times requires an individual to have some free time. Many investors just do not have the time to go through the research; therefore, using a broker is the only other option.

For the traditional investor Online trading also has one major disadvantage:

- **Informality:** Using an online service to make trades is very informal. Traditional investors grew up investing through a broker and interacting with

that broker. Often time's traditional investors have very close relationships with their brokers and online trading eliminates the possibility of any relationships. Online trading might not be for everyone and often times are not. However, 82 percent of those people who invest online believe that most investors will invest online in five years. Whether or not this is true, trading online has become very popular and has opened a door to whole new perspective of investing. Whether you are a first time investor or a professional, online trading offers convenience, lower costs, and empowerment to all users.

1.1.6 Tehran Stock Exchange and Applied Trading System

The idea of having a well-organized stock exchange and to speed up the process of industrialization of the country dates back to 1930's when Bank Melli Iran started a study about the subject. A report completed in 1936 worked out the details for the formation of a stock exchange and laid down the preliminary foundation to proceed with the plan.

The outbreak of the World War II and subsequent economic and political events delayed the establishment of the stock exchange up to the year 1967 when the Stock Exchange Act was ratified. The Tehran Stock Exchange opened in April 1968. Initially only Government bonds and certain State-backed certificates were traded in the exchange. During 1970's the demand for capital boosted the demand for stocks. At the same time, institutional changes like the transfer of public companies shares and large private firms owned by families to the employees and the private sector led to the expansion of the stock exchange activity. The restructuring of the economy following the Islamic Revolution expanded public sector control over the economy and reduced the need for private capital. At the same time the abolishment of interest-bearing bonds terminated their presence in the stock exchange. As a result of these events, Tehran Stock Exchange started a period of standstill.

This stop came to an end in 1989 with the revitalization of the private sector through privatization of state-owned enterprises and promotion of private sector economic activity based on the First Five-year Development Plan of the country. Since then the Stock Exchange has expanded continuously.

Tehran SE Council is the highest authority in the stock exchange. State officials as well as the private sector representatives and specialists are members of the Council. The Governor of the Central Bank presides over the Council. Other constituent organs of Tehran SE are Acceptance Committee, Arbitration Board and Brokers Organization. The Board of Directors is the highest policy-making authority in Tehran SE and appoints the secretary general as the chief executive officer, CEO, for a period of two years. Re-appointment is permitted without any restriction. There are two Senior Deputies acting under the Secretary General who are responsible for economic and technical affairs and administration and finance respectively.

Trading in Tehran SE is based on orders entered by the brokers. Trading hours are 09:00-12:30 Saturday to Wednesday, with the exception of public holidays. Tehran SE Services Company, TSESC, who is in charge of computerized site, supplies computer Services. Presently, Tehran SE trades mainly in securities offered by listed companies. (www.tsesc.com)

Stock exchange in Iran is following the conventional trading system in which there is no electronic settlement and clearing system. The current system is shown in diagram below:

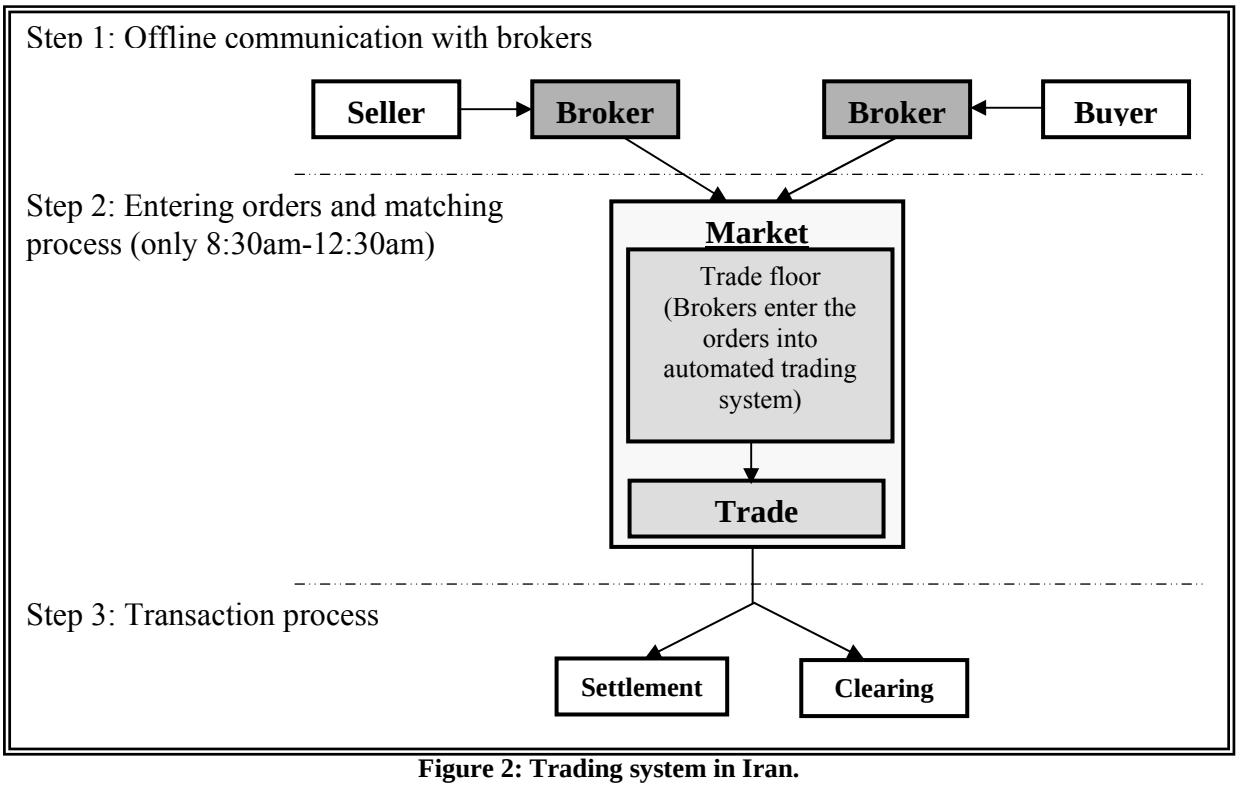


Figure 2: Trading system in Iran.

As it is shown, in selling process, a trader should fill up the sell order form in a broker's office. The day after the broker can enter the order into automated trading system after 8:30 in the morning. Then if there is a bidding order in the system with the same price and volume, matching will happen.

At least it takes T+2 in order to fulfill your selling/buying order (after you place your order).

Comparing Tehran SE with advanced stock exchanges all over the word shows that lack of technology overshadows trading process and the level of traders' satisfaction in Tehran SE. Therefore, researcher of this thesis wonders whether adding electronic facilities improve traders' satisfaction level in Iran or not? So in this part a thorough review of customer satisfaction and related issues are discussed.

1.2 Customer satisfaction

Customer satisfaction is increasingly recognized as a main pillar for success in the business environment and also a key issue to survive. In this case the business owners must continuously understand and provide what the customer wants. The studies have shown that high levels of customer service quality can exert a positive influence on customer satisfaction (Parasuraman et al., 1988; Cronin and Taylor, 1992).

1.2.1 Definition of customer satisfaction

Early concepts of satisfaction research have typically defined satisfaction as a post choice evaluative judgment concerning a specific purchase decision (Oliver, 1980; Churchill and Suprenant, 1992). The most widely accepted model, in which satisfaction is a function of disconfirmation, which in turn is a function of both expectations and performance (Oliver, 1997).Organizations have to know how satisfied customers feel. The word satisfaction is central to many definitions and in a marketing context it is used to have many 'specific' meanings:

- Customer satisfaction (CS) is an experience-based assessment made by the customer of how far his own expectations about the individual characteristics or

the overall functionality of the services obtained from the provider have been fulfilled (Bruhn, 2003);

- Satisfaction is merely the result of 'things not going wrong;
- Satisfying the needs and desires of the consumer (Besterfield, 1994);
- Satisfaction-as-pleasure;
- Satisfaction-as-delight (Kanji and E Sa´ Moura, 2002); and
- Customer evaluations of the quality of goods and services (www.theacsi.org).

The most common interpretations reflect the notion that satisfaction is a feeling which results from a process of evaluating what was received against that expected, the purchase decision itself and/or the fulfillment of needs/wants.

The perception of the word 'satisfaction' influences the activities which we conduct to achieve it. If we think of satisfaction as 'things not going wrong', the company goal will be: To reduce the number of complaints. But the number or percentage of complaints can be an indicator of customer dissatisfaction. The company must reduce the number of complaints in order to eliminate dissatisfaction, but it is only one, necessary but not sufficient in itself, condition for true customer satisfaction.

To attain true customer satisfaction the companies need to achieve quality not only by eliminating the causes for direct complaints but they need provide their products with excellent, attractive quality - provide the delight to the customer (FecĬikova, 2004).

1.2.2 Customer satisfaction measurement methods:

With reference to the documents in the field of conducting a literature review that were recommended by Rowley and Slack (2004), they suggested summarizing and synthesizing the body of a literature review in one of these three ways:

1. Chronologically- according to when the material was published.
2. Thematically- according to a particular topic or issue.
3. Methodologically- according to the 'methods' of the researcher or writer.

As the literature in this field mainly categorized with due to methods of customer satisfaction measurement, the third way is applied in this research.

They are two main groups for evaluating and measuring customer satisfaction. The first group is related to products and the second one is related to service industry.

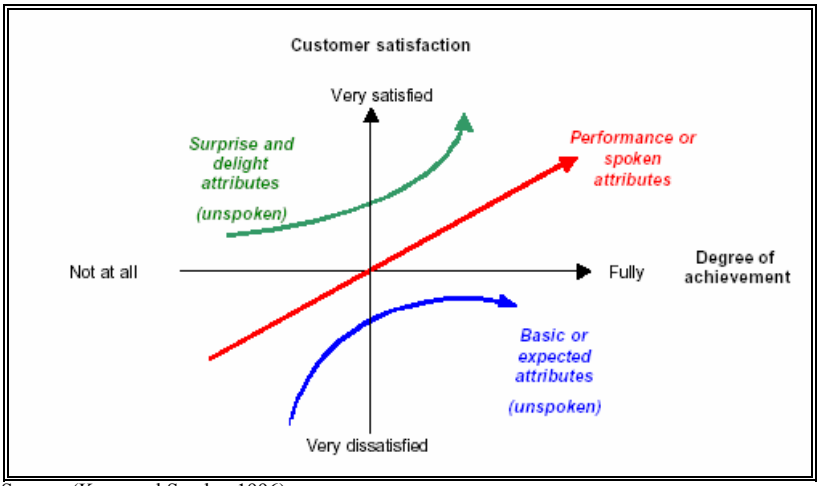
1.2.3 Methods for evaluating customer satisfaction with products

In this part we describe two main methods in evaluating customer satisfaction in product industry:

1.2.3.1 Kano Model of Customer Satisfaction:

The Kano et al. (1996) model of customer satisfaction classifies product attributes based on how they are perceived by customers and their effect on customer satisfaction (Kano, 1996). According to the model, there are three types of product attributes that fulfill customer satisfaction to a different degree: 1) basic or expected attributes, 2) performance or spoken attributes, and 3) surprise and delight attributes.

A competitive product meets basic expected attributes, maximizes performances attributes, and includes as many "excitement" attributes as financially feasible. In the model, the customer strives to move away from having unfulfilled requirements and being dissatisfied.



Source: (Kano and Seraku. 1996)

Figure 3: The Kano model

The *performance or spoken attributes* (the central line of the model) are those expressed by customers when asked what they want from the product. Depending on the level of their fulfillment by a product or a service these requirements can satisfy or dissatisfy consumers.

The *basic or expected attributes* (lower curve in the model) are basic attributes, which customers take for granted and they are so obvious that they are not worth mentioning. While the presence of these attributes is not taken into account, their absence is very dissatisfying.

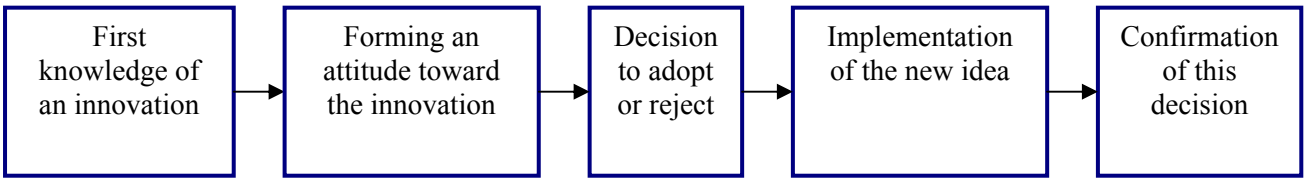
The *surprise and delight attributes* (upper curve in the model) lay beyond customer's expectations. If they are present they excite the customer, but their absence does not dissatisfy, as customers do not expect them.

A successful combination of expected and exciting attributes provides a company with an opportunity to achieve competitive advantage. A successful company will correctly identify the requirements and attributes and use them to document raw data, user characteristics, and important service or product attributes.

To collect information about required attributes understandable and useful for designers, a so-called Quality Function Deployment (QFD) approach is often being used. The goal of QFD is to assure that the product development process meets and exceeds customer needs/wants and customer requirements are propagated throughout the life cycle of the product. The approach uses a number of matrices, which help translating customer requirements into engineering or design parameters, specifying product features, manufacturing operations and specific instructions and controls. QFD allows for the minimizing of errors and the maximizing of product quality for customers. The approach is probably the only existing quality system with such strong orientation to customer satisfaction.

1.2.3.2 Innovation framework

The process of adopting new products has also been studied within innovation adoption literature, and in particular the Rogers' (1995) innovation framework. The framework suggests five steps, through which an adopter goes to the adoption of a new product or a service (Rogers, 1995):



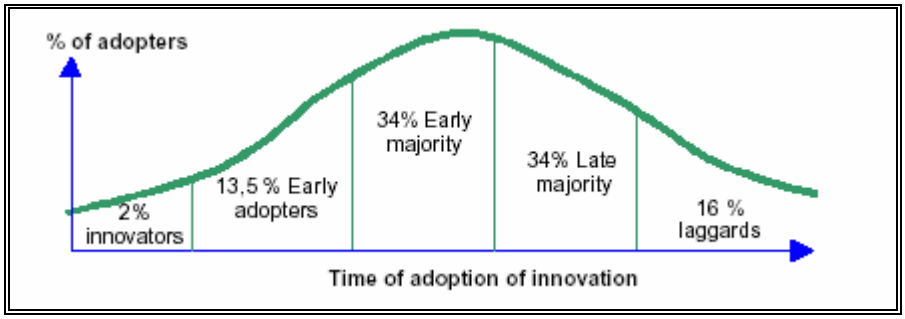
Source: (Rogers, 1995)

Figure 4: Innovation framework.

Rogers' model closely resembles the customer satisfaction model by Engel et al. (1995). The first knowledge is acquired when an individual is provided with the information about the innovation. The attitude is formed to evaluate the features of innovation and a resolution on accepting or rejecting the product follows. Implementation corresponds to the consumption and confirmation refers to the need to reaffirm the decision about the innovation adoption.

Rogers also maintained that people accept innovation differently, depending on their personality, their innovativeness, and interpersonal communication, and according to this, adopters could be classified into innovators, early adopters, early majority, late majority, and laggards. Innovators seek newness and value the time period that is passed since the product launch. Laggards seek reassurance and confirmation about product or service qualities through interpersonal communication and word-of-mouth.

A large number of studies have analyzed the differences between earlier and later adopters based on socio-economic, demographic, cultural, or psychological criteria (Tornatsky, Eveland et al. 1983), (Gatignon and Robertson 1985), (Frank, Sundqvist et al. 2001), (McMeekin and Tomlinson 1998), (Cestre and Darmon 1998).



Source: (Rogers, 1995)

Figure 5: Adopter categorization on the basis of relative time of adoption of innovations

Economists, for example, suggest that for social innovation to take place, innovators should first accept innovation and then create institutional framework that would trigger the acceptance of new practices. For the laggards to join in another mechanism – the desire not to be left out of the group – can be used to speed up dissemination of more sustainable practices. Besides adopter categories, Rogers also identified a range of factors affecting the rate of adoption:

- Perceived attributes of the innovation
- Relative advantage
- Compatibility
- Trialability
- Complexity
- Observability
- Type of innovation-decision
- Communication channels
- Nature of the social system
- Extent of change agents' promotion efforts

These factors are often used in many innovation studies as evaluation criteria and questionnaires for consumer surveys are developed based on them.

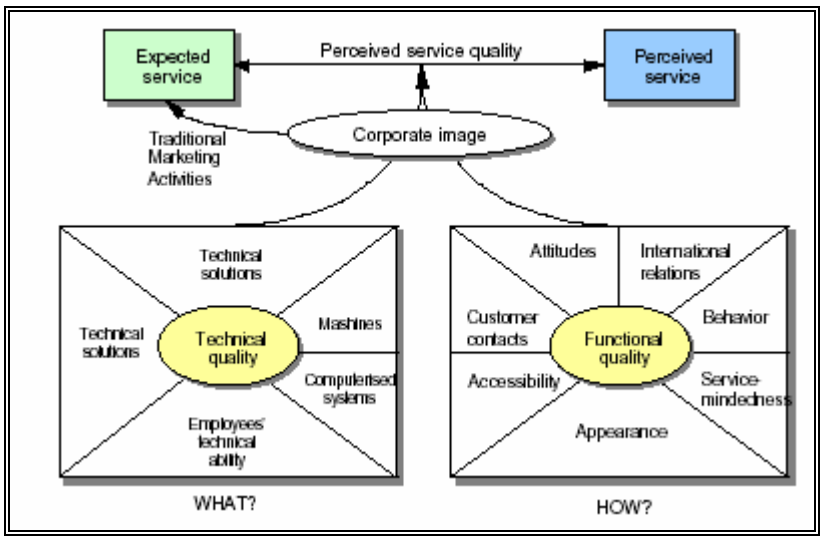
1.2.4 Methods for evaluating customer satisfaction with services

Many studies suggest that there is a fundamental difference between products and services, namely, it is the way they are produced and consumed (Grönroos, 1990; Grönroos, 1998), (Edvardsson, 1997; Edvardsson, 2000), (Bateson and Hoffman, 1999). The time period between service production and consumption is considerably shorter than for products. Most of the services are produced "on a spot" in an interactive process, in which customers and company employees meet.

Satisfaction with service quality depends on a large number of dimensionsboth tangible and intangible attributes of the product-service offer. The impact of intangible dimensions on consumer satisfaction is of particular interest at this point.

Many psychological studies even show that non-verbal behavior by the service provider greatly affects service evaluation (Gabbott Mark, 2000). For example, the quality of interaction between customer and service provider influences customers' perception of service quality. In services, a single employee may affect service efficiency and consequent customer satisfaction with the service (Barnard, 2002). Even customers own involvement and participation in the service delivery affect customer satisfaction (Kelly et al., 1982).

Gronroos (1984), Lehtinen et al. (1982) and Czepiel et al. (1985) have considered the quality of the service encounter as two different dimensions, one being technical or output quality and the other functional or process quality. These dimensions were assessed according to attitudes and behavior, appearance and personality, service mindedness, accessibility and approachability of customer contact personnel.



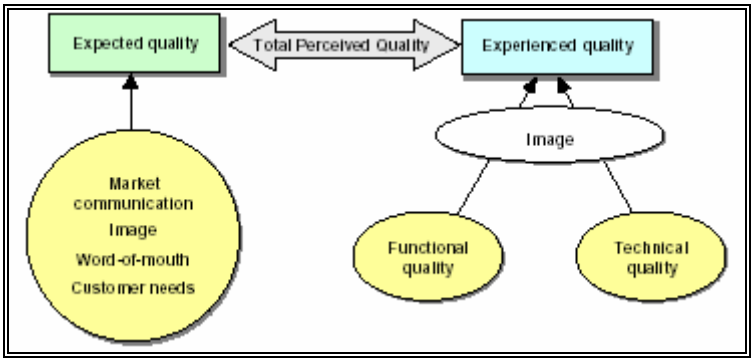
Source: (Grönroos, 1984)

Figure 6: The Service Quality Model

Gronroos posits that the technical quality is the "basic condition for a positively perceived total quality, but the functional quality is the one that adds competitive edge" (Gummesson and Gronroos, 1987). Furthermore, in relationship marketing, the growth of the importance of functional quality becomes a strategic in comparison to technical quality (Gronroos, 1993).

The distinction is also made in the model between perceived and expected service quality and it is suggested that the quality is perceived subjectively. Gronroos

(1988) further develops the model by positing that in the case of a company, which extends product offer with services, it is more appropriate to talk about total perceived quality. According to him, a high perceived quality is obtained when the experienced quality meets customer expectations, *i.e.* the expected quality. However, if the expectations are unrealistic, the total perceived quality will be low, even if high quality was experienced (Gronroos, 1988).



Source: (Grönroos, 1988)

Figure 7: The Total Perceived Quality

The expected quality is heavily influenced by market communication (advertising, sales campaigns, PR and direct mail), word-of-mouth, company image, and customers needs.

While a company directly controls market communication, the word-of-mouth and company image are outside its immediate reach. Gronroos conclusion is that the total perceived quality is not only defined by the level of technical and functional dimensions, but also by the gap between the expected and the experienced quality.

Czepiel et al. (1985) not only pinpointed the process and outcome quality dimensions but also identified three different dimensions of the service encounter, distinguishing between customer perceptions, provider characteristics and production realities. They suggested that these covered common crucial characteristics in service delivery and that the determinants of satisfaction were therefore similar in each case. For the customer perceptions and production realities, they listed elements which were then judged along a continuum. The customer perceptions included purpose, motivation, result, salience, cost, reversibility, and risk. The production realities related more to elements such as technology, location, content, complexity and duration.

Edwardsson et al. (1989) expanded another model related to service quality, and summarized four aspects of quality which affect customers' perceptions:

1. Technical quality;
2. Integrative quality;
3. Functional quality; and
4. Outcome quality.

Technical quality refers to the skills of the personnel and design of the service system. In e-commerce, these two aspects are hidden from view and are not experienced directly and therefore cannot be judged by the customer. Integrative quality is concerned with how the different parts of the service delivery system work together. This is crucial in e-commerce because the customer must have a positive experience online and if relevant a positive experience offline. For example, if a customer buys a product through a company's web site, then a smooth running system will correctly translate that order and payment, and deliver the product as promised. The third aspect is functional quality which means the manner in which the service is delivered. As for Gronroos (1984) and Lehtinen et al. (1982) definition of functional quality, the meaning is the same and is relevant to e-commerce in so far as the layout and accessibility of a web site is concerned, without the direct human contact or physical environment. Outcome quality is when the actual service meets the promised service and the customer's needs and expectations. This is true in the case of e-commerce just as much as for businesses in the physical world. If a customer is dissatisfied, he or she is unlikely to visit that shop or buy from the web site again. It is obvious that the likelihood of non purchase is greater on the Internet because consumer can click to a competitor's web site and switch to other producer. In this case several researches were conducted based on customers' perception of quality. Parasuraman et al. (1985; 1988) conducted a model with ten determinants in order to determine how the customer makes an assessment of service quality. They came up with ten determinants that can be used to measure service quality:

1. Access (approachability and ease of contact);
2. Communication (informing and listening to customers);
3. Competence (possession of required skills and knowledge to perform the service);

4. Courtesy (demeanor and attitude of contact personnel);
5. Credibility (trustworthiness and honesty);
6. Reliability (consistency of performance and dependability);
7. Responsiveness (timeliness of service and willingness of employees);
8. Security (freedom from danger, risk or doubt);
9. Tangibles (physical evidence of service); and
10. Understanding/knowing the customer (making an effort to understand the customer's needs).

The model measures the difference between customers' expectations about general quality of a certain group of service providers and their perceptions about the actual performance of a service provider from that group. If the perceived performance is less than expected, customers will be dissatisfied. On the other hand, if the perceived performance exceeds expectations, customers will be satisfied. Otherwise, if the perceived expectations are met with performance, customers are in an indifferent or neutral stage. Parasuraman et al. (1985, 1988) have conducted well-known studies to uncover key service quality attributes that significantly influence the customers' perceptions of overall service quality.

Later, these ten dimensions were purified into five by using factor analysis:

- Tangibles;
- Reliability;
- Responsiveness;
- Assurance(knowledge and courtesy of employees); and
- Empathy (caring, individualized attention the firm provides its customers).

Since then, the SERVQUAL measurement has been applied to measure the service quality in various service industries by many researchers.

Tangibles are for the most irrelevant part for measuring service quality in e-commerce as the customer only interacts with the web site. Therefore, the customer cannot have opinions about the physical properties used to deliver a service. Most e-commerce companies either have their own warehouses for fulfilling orders for products to be sent out, or ensure suppliers do this directly. The activity may take

place far away from where the customer is sitting and so is not applicable. Responsiveness and reliability are, however, applicable because they relate to what the company promises. Reliability could be judged, for example, by the correct product being received by the customer within 48 hours. This is important for any business to build a full interaction between the interface and the back-end processes of fulfillment. Responsiveness is likewise slightly more indiscernible, especially whilst directly interacting with the web site. This is also relevant if fulfillment is part of the service and the customer has to send back an item or it is late arriving.

Due to the differences in production and provision of products and services, customers evaluate quality and attributes of material goods and services in different ways (Mathe and Shapiro, 1993). This realization has initiated a discussion on the need for special tools for evaluating more diverse and less tangible services (de Brentani, 1989). Responding to the growing demands for developing specific and reliable ways to measure customer satisfaction in service industries, a number of studies have been conducted. These studies suggested methodological frameworks for measuring customer satisfaction (Markovic and Horvat, 1999).

Other studies looked at what measures are used by service companies for measuring customer satisfaction. Studying how financial sector measures customer satisfaction Edgett and Snow (1997) showed that even though it is mostly conventional (financial) measures that are being used by the sector, they do not provide a sufficient basis for innovation in services and multidimensional approaches need to be devised.

The two most often used types of measures in service companies are the increase in the number of customers and increase in portfolio dollars. However, the most useful types were direct personal interviews with customers and measure of customer expectations and perceptions. Surprisingly, companies use conventional quantitative measures, but perceive qualitative measures as the most useful. Authors concluded that financial institutions are not satisfied that the conventional accounting-type measures are presenting the full performance picture for new products (Edgett and Snow, 1997).

The stock exchange has been a part of people's lives throughout the twentieth century. Millions of people around the world have money invested in their countries own respective markets. Since the coming of age of online trading, more people have been investing their money in stocks than ever before because of the advantages it offers. Online trading allows people to trade stocks quickly without the help of a broker, letting the investors have more control over their transactions. The competition between companies has helped decrease the cost of making the transactions. In addition to that, ordinary people now have access to information that could only be seen by brokers. Overall, online trading saves time, money and gives power to the investor rather than the broker.

As discussed above, many online businesses are well established and they have added an array of services in order to compete with the conventional brokers. Meanwhile, after a state of hesitancy, the full-service brokers have started operating their online businesses in one form or other. Thus, it seems that most of the investors will be involved with some sort of online investing in the future. This will require them to search for the best online broker for their needs. Their decisions will be based not solely on commission rates, but on a large spectrum of other services that they wish to receive (Punishill, 1999). Once investors locate the firms that provide the services they need, the decision of which to go with can be made based on price (the more services, of course, the higher the cost) and on the reliability of the service.

In addition to commission structures and services provided, one should consider an online brokerage firm's record for reliability. Investors should keep an eye on news reports about outages. These occur on a regular basis, even though online brokerage firms have made strides to increase the capacity of their trading systems. Big outages usually receive the attention of financial reporters. Research firms such as Gomez Advisors keep tabs on outages as well. Investors also should investigate whether a firm offers alternatives for placing a trade when it runs into problems on the Internet. One should check out whether the firm offers order taking over the telephone, and what hours its customer service is available. Give the firm's toll-free number a try to see how long it takes to get through. Finally, one should use a second broker as a backup. The consumer now can get online help in deciding which online stockbroker to pick. There are several firms that monitor the performance of online

brokerage firms and rank them by a number of criteria. Among these, Gomez Advisors is probably the leading firm that individual investors could consult with before they choose their online brokerage firm. Gomez Advisors rank the online brokerage by six criteria. These include the "ease of use," "consumer confidence," "on-line availability of resources," "relationship services," "overall cost," and "overall score."

Table 1 is derived from Gomez Investors web page for their spring 2000 ratings for the top 10 firms for each category. The rank (R) and the score (maximum possible score is 10.00) are provided for comparison. An examination of the data provided indicates that E*TRADE ranks the highest in terms of "ease of use." To score well in this category, firms need to have useful account demos and tutorials, easily accessible new account forms and some basic customization capability. Fidelity Investments takes the first place in terms of "confidence" and "on-site resources." Factors that contribute towards customer confidence include having a large capital base, web site availability, quick phone response time, having well-trained customer service personnel and disclosing key information about trading rules and executions to their customers.

Table 1 : Rating of top ten brokerage firms by selected criteria

R	Ease of Use	Score	R	Confidence	Score	R	Resources	Score
1	E*TRADE	8.06	1	Fidelity	7.70	1	Fidelity	8.89
2	DLJdirect	7.61	2	Ameritrade	7.21	2	E*TRADE	8.80
3	Schwab	7.54	3	Brown	6.94	3	Schwab	8.35
4	Morgan/Dean	7.31	4	Bidwell	6.76	4	DLJdirect	8.21
5	National Disc.	7.00	5	AB Watley	6.75	5	TD Waterhouse	7.77
6	Datek	6.88	6	Accutrade	6.71	6	National Disc.	7.43
7	My Discount Br.	6.76	7	Quick & Reilley	6.66	7	Siebert	7.16
8	Banc One	6.69	8	JB Oxford	6.53	8	SureTrade	7.10
9	Firstrade	7.36	9	Wall Street Elec.	6.52	9	My Discount Br.	6.95
10	Banc of America	6.27	10	E*Trade	6.50	10	Morgan/ Dean	6.77

R	Relationship	Score	R	Overall Cost	Score	R	Overall Score	Score
1	Schwab	8.62	1	Trading Direct	10.00	1	E*TRADE	7.66
2	Fidelity	8.23	2	Firsttrade	9.84	2	Schwab	7.39
3	E*Trade	7.46	3	Datek	9.66	3	Fidelity	7.37
4	National Disc.	6.16	4	Scottrade	9.51	4	DLJdirect	6.84
5	American Exp.	5.92	5	Wang Invest	9.49	5	TD Waterhouse	6.43
6	U.S. Bancorp	5.69	6	Web Street	9.26	6	National Dis-count	6.32
7	DLJdirect	5.68	7	U.S. Rica Finan	9.24	7	My Discount Br.	6.24
8	Vanguard	5.53	8	KeyTrade Online	9.21	8	A.B. Watluy	6.13
9	TD Waterhouse	5.53	9	TD Waterhouse	9.16	9	Morgan/Dean	6.08
10	Empire	5.44	10	Empire	9.09	10	Suretrade	6.06

Source: Derived from data provided by Gomez Advisors (www.gomezadvisors.com), July1999.

Desirable on-site resources used in the ratings include quotes-charts-news; screening tools for stocks and mutual funds, and editorial content that deliver advice and recommendations.

Charles Schwab has been placed at the top for "customer relationship services." In "overall" score, E*Trade tops the list. Gomez Advisors report that "E*Trade offers more products, better use of information, and competitive pricing — a package that is better than all of the rest."

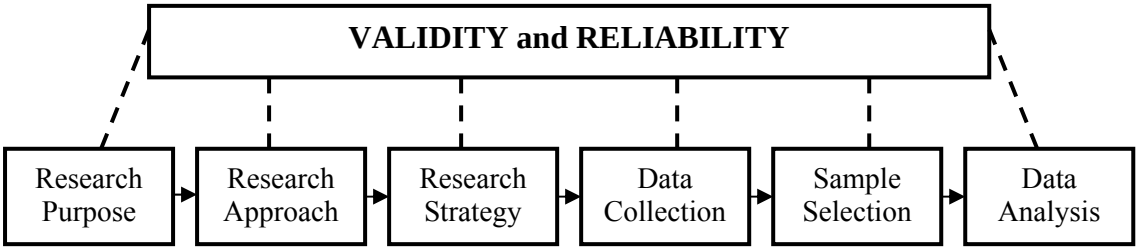
So as it is obvious Internet would change the face of the conventional stock brokerage industry within the next five years. However, the range of views and opinions regarding these changes and what affect this would ultimately have on the stock brokerage industry covered a wide spectrum of possibilities. Not surprisingly the conventional brokers tended to take the view that the Internet will provide conventional brokerages with the ability of attracting new customers, and offering new services. The literature review highlighted the fact that the conventional stock brokerage industry is currently enjoying the most profitable period in its entire history. Some of them did concede that online brokerages would be successful at stealing some of the conventional brokerage clients. However, almost all the conventional brokerages took the position that service is what investors want, and that is what investors will pay for. They did acknowledge that there were a small percentage of investors who were very price sensitive and probably would be attracted by the cheaper transaction costs of the online brokerages. (Scullion and Nicholas, 2001)

Therefore, installing new online trading system in Iran stock exchange can be positively influence on whole system and a more efficient market might be appeared. Meanwhile, taking advantages of this new system could help the authorities to overcome existing problems. And on the other hands investors which act as a valuable capital of stock exchange would be more satisfied and more hopeful to continue their activities in more fruitful market.

Chapter 3:
Research Method

3 *Research Method*

This chapter will present detailed idea about how the research will be conducted. Researcher is going to describe and justify what methods that applied to answer the research questions. This includes the purpose of the research, research approach, research strategy, sample selection methods and data collection methods. At the end of this chapter validity and reliability issues will be discussed to follow the quality standards of the research. The steps of this chapter are shown in figure 8:



Source: Adapted from Foster (1998)

Figure 8: Schematic Presentation of the Methodology

3.1 Research Purpose

Research can be classified in terms of their purpose. Accordingly, they are most often classified as *exploratory*, *descriptive* or *explanatory* (Saunders et al., 2003).

Exploratory research is useful when the research questions are vague or when there is little theory available to guide predictions. At times, researcher may find it impossible to formulate a basic statement of the research problem. Exploratory studies are a valuable means to develop a better understanding of research problems and also to assess phenomena in a new light. It is particularly useful if researcher wish to clarify the understanding of a problem. There are three principles ways of conducting exploratory research: a search of the literature, talking to experts in the subject, conducting focus group interviews (Saunders et al., 2003).

Descriptive research describes some situation. Generally, things are described by providing measures of an event or activity. For example, which brands are most preferred? What advertisements are most effective? These are the questions that can be answered by descriptive research. Descriptive research designs are usually structured and specifically designed to measure the characteristics described in a research questions. Hypotheses, derived from the theory, usually serve to guide the process and provide a list or what needs to be measured (Hair et al., 2003). The object of descriptive research is to portray and accurate profile of the persons, events of situations. 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 et al., 2003).

Studies that establish causal relationship between variables may be termed *explanatory* studies. The emphasis here is on studying a situation of a problem in order to explain the relationship between variables (Saunders et al., 2003). Explanatory studies are designed to test whether one event causes another (Hair et al., 2003).

The purpose of this research is mainly descriptive and explanatory. It is descriptive because descriptive data has been collected through detailed interviews and library studies. It is also explanatory since researcher has explained the relationship between the service quality variables in stock exchange and customer satisfaction and how these dimensions affect customer satisfaction. It is somewhat exploratory nature since researcher is exploring the relationship between service quality variables and satisfaction based on the modified model that applied in this research.

3.2 Research approach

When conducting a research there are different ways to address the matter. Here, different research approaches will be presented and the research approach of this study and related reasons will be given. First, deductive versus inductive research approaches will be discussed and secondly qualitative and quantitative research will be explained.

3.2.1 Deductive versus Inductive Research

Conclusions can be drawn through either inductive or deductive research. These two approaches represent two different philosophies. The inductive way to draw conclusions is founded on empirical data. The researcher established theories and models that are based on different phenomena in reality. If the researcher on the other hand has a deductive approach then he/she uses existing theories, and investigates these empirically, with different methods (Eriksson et al., 1997). Existing theory is the base for deciding what information that should be selected, how it should be understood and, finally, how to relate the results to the theory (Patel and Davidson, 1994)

This study is deductive due to the way researcher developed the purpose and research questions. Researcher has started from already existing theories, which can be latterly compared with reality. Finally, researcher aims to draw logical conclusions from findings.

3.2.2 Qualitative and Quantitative Method

The qualitative and quantitative methods refer to the way one chooses to treat and analyze the selected data (Patel and Davidson, 1994). Both the qualitative and quantitative approach are aimed at creating a better understanding of the society and to comprehend how individuals, groups and institutions act and have an influence on each other(Holmes and Solvang, 1997). According to Yin (1994) the best approach to use for a study depends on the purpose of the study and the accompanying research questions.

Some researchers distinguish between qualitative and quantitative research, but there is a mutual basis for the two (Yin, 1994). The aim of quantitative research is

to make generalizations based on the result of the research. A quantitative approaches the research problem from a broad perspective and is relatively structured and formulized, meaning that a limited amount of information is gathered from various research units' systematic and structured observations. The results of quantitative research are assumed to be measurable and presentable in numbers and statistics (Holmes and Solvang, 1991). In other words, quantitative methods transform the information to numbers and amounts that later gets analyzed statistically. Besides, in the qualitative method it is the researcher's perception and interpretation that is taken into consideration. The qualitative research aims at reaching a better understanding of the phenomenon that is being studied and this is conducted by gaining a large amount of information from few research units. Furthermore, qualitative studies tend to be more flexible, while the quantitative ones are more structured (Holmes and Solvang, 1997).

Based on the purpose of this study and related research questions, as well as the above discussion, the procedure which has been chosen is included both methods. It is quantitative because, in order to answer the major research question, researcher selected five service quality dimensions and wanted to measure them by the means of structured questionnaire and through a survey. It is also qualitative since this sector of market in Iran is very specialized and beside library studies and reviewing performed researches in this field, interviewing with related experts and managers is necessary. Therefore, researcher conducted a qualitative research in order to find out tailored answers for minor research questions.

3.3 Research Strategy

Research strategy will be a general plan of how researcher will go about answering the research questions that have 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, money and also ethical issues (Thornhill et. al., 2003).

Based on the conditions 1) form of research question 2) requires control over behavioral events and 3) focus on contemporary events Yin (1994) identified five

research strategies in social science. These are – experiments, surveys, archival analysis, histories and case studies (see table 2).

Table 2*:* Relevant Situation for Deferent Research Strategy

Strategy	Form of research question	Requires control over behavioral events?	Focuses on contemporary events?
Experiment	How, why	Yes	Yes
Survey	Who, what, where, how many, how much	No	Yes
Archival analysis	Who, what, where, how many, how much	No	Yes/No
History	How, why	No	No
Case study	How, why	No	Yes

Source: (Yin, 1994)

Most important condition for selecting research strategy is to identify the type of research question being asked. "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 an exploratory study and the goal is to develop pertinent hypotheses 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).

Since the major research question in this study is based on "How" question and the researcher is looking for the possibility of enhancing customer satisfaction by the means of online trading service quality, and investigator has no control over the actual behavioral events, survey is found to be the most appropriate approach in order to gain a better understanding of the research area. Meanwhile, survey is more appropriate method in order to gain a better understanding of the research area in quantitative study.

3.3.1 Survey

The survey strategy is popular and common strategy in business research that is usually associated with the deductive approach. Survey allows the collection of large amount of data from a sizeable population in a highly economical way. Surveys are used when the research involves collecting information from a large sample of individuals (Samuel et. al., 2003). Questionnaire, structured observation and structures interviews are often falls into 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. There are several compelling reasons for sampling, including: lower cost, greater accuracy of result, greater speed of data collection and availability of population selection (Cooper and Schindler, 2003).

3.4.1 Selecting the sampling Method

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

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 provides 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 (Samouel et. al., 2003).

According to Samuel and his colleagues, most non-probability sampling methods are:

3.4.1.1 Convenience sampling

Convenience sampling involves selecting 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 (Hair et. al., 2003).

3.4.1.2 Judgment sampling

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 they can be selected as sample element. Sometimes it referred as a purposive sample because it involves a specific purpose. Judgment sampling is more convenience and low cost involvement (Hair et. al., 2003).

3.4.1.3 Quota sampling

Objective of quota sampling is to have proportional representation of the strata of the 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 cannot be generalized because of the choice of elements is not done using a probability sampling methods (Samouel et. al., 2003).

Purpose of this research is to identify, if online trading has positive effect on traders satisfaction or not and also classify the service quality dimensions in Tehran Stock Exchange. The sample has been selected from the entities that have a trading code. In Tehran SE around 2 millions entities have trading code and it should be

mentioned that, a large number of these traders have no practical experience of stock trading and they are just simple workers of factories that have a limited number of related companies' shares. According to experts statement only 200 thousands of traders are active and 800 traders come to trade hall daily. So researcher narrowed down the number of population to the active traders who trades more than three times during a period of three months. As the size of population is known so the sample size is determined by the means of relative error (Cochran, 1977):

$$n_0 = (\frac{Z_{\frac{\alpha}{2}}}{r} . \frac{S}{\overline{Y}_N})^2$$

$$n = \frac{n_0}{1 + n_0 / N}$$

As "S" and "$\overline{Y}_{N"}$ are not known, "s" and "$\overline{Y}_n$" are used in equation. So:

$$n_0 = (\frac{Z_{\frac{\alpha}{2}}}{r} . \frac{s}{\overline{Y}_n})^2$$

Suppose r = 0.04. Meanwhile S and Y_n are known so:

$$n_0 = (\frac{1.96}{0.04} . \frac{0.7831}{0.8516}) = 45.058 \cong 45$$

$$n = \frac{45}{1 + 45/800} = 42.6035 \cong 43$$

Therefore, the minimum size of sample should be 43. Afterward, by the means of applied computer software the random sample members are clarified in both days (See Appendix 1).

3.5 Data Collection methods

There are two major approaches for gathering information about a situation, person, problem or phenomenon. Sometimes, the required information is already

available and need only be extracted. However there are times when the information must be collected. Based upon these broad approaches, data are categorized as: Secondary data and Primary data. Secondary data are collected from secondary sources such as governmental publications, personal records, census (Kumar, 1996) and primary data are collected through: observation, interviews and/or questionnaires (Hair et. al., 2003).

According to the nature of major research question, the quantitative approach is chosen and in this case a questionnaire is prepared to measure the traders' satisfaction in two steps. Hence, primary data will be extracted from the traders who are the critical focus point of this study. This questionnaire has three parts with the same structure and content but in three aspects. The first part is looking for traders' expectation of an ideal stock exchange's service quality and identifies their anticipations. The second part focuses on traders' perceptions of current service quality that offer in Tehran Stock Exchange. The third part explains their perceptions of service quality of a stock exchange equipped by online trading system. In another part of the questionnaire, participants in our sample should rank five service quality dimensions according to their beliefs and opinions. General background information on individuals such as gender, education, age, occupation and times of trading during 3 months asked from participants.

The questionnaire was developed based on research question and frame of reference. The logical structure of questionnaire followed the order of service quality dimensions in frame of reference. For understanding the importance and satisfaction of each service quality dimension a 5-point Likert-scale (1=very high, 5= very low) was used.

In order to improve and test the questionnaire researcher conducted some pilot test, so ten questionnaires were handed out to ten students of TMU who are familiar with stock trading and asked them whether all questions made sense and easy to understand. After refining some questions, the well-improved questionnaire was developed.

For the purpose of answering minor research questions, required data collected through qualitative approach. According to Creswell (2003) data collection procedure

in qualitative research involve four basic types: Observations, Interviews, documents and audiovisual materials. Therefore, gathering secondary data from Inspection Department of Tehran Stock Exchange and interviews with related qualified managers and experts were conducted.

3.6 Data Analysis

After collecting all the data the process of analysis begins. To summarize and rearrange the data several interrelated procedure are performed during the data analysis stage (Zikmund, 2000).

For quantitative data analysis, statistical soft wares of Microsoft Excel and SPSS were used for data input and analysis. The statistics results were presented by graphical form with detail descriptions.

3.7 Validity and Reliability

In order to reduce the possibility of getting the answer wrong, two issues on research design are required to be mentioned: reliability and validity (Saunders et. al., 2003). These two are defined the quality of the research.

3.7.1 Validity

Validity is concerned with whether the findings are really about what they appear to be about (Saunders et. al., 2003). Validity defined as the extent to which data collection method or methods accurately measure what they were intended to measure (Saunders, 2003). Yin (2003) states, "no single source has a complete advantage over all others". The validity of scientific study increases by using various sources of evidence (Yin, 2003).

Numbers of different steps were taken to ensure the validity of the study:

- Data was collected from the reliable sources. Participants were collected from traders who are more experienced in stock trading;
- Survey questions were made based on literature review and frame of reference to ensure the validity of the result. Questionnaire generate based on a well-known customer satisfaction measuring model which calls SERVQUAL;

- Questionnaire has been pre-tested before starting the survey. Questionnaire was tested by at least ten persons;
- Data has been collected in two days. These two days selected randomly from the days during a week.

3.7.2 Reliability

According to Saunders et. al., 2003, reliability refers to the degree to which data collection method or methods will yield consistent findings, similar observations would be made or conclusions reached by other researchers or there is transparency in how sense was made from the raw data.

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

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?

Numbers of different steps were taken to ensure the reliability of the study:

- Questionnaires were distributed in two different days which had chosen randomly;
- Alpha Cronbach test has been taken for 20 items of each three parts (service quality factors). Table 3 shows all the result which were more than .8 and confirmed the reliability of the questions.

	Cronbach's Alpha	No. of Items
Group 1 (Ideal)	.91	20
Group 2 (Tehran SE)	.92	20
Group 3 (Online)	.87	20

Table 3: Reliability statistics

- Finally, according to Gummesson (1999)"…the more advanced knowledge that one has of the area under study, the greater the potential value of a study visit or an interview". Thus the researcher should learn related knowledge

about stock trading before hand. Fortunately, researcher has sufficient experience in this field:

1. 4 years experience of stock trading in Tehran Stock Exchange.
2. 1 year experience in board of surveillance of Tehran Stock Exchange as an expert.

3.8 Conceptual framework

Based on the narrow down scope of literature review above, the relationship between online trading and customer satisfaction can be shown in figure 9 below. The five Service quality dimensions have been selected from the SERVQUAL model. In the SERVQUAL model, 22 statements measure the performance across the five dimensions. For each statement, the expectation and the experience of a customer are determined.

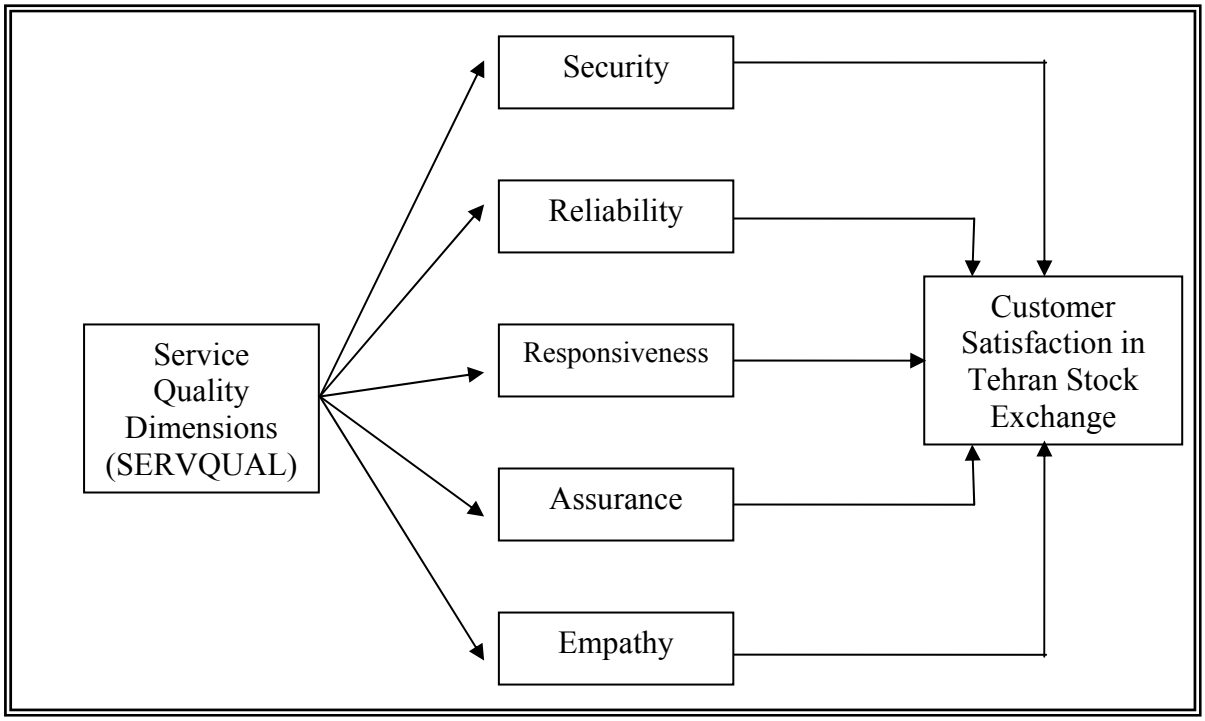


Figure 9: Relationship between online trading and customer satisfaction

The SERVQUAL scale has been widely used by academics and practitioners to measure service quality. Therefore, this model has been used as a point of reference in this thesis.

Researcher suggested that five service quality dimensions identified by Parasuraman et al. (1988) can be applied in stock exchange by replacing tangibility with the security, since it describes the risk that face to traders. According to the literature Parasuraman at al. had determined security as a critical factor of service quality in measuring customer satisfaction when they first developed the SERVQUAL model in 1985. Later, they limited into 5 dimensions. Szymanski and Hise (2000) and also Yoo and Donthu (2001) empirically found that customers' perceptions of security played an important role in their satisfaction and trading intention. In fact, the perceived lack of security in trading system is stumbling block to the growth of trading and mainly online trading. Referring to the importance of security and the trading risks in a stock exchange researcher decided to omit the tangibility factor which is not very important in this part of service sector and replace it with security.

Chapter 4:

Research data description, analysis and results

4 *Research data description, analysis and results*

This chapter will presented data that has been collected through quantitative survey. First of all the process of designing and developing our questionnaire will be described and then the process of group sessions' managing and administrating will be explained. Afterward quantitative data and response rate will be presented. Finally, descriptive statistics, characteristics of sample and analyze data between groups and within groups will be taken into consideration.

4.1 Designing and developing the questionnaire

Regarding the nature of research questions which are mainly descriptive, survey and quantitative observations are the core techniques in descriptive research design. As, recording the behavioral patterns of people in stock trading process is not the goal of this research (which is obtained by the means of observation), it is preferred to conduct a survey. Survey techniques are based upon the use of structured questionnaires given to a sample of a population (Malhotra, 2005). In this case the advantages of survey methods will be obtained, like: 1- the questionnaire is simple to administer, 2- the data obtained are consistent because the responses are limited to the

alternatives stated, 3- the use of fixed-response questions reduces the variability in the results that may be caused by differences interviewers and 4- coding, analysis and interpretation of data are relatively simple.

Questionnaire is designed based on SERVQUAL model which introduced by Parasuraman and the questionnaire extracted from Handbook of customer satisfaction measurement. The model has 22 questions that measured 5 service quality dimensions: tangibles, reliability, responsiveness, assurance and empathy. Each dimension describe in chapter 2 of this research and as mentioned there tangibles refer to the "up-to-date equipment", "physical facilities are visually appealing" and "materials are visually appealing" and according to the experts expressions the role of tangibles on traders' satisfaction is very low besides security can play a vital role instead. Moreover Jun et al. deduced that six factors impact on costomers' perceptions of online service quality on their satisfaction in 2004 and the fifth factor is security with two items:

1. To feel secure in providing personal information for online purchase;
2. To feel the risk associated with online transactions was low.

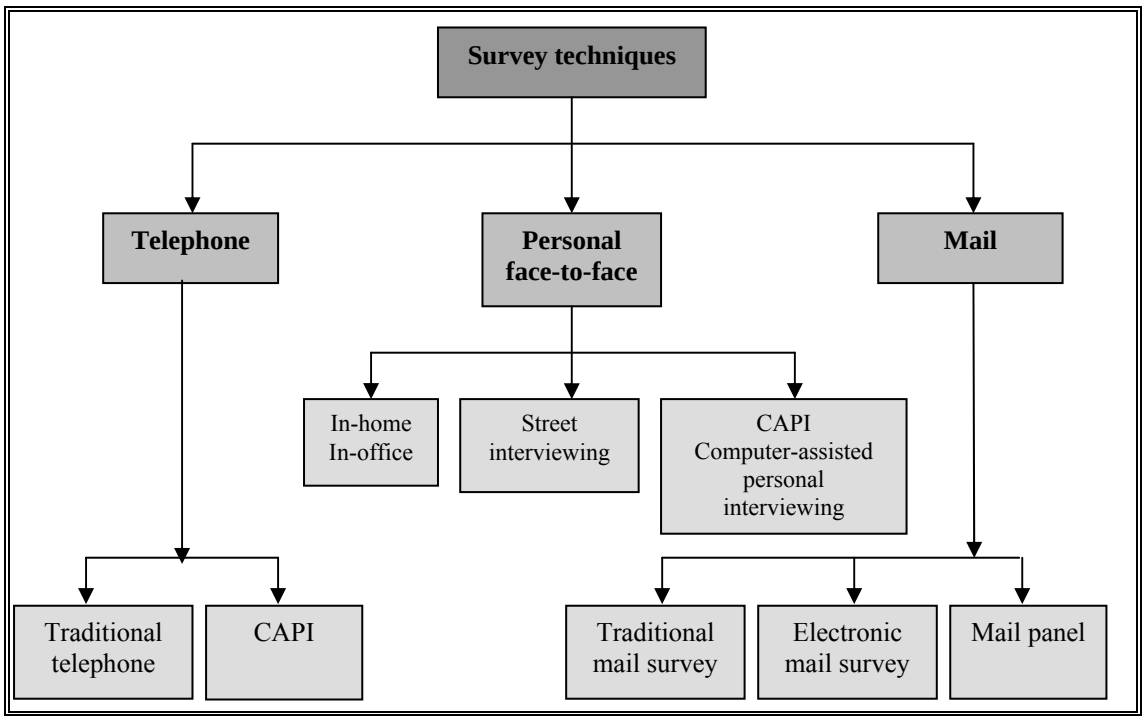
As the other factors included in focused service quality dimensions; hence, it is just decided to replace security with tangibility factor since tangibility factor has no significant affect on traders' satisfaction and researcher replaced 2 questions which measure security factor instead of 4 questions of tangibles. Finally, questionnaire included 3 main parts with 20 questions in each part. Questions of all 3 parts have the same contents and structure. First part measure the traders expectation of an ideal stock exchange services, second part measure their perception of current trading service system and the last part measure their perception of online trading system. Also, there is an additional part which let the traders to rank 5 service quality dimensions.

It takes 2 weeks time periods to conduct and complete the modified questionnaire and asked the experts to give their opinion about the contents of each question. Then while the questionnaire was being translated and interpreted from the original one, it was decided to conduct pilot testing to identify and eliminate potential problems. So the researcher asked some of traders that were drawn from the

population and also were available to fill up the questionnaire and then discuss about their understanding of each question. Conducting of pilot tests were continued till there was no vague or misunderstanding point and after 9 pilot tests it seams that all the necessary changes have been made and developed questionnaire was ready to apply to real sample.

4.2 Administration of survey questionnaire

The next step was the way of administration of survey questionnaires. Survey questionnaires may be administered in three major modes which are illustrated in figure 10.



Source: (Malhotra and Briks, 2003)

Figure 10: A classification of survey techniques

Since the subject of this research is new and online trading is not applied in Tehran Stock Exchange, personal face to face survey was chosen and researcher administered questionnaires to the sample at once. Researcher decided to measure the satisfaction level in current trading system and also the traders' expectation of an ideal stock exchange services; thereafter, satisfaction level of an online trading system will be measured as well. To reach this goal two specific sessions were conducted. Each of these sessions lasted around 45 minutes. At the beginning of the session the researcher of this study who executed the session explained the exact current trading process and

described the role of each related parties by using power point presentation. It should be mentioned that all the information collected through interview with experts and Tehran Stock Exchange publications and before presentation session the content of lecture was confirmed by Mr. Khaje Nasiri, secretary of surveillance board.

Lastly, researcher wrote down the days of the week from Saturday to Sunday and selects one of them randomly which is Sunday. Researcher prepared 300 letter of invitation to announce everyone who was coming to trading hall about the session and inform them about the goal of the session and the time and place and ask them to attend.

4.3 Group Session Disposition

The first session started at 12:30 in conference room (second floor of Tehran SE). Researcher explained structure and specifications of current system briefly and made the participants familiar with the purpose of the research. Then, it was required to fill up the first part of the questionnaire which took less than 10 minutes. Then the researcher described the purpose of second part in which they should rank the 5 dimensions of service quality. This part takes less than 10 minutes either. The third part was related to participants' perception of current system which asked to be fulfilled. Thereafter, researcher gave details and explained the processes in online trading and described the trading system evolution and progress in some developed stock exchange like Singapore and France and demonstrated the demo-software of how transactions are executed in online trading system (downloaded from Saxo Bank website). Advantages and particularly disadvantages of online trading which had been extracted from great amount of valid researches were presented for the sample members. They were asked to fill up the last part of the questionnaire.

The second day selected randomly again (Sunday was omitted) which was Wednesday and the steps as the first section was retried exactly.

4.4 Quantitative Data Presentation

As it was mentioned, group administration sessions have been conducted based on the structured questionnaire and the questionnaire has been developed based on the factors that were identified in conceptual framework.

The purpose of the questionnaire survey was to develop empirical correlation between quality factors of stock exchange that are important to traders as main customers of stock exchange. The survey comprised the following questions:

- Personal information (gender, age, education, occupation);
- Number of transactions during 3 months (less or more than 3); and
- Dimensions of service quality in stock exchange (a predefined list of 20 questions).

The core of the questionnaire was related to the list of aspects of service quality. Respondents were asked to indicate the importance of that aspect. The structure of the questionnaires was based on SERVQUAL model (Parasuraman et al., 1988) that explains thoroughly in previous part and included five dimensions:

- Security;
- Reliability;
- Responsiveness;
- Assurance; and
- Empathy.

For each of these dimensions a number of aspects have been defined in the questionnaire. There are two questions that belong to the first dimension. The questions are:

- Feel secure in providing personal information; and
- Risk associated with transactions.

The next five questions are referring to second dimension which is reliability. The core concepts of these questions are:

- keep promised words;
- Sincere interest in solving a customers' problem;
- Perform the service right the first time;
- Provide their services at the time being promised to do so; and
- Insist on error-free records.

Questions eight to question eleven evaluate the third dimension. Different sides of responsiveness related to the employees of the stock exchange. It determined the traders' perceptions and expectation about employees and focus on if employees:

- Tell customers when exactly services will be performed;
- Give prompt service to customers;
- Be willing to help customers; and
- Never be too busy to respond to customers' request.

The next four questions conclude the questions related to assurance and the questions are:

- The behavior of employees will instill confidence in customers;
- Customers will feel safe in their transactions;
- Employee will be consistently courteous with customers; and
- Employees will have knowledge to answer customers' questions.

It is worth knowing that, there is a fundamental different between question number 2 of security with question number 13 which related to assurance. As it is obvious, question number 2 is concerning information security and question number 13 is about the accuracy of transactions.

Finally the last five questions are allocated to empathy which argues about:

- Give customers individual care and attention;
- Have operating hours convenient to all their customers;
- Have employees who give customers personal attention;
- Have the customer's best interests at heart; and
- Understand customers' specific needs.

As a result researcher collected the answers of participants from three outlooks:

1. Traders' expectation of an excellent(ideal) stock exchange;
2. Traders' perception of Tehran Stock Exchange; and
3. Traders' perception of a stock exchange with online trading system.

4.5 Sample and Response rate

According to expert statements, the target population has 2 millions members which had trading code but only 200 thousands code are active and around 800 active traders comes to Tehran Stock Exchange hall daily. So researcher decided to collect the sample through these active traders which attend in stock exchange. Researcher selected a day randomly and distribute related letter of invitation by one of the employees and explained the purpose of the research and invited them to attend the session. The second day was chosen randomly again to be clear that the chosen day has no impact on traders' perceptions and expectations. 105 traders had attended the sessions but only 96 of the questionnaires are filled up completely. As a result the response rate is 0.914 which is acceptable for this type of research.

4.6 Descriptive Statistics

In this part researcher described the characteristics of sample. As it is obvious in diagram, more than 90% of the participants were male which contain 87 traders and 9.3% of them were female.

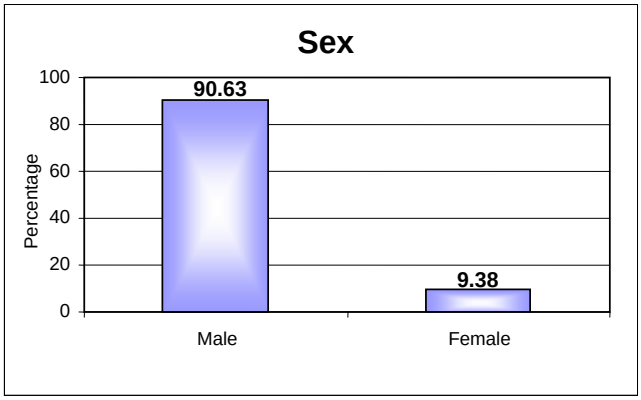


Figure 11: Sample distribution based on sex

The next figure shows the distribution of sample based on age. As it is illustrated only 6.25% were less than 24 years old. 43.75% were between 24 to 33 years old. More than 26% of sample presented the 34 to 43-year-old traders and 16.67% were between 44 to 53 years old and finally less than 8% were more than 53 years old.

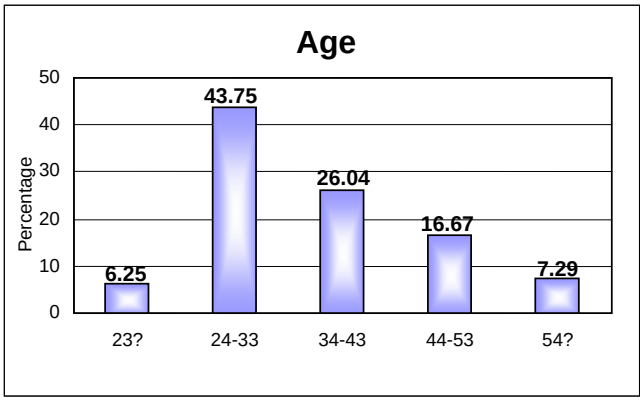


Figure 12: Sample distribution based on age

The next figure exposes the sample division based on field of education and as it is clear 39.58% had no academic education and 16.67% finished their academic studies in technical branches. The 43.75% finished their studied in other branches like finance, accounting, management, economics and etc.

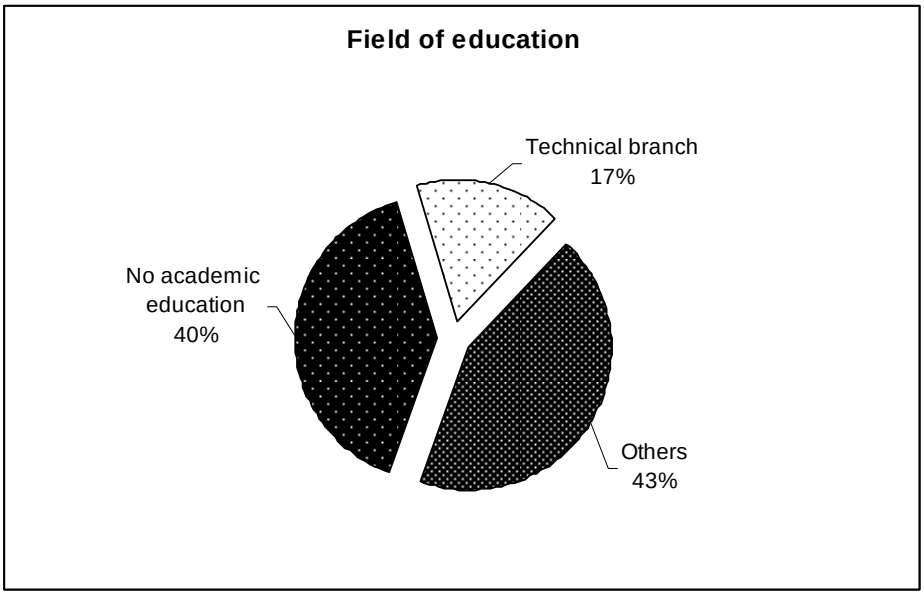


Figure 13: Sample distribution based on field of education

Figure 14 demonstrates the sample distribution based on traders' occupation. Students were formed 10.42% of sample. 43.75% had their own job and 9.38% were working in governmental institutes. 35.42% were just earning a livelihood through stock trading. Finally, one question left unanswered by only one member that shown in figure as well.

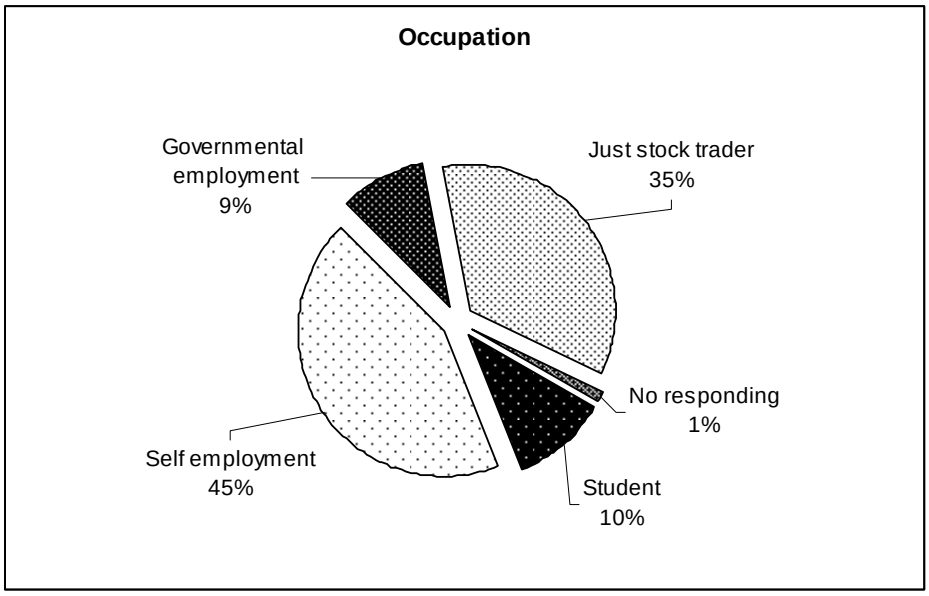


Figure 14: Sample distribution based on occupation

4.7 Between Groups Analysis

In first step researcher focused on the traders' expectation and analyzed their means to rank these dimensions according to their answer. Therefore, as below tabulation, researcher reached to this conclusion that in sample's point of view, reliability plays the most critical role in an ideal stock exchange and assurance, responsiveness, security and empathy take place in next levels.

Table 4: Between group analysis

Dimensions	Means	Rank
Security	1.68	4
Reliability	1.53	1
Responsiveness	1.66	3
Assurance	1.58	2
Empathy	1.74	5

4.8 Within groups analysis

In this part, mean of each question inside the groups was used to identify the level of each item's importance in comparison with other related items within each group.

Table 5 shows that, among questions of first group that evaluate security as first dimension of the model, feeling secure in providing personal information have more influence on traders' satisfaction.

Table 5: Within group analysis in first dimension: Security

Aspects of security	Means	Rank
Feel secure in providing personal information	1.65	1
Risk associated with transactions	1.73	2

Table 6 ranks the aspects of second dimension and it is clear that undertaking of promise words is the core criteria in this dimension. Provide their services at the time they promise to do so, insist on error-free records, sincere interest in solving a customers' problem and finally perform the service right the first time stand in next stage of importance.

Table 6: Within group analysis in first dimension: Reliability

Aspects of reliability	Means	Rank
To keep words	1.46	1
Sincere interest in solving a customers' problem	1.56	4
Perform the service right the first time	1.61	5
Provide their services at the time they promise to do so	1.49	2
Insist on error-free records	1.50	3

Within the aspect of responsiveness the first aspects which is about telling customers exactly when services will be performed, has the highest score. Meanwhile, the next two aspects get the same score and finally, the aspect of: "Never be too busy to respond to customers' request". Table 7 shows ranking of four aspects of responsiveness by the means of their means.

Table 7: Within group analysis in first dimension: Responsiveness

Aspects of responsiveness	Means	Rank
Tell customers exactly when services will be performed	1.58	1
Give prompt service to customers	1.78	2
Be willing to help customers	1.78	2
Never be too busy to respond to customers' request	1.84	3

Assurance has 4 aspects and also 4 questions to identify the importance of this dimension. Customers will feel safe in their transactions gets the highest score and aspect number 1 and then aspect number 4 and finally aspect number 3 take place in next stage.(see table 8)

Table 8: Within group analysis in first dimension: Assurance

Aspects of assurance	Means	Rank
The behavior of employees will instill confidence in customers	1.47	2
Customers will feel safe in their transactions	1.30	1
Employee will be consistently courteous with customers	1.72	4
Employees will have knowledge to answer customers' questions	1.61	3

The last dimension which is empathy included 5 aspects and the most important aspect is having the customer's best interests at heart. Thereafter, aspect number 3, 1, 5 and finally aspect number 2 locate in next level of importance in related dimension. (See table 9)

Table 9: Within group analysis in first dimension: Empathy

Aspects of empathy	Means	Rank
Give customers individual attention	1.74	3
Have operating hours convenient to all their customers	1.83	5
Have employees who give customers personal attention	1.73	2
Have the customer's best interests at heart	1.67	1
Understand the specific needs of their customers	1.77	4

Chapter 5:

Discussion, conclusions and further research

5 Discussion, conclusions and further research

In the previous chapter, the empirical data were presented and analyzed. In this final chapter the research questions will be answered and general conclusion will be drawn. At the end implications for management, theory and future research will be addressed.

5.1 Major Research Question: How online trading impacts on customer satisfaction in Tehran Stock Exchange?

In order to discover that if there is a significant difference between the degrees of traders' satisfaction in conventional trading system which is applied in Tehran Stock Exchange with online trading system, researcher tested hypothesis:

$$\begin{cases} H_0: \mu_1 = \mu_2 \\ H_1: \mu_1 \neq \mu_2 \end{cases}$$

μ_1 represent the mean of Tehran Stock Exchange and μ_2 represent the mean of a stock exchange with online trading system. As researcher established the test on a sample so hypothesis will be:

$$\begin{cases} H_0: x_1 = x_2 \\ H_1: x_1 \neq x_2 \end{cases}$$

x_1 shows the mean of conventional stock exchange and x_2 shows the mean of sample in an online stock exchange.

The significant level in all six paired sample tests are zero, so it is clearly less than 0.01, hence null hypothesis which indicated that the means are the same, will be rejected. Then researcher interested to know which one is bigger so the means were compared. As it shows in table 10 in all dimensions without exception the means of online trading system are higher than the means of conventional trading system.

Table 10: Paired sample tests

Dimensions comparison		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Deviation Std.	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	TEHRAN - ONLINE	.8516	.7831	.0799	.6929	1.0102	10.65	95	.000
Pair 2	TEHRAN_A - ONLINE_A	.5573	1.1650	.1189	.3212	.7933	4.687	95	.000
Pair 3	TEHRAN_B - ONLINE_B	.9844	1.0537	.1075	.7709	1.1979	9.153	95	.000
Pair 4	TEHRAN_C - ONLINE_C	.8594	.9096	.0928	.6751	1.0437	9.257	95	.000
Pair 5	TEHRAN_D - ONLINE_D	.7958	.8146	.0831	.6308	.9609	9.572	95	.000
Pair 6	TEHRAN_E - ONLINE_E	.9125	1.2521	.1278	.6588	1.1662	7.140	95	.000

Therefore researcher reached to this important conclusion that utilizing online trading system instead of conventional system, which is abolished in developed stock exchanges, could enhance the customers' satisfaction.

5.2 First Minor Research Question: What are the factors which effect on traders' dis/satisfaction?

According to the research which conducted by Yang and Fang in 2004, the most often-mentioned service quality factors leading to dissatisfaction are: Responsiveness (31 percent), service reliability (12 percent), ease of use (11.3 percent), competence (10.3 percent), access (9.6 percent), system reliability (7.8 percent), timeliness (6.6 percent) and security (3.8 percent). As it is clear responsiveness and service reliability are the most effective factors that cause dissatisfaction. Referring to the data gathered from deportment of inspection and

brokers' affairs regarding to complains that were gathered from 16 July 2004 till 16 July 2005, 76% of traders' complains were mainly related to assurance, reliability and responsiveness factors of SERVQUAL model. The frequency of complains and percentages summarized in table 11.

Table 11: The frequency of complains and percentages

Complain cause	Frequency	Percentage
Security settlement without owner permission (No assurance and safe transaction condition)	92	31
Non-observance of priority in executing transactions(Not to keep words)	64	21
No graceful and good manner	59	20
Non-execution of traders order (No prompt service)	54	18
No on time security and cash delivery	19	6
Others	13	4
Total	301	100

So it seems that providing the quality services which mentioned in assurance, responsiveness and reliability factors are necessary and can avoid considerable rate of dissatisfaction. But it is not enough to omit the cases that lead to decline these factors but also providing quality services which raise the rate of all the five factors can enhance the satisfaction level. With reference to the open question at the end of the questionnaire traders looking for a trading area in which:

- The information is distributed equally and with no delay;
- There is no price manipulation;
- Punishment for offenders;
- Full supervision over brokers' performance;
- Logical controlling over the market; and
- others

All these aspects are included in five service quality dimensions that examine in this research.

5.3 Second Minor Research Question: What are the roles of different involved parties in this new online trading system?

As mentioned in second chapter the parties that involve in conventional trading structure were discussed and shown. New online trading system need to redesign trading system and in some cases with different parties. Researcher suggested new online trading system with specific structure illustrated in Figure 13:

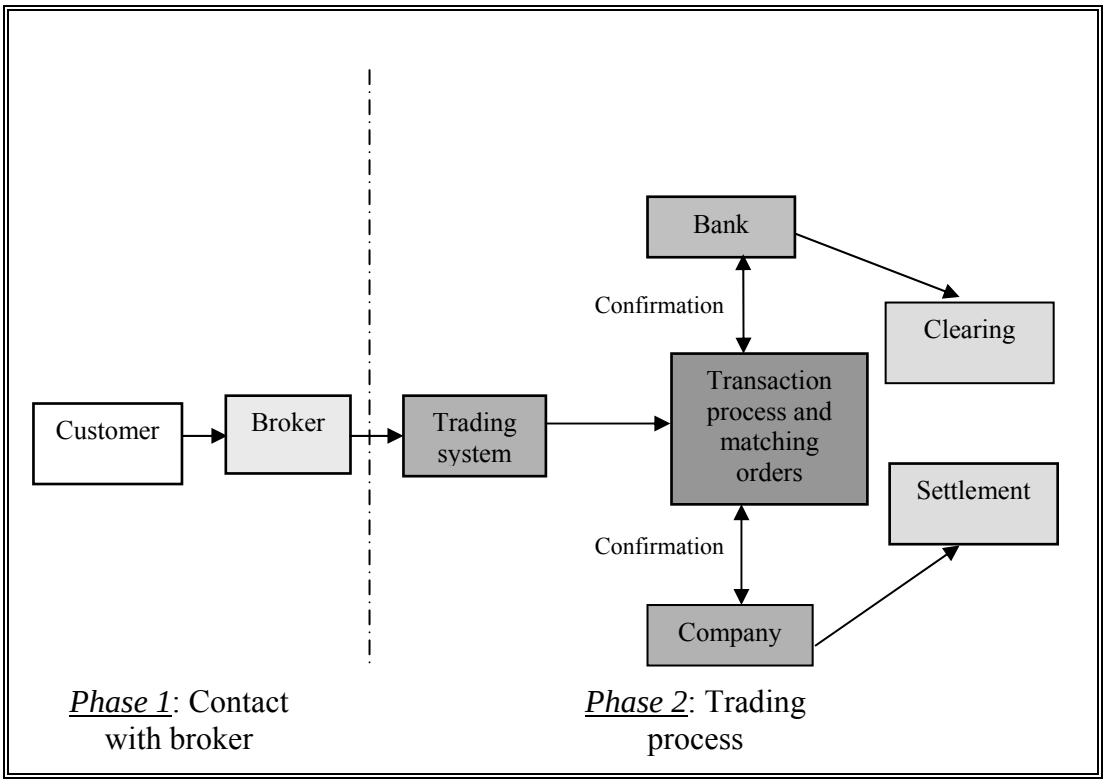


Figure 15: New online trading system

1. *Stock exchange:* Act as a supervisor and trace the transactions and trades in order to be sure of no offense.
2. *Bank:* Traders put their cash in bank and in their own account instead of brokers account and whenever a trader tend to buy stocks the automatic system check the sufficient cash money existence in bank and then the transaction will done.
3. *Government:* With its three powers which are legislator, executive and juridical power, control the parties' activities.

4. *Brokers:* Act as intermediaries, advisor and also information and analysis providers.
5. *Companies:* Have complete data bases that collect all the related information about the stock holders and prepare up-to-date and accurate announcement about company's performance.

Each of these parties can prepare part of the quality services that are the goal of this research. Some of them like stock exchange and government are more in charge but others are also responsible. (Take a look at table12)

Table 12: Role of parties in new online trading system

Factors / Parties	Security	Reliability	Responsiveness	Assurance	Empathy
Stock exchange	+	+	+	+	+
Bank	+	–	–	–	–
Government	+	+	–	–	–
Brokers	+	+	+	+	+
Companies	–	–	–	+	–

5.4 Second Minor Research Question: What are the potential abilities of Online trading which affect customer satisfaction?

Studies about online stock exchanges and reviewing literature confirm the positive influence of applying technology on satisfaction level of traders in exchanges. Likewise, online trading can create added-value for Tehran Stock Exchange and also for its brokers. The main abilities and advantages of online trading are extracted from four points of view:

1. **From Traders' Point of View:**

Online trading provides facilities for traders and offers superior and high quality services which impact directly on traders' satisfaction degree. Here are the most important services for traders:

- **Information Access and internet as an information highway:** One of the most important problems of investors is stock quotes' accessibility and through online trading and utilizing internet in order to reaching trading information, there is no need to be present in trading hall to access the required information. Besides the quotes, it is much easier to download the analysis reports than to find them in the exchange. In light of the data you get from online providers, it is also very convenient to compare the accuracy from one site to the next. With a few clicks, one can check different sites. The Internet is also a full-time service. Traders can check data whenever needed without regard to normal business hours.
- **Low Commission:** Because of the high competition in the online brokerage market, the average commission is now $9.95(bakes, 2005). As the number of discount brokerages in the market increases, the price war will become more intense. There are companies offering prices as low as $7.95 a trade to gain market share. They are willing to charge less and boost sales for future brand recognition. Although the charge is low, the quality has not decreased.
- **Privacy**: For actual electronic trading activity, traders gather in the trading room and process the transaction. The function of the trading room works like an electronic community. It is a place on the Internet where traders gather and activate trading. The process maintains the privacy of the traders since they are dealing with unknown entities in separate places. This situation solves the problem of further interaction confusions. With the trader's identification secured, traders can interact more freely. The activity advantage of the online trading room is that it provides a free market.

2. From Brokerages' Point of View

Brokers are also taking the advantages through online trading system. Main advantages are mentioned below:

- **Distribution Channel:** Electronic commerce gives all businesses a better way to distribute product and services including online brokers. It is easier and more efficient to advertise on the Internet than through phone calls or face-to-face sales. Electronic commerce customers are global, meaning that the

business has extended to worldwide market. Participating in electronic commerce shortens the supply chain, bringing the company to the customers.

- **Lower Interaction Costs:** Conventional brokerage firms need a greater number of employees to handle the customer interactions like answering questions, providing information, and collecting data. Setting up electronic transaction sites lowers the number of employees needed for person-to-person contact, which leads to lower labor costs. Other costs that relate to processing the transaction, such as documentation costs and phone calls also decrease when switching from conventional to electronic. Electronic services also reduce documentation error and associated costs.
- **Efficient Information Access:** There is no lack of evidence that online trading sites are used to access investment information or processing transactions. By rating the importance of financial features, the 1996 Annual Financial and Accounting Systems Survey showed that 4.63 out of 5.00 were "reporting and analysis". The usefulness of the financial information is not only important to customers, but also to service providers. The data accessibility of the brokers is one of the main competitive issues. The efficiency of getting up-to-date stock quotes and the ability to provide a comparison of different quotes are great advantages for the online broker. Accesses to various financial sites and investment software provide what the brokers need to perform investment analysis. Most of all, it is an easy way to check what the competitors are offering in order to increase competitive awareness.

3. From Industry's Point of View

Conventional intermediary businesses having a good location, a large work force, and sufficient physical support gain a competitive advantage. The case is different for online transaction providers. Because there are no boundary barriers, a decrease in the need for face to face interaction, and physical systems enough to support the web site, smaller businesses can survive just as easily as bigger companies within the electronic commerce industry. It is for the industry's interest to retain different sized competitors in order to avoid oligopoly (bigger companies dominating the market).

4. **From Other Point of Views**

Online trading has other positive effects like:

- **Efficient Transaction:** Trading through the Internet is more direct than phone calls or gathering to the market. The online trading setup gives the traders a virtually boundary free environment with fewer time considerations. Sending documentation through the network decreases the time to receive information and reduces error, a much better alternative to the slow process of mailing. With the technical functions of the browser, independent or represented traders can activate trading and check the current market quote at the same time and on the same screen.
- **Globalization:** For traders and brokers, the Internet gives the worldwide opportunity to choose or be chosen. The world investing markets are becoming one big market. Investors in Asia are interested in Europe's securities, and people in North America want to know how the stock exchange is performing in Asia. None of this information is efficiently divulged by phone calls or faxes. However, the development of electronic commerce that brings the world market to our home and our work gives us the chance to invest internationally.

5.5 Main contributions:

5.5.1 Implications for Practitioners

Online trading system create an opportunity for traders to buy and sell 24 hours a day which is not easy and almost impossible for break-and-mortar stock exchange and also brokers to create trading condition with this amount of service offering possibility. New online trading system streamline trading process and their related quality dimensions have increasingly become a key driving force in enhancing customers' satisfaction and attract more customers. Identification and ranking of customers' expectations of the services provide by an ideal stock exchange form a frame of reference for ranking traders' preferences of service quality.

This study ordered five dimensions of service quality based on Iranians' perspective. Obviously, in order to maintain a high level of overall service quality,

authorities of stock exchange should pay attention to all these dimensions brought in this study. However, to strengthen competitiveness in the extremely competitive market, it is recommended that authorities of stock exchange should focus on the main five key dimensions which are reliability, assurance, responsiveness, security and empathy in order to achieve high level of service quality and customer satisfaction simultaneously.

5.5.2 Implications for Theory

The main objective of the study is to find out the impact of online trading on customers' satisfaction in Tehran Stock Exchange. In order to find the answer, variety of studies were reviewed and finally a modified model which seems it can be an appropriate model was applied. The basic component of model extracted from SERVQUAL model which proposed by Parasuraman. This model can applied in researches that look forward to measure the customer satisfaction degree in specific segments of service industry that tangibility is pointless.

Also, the other contribution of this research is: identifying five major service quality dimensions which effect on customer satisfaction in Tehran SE and ranking these dimensions from Iranian traders points of view. Number of effective factors were identified and ranked in each dimensions.

Researcher proposes the roles of involved parties as: brokers, companies, stock exchange officials and also governmental sector.

Furthermore, according to results of this research, online trading has impact on customer satisfaction. This impact is positive and enhances service quality and in return increase the customer satisfaction level.

The other important contribution of this research is that the researcher identified and classified the factors which lead to dissatisfaction and show that the lack of five service quality dimensions is effective in appearance of dissatisfaction.

More specifically, concerning research questions, the majority of the findings for this study supported the existing literature. The new findings were discovered

from quantitative empirical data. It also increased and enhanced understanding about relative importance service quality dimensions.

5.5.3 Implications for Further Research

Researcher attempted to cover every aspect which somehow related to this research, but anyhow due to some limitations like, time shortage and resource restrictions, still there is a wide area in online trading word and identifying how it can impact on customer satisfaction. Therefore in further researches the obstacles and limitations should be overcome.

First of all, it is recommended to perform the exact research in which traders can install online trading system and doing their transaction from their PCs, and let them to sense the exact meaning of online trading facilities.

Also, it is suggested to further researcher to implement proposed trading model in real word, get the feedbacks of new installed system and revise it if necessary.

Furthermore, it is necessary to carry out researches about major components and infrastructures of implementing online system. According to experts points of view there are three main infrastructures:

1. Legal infrastructures
2. Cultural infrastructures
3. Technical infrastructures

It seems that investing in the last two aspects are more critical and long-term programming will be indispensable. Cultural infrastructures need large resources for advertising and encouraging traders applying new system. Barriers faced to technical infrastructures are generally solved by the means of financial resources and experts. Moreover, performing fundamental researches regarding to laws and regulations which should be legislated can be very important. Useful and applicable regulation and bylaws can decrease problems.

Finally, in this competitive market, service quality is one of the key elements which offer added-value to companies. In this case stock exchange as one of the more integrated and well-settled market can attract cash flow and use them in development project and prevent of resource wasting.

Respecting this critical issue for e-business, it is believed more researches are needed to fulfill the e-world with superior facilities and make life worthwhile to live.

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Appendix 1: Random numbers for Samples

Sample 1

4	11	15	17	22	26	29	33	37	41
45	54	56	58	66	79	80	83	85	96
103	105	120	131	133	134	139	147	149	150
151	155	159	160	168	170	174	176	179	182
186	188	189	200	203	208	213	217	220	227
228	234	238	239	240	241	244	249	254	270
274	283	292	294	295	296	297	302	310	311
312	313	315	319	320	327	333	339	340	343
347	348	351	358	359	361	367	370	381	383
385	388	393	402	406	408	418	423	425	426
427	434	436	437	438	439	444	453	454	459
475	476	478	484	486	495	501	502	505	506
515	519	527	528	529	540	547	548	549	553
557	558	560	561	562	565	569	571	580	584
596	598	599	600	601	604	606	607	608	616
618	619	623	629	633	637	644	649	650	657
658	659	660	663	664	665	668	675	679	683
693	697	698	702	716	717	718	722	723	727
728	731	732	738	744	745	746	750	751	752
756	757	762	763	764	778	784	791	793	799

Sample 2

2	5	9	11	14	15	21	23	24	25
40	42	44	45	49	50	53	54	67	76
81	88	92	100	104	108	110	115	120	121
125	129	136	141	153	154	157	159	162	171
178	179	181	187	188	190	198	199	200	208
212	217	218	219	220	223	225	230	232	237
239	242	253	258	261	267	269	274	278	281
282	291	302	305	306	309	315	316	318	326
329	333	335	340	344	345	351	353	354	359
362	367	368	369	371	375	376	377	379	381
389	393	395	397	398	402	403	404	408	409
412	413	415	419	421	423	426	429	437	439
446	450	457	467	471	477	481	482	484	493
494	499	502	503	517	520	527	530	532	533
534	546	549	556	557	571	574	579	580	583
585	587	588	592	597	599	600	603	605	607
612	632	642	648	649	655	665	666	679	685
688	693	700	701	708	709	710	717	729	732
742	743	745	749	751	758	760	771	772	773
776	780	781	782	785	788	793	798	799	800

Appendix 2: questionnaire

Directions: Based on your experiences as a consumer of …… services, please think about the kind of……company that would deliver excellent quality of service. Think about the kind of ……..company with which you would be pleased to do business. Please show the extract to which you would be pleased to do business. Please show the extent to which you think such a …..company would possess the features described by each statement. If you feel a feature is *absolutely essential* for excellent……..companies, circle 1. If you feel a feature is *not at all essential* for excellent…..companies such as the one you have in mind, circle the number 7. If you feelings are less strong, circle one of the numbers in the middle. There is no right or wrong answers- all we are interested in is a number that truly reflects your feelings regarding companies that would deliver excellent quality of service.

		Strongly agree				Strongly disagree
1	Customers feel secure in providing personal information in excellent……companies.	1	2	3	4	5
2	Risk associated with transactions is low in excellent……companies	1	2	3	4	5
3	When excellent……companies promise to do something by a certain time, they do so.	1	2	3	4	5
4	When a customer has a problem, excellent ….companies will show a sincere interest in solving it.	1	2	3	4	5
5	Excellent….companies will perform the service right the first time.	1	2	3	4	5
6	Excellent…companies will provide their services at the time they promise to do so.	1	2	3	4	5
7	Excellent……companies will insist on error-free records.	1	2	3	4	5
8	Employees in excellent…companies will tell customers exactly when services will be performed.	1	2	3	4	5
9	Employees in excellent……companies will give prompt service to customers.	1	2	3	4	5
10	Employees in excellent ….companies will always be willing to help customers.	1	2	3	4	5
11	Employees in excellent ….companies will never be too busy to respond to customers' requests.	1	2	3	4	5
12	The behavior of employees in excellent ….companies will instill confidence in customers.	1	2	3	4	5
13	Customers of excellent ….companies will feel safe in their transactions.	1	2	3	4	5
14	Employees in excellent ….companies will be consistently courteous with customers.	1	2	3	4	5
15	Employees in excellent ….companies will have knowledge to answer customers' questions.	1	2	3	4	5
16	Excellent ….companies will give customers individual attention.	1	2	3	4	5
17	Excellent ….companies will have operating hours convenient to all their customers.	1	2	3	4	5
18	Excellent ….companies will have employees who give customers personal attention.	1	2	3	4	5
19	Excellent ….companies will have the customer's best interests at heart.	1	2	3	4	5
20	Employees of excellent ….companies will understand the specific needs of their customers.	1	2	3	4	5

Directions: Listed below are five features pertaining to…….companies and the services they offer. We would like to know how important each of these features is to you when you evaluate a ….. company's quality of service. Please allocate a total of 100 points among the five features *according to how important each feature is to you*- the more important a feature is to you, the more points you should allocate to it. Please ensure that the points you allocate to the five features and up to 100.

1. The……company's ability to perform a secure trading system.

……..points

2. The……company's ability to perform the promised service dependability and accurately.

……..points

3. The ……..company's willingness to help customers and provide prompt service.

……..points

4. The knowledge and courtesy of the …..company's employees and their ability to convey trust and confidence.

……..points

5. The caring, individualized attention the……..company provides its customers.

……..points

Direction: The following set of statements relate to your feeling about XYZ company. For each statement, please show the extent to which you believe XYZ company has the feature described by the statement. Once again, circling 1 means you strongly agree that XYZ company has that feature, and circling 7 means that you strongly disagree. You may circle any of the numbers in the middle that show how strong your feelings are. There are no right or wrong answers- all we are interested in is a number that best shows your perceptions about XYZ company.

The questions in the final section, covering customers' perceptions of the service received, use the same seven-point Likert scale as shown in the first section. Here the questions alone are reproduced.

		Strongly agree				Strongly disagree
1	You feel secure in providing your personal information in ……companies.	1	2	3	4	5
2	Risk associated with transactions is low in ……companies	1	2	3	4	5
3	When the……company promise to do something by a certain time, it does so.	1	2	3	4	5
4	When you have a problem, the ….company shows a sincere interest in solving it.	1	2	3	4	5
5	The….company performs the service right the first time.	1	2	3	4	5
6	The…company provides its services at the time it promises to do so.	1	2	3	4	5
7	The……company insists on error-free records.	1	2	3	4	5
8	Employees in the…company tell you exactly when services will be performed.	1	2	3	4	5
9	Employees in the……company give you prompt service.	1	2	3	4	5
10	Employees in the ….company are always willing to help you.	1	2	3	4	5
11	Employees in the ….company are never too busy to respond to your requests.	1	2	3	4	5
12	The behavior of employees in ….company instills confidence in you.	1	2	3	4	5
13	You feel safe in your transactions with the….company.	1	2	3	4	5
14	Employees in the ….company are consistently courteous with you.	1	2	3	4	5
15	Employees in the ….company have the knowledge to answer your questions.	1	2	3	4	5
16	The ….company gives you individual attention.	1	2	3	4	5
17	The ….company has operating hours convenient to customers.	1	2	3	4	5
18	The ….company has employees who give you personal attention.	1	2	3	4	5
19	The ….company has your best interests at heart.	1	2	3	4	5
20	Employees of the ….company understand your specific needs.	1	2	3	4	5

Direction: Now with due consideration to the lecture presented to you and related demo-show, please answer the questions. Once again, circling 1 means you strongly agree that stock exchange with online trading system has that feature, and circling 7 means that you strongly disagree. You may circle any of the numbers in the middle that show how strong your feelings are. There are no right or wrong answers- all we are interested in is a number that best shows your perceptions about presented company.

		Strongly agree				Strongly disagree
1	You feel secure in providing your personal information in ……companies.	1	2	3	4	5
2	Risk associated with transactions is low in ……companies	1	2	3	4	5
3	When the……company promise to do something by a certain time, it does so.	1	2	3	4	5
4	When you have a problem, the ….company shows a sincere interest in solving it.	1	2	3	4	5
5	The….company performs the service right the first time.	1	2	3	4	5
6	The…company provides its services at the time it promises to do so.	1	2	3	4	5
7	The……company insists on error-free records.	1	2	3	4	5
8	Employees in the…company tell you exactly when services will be performed.	1	2	3	4	5
9	Employees in the……company give you prompt service.	1	2	3	4	5
10	Employees in the ….company are always willing to help you.	1	2	3	4	5
11	Employees in the ….company are never too busy to respond to your requests.	1	2	3	4	5
12	The behavior of employees in ….company instills confidence in you.	1	2	3	4	5
13	You feel safe in your transactions with the….company.	1	2	3	4	5
14	Employees in the ….company are consistently courteous with you.	1	2	3	4	5
15	Employees in the ….company have the knowledge to answer your questions.	1	2	3	4	5
16	The ….company gives you individual attention.	1	2	3	4	5
17	The ….company has operating hours convenient to customers.	1	2	3	4	5
18	The ….company has employees who give you personal attention.	1	2	3	4	5
19	The ….company has your best interests at heart.	1	2	3	4	5
20	Employees of the ….company understand your specific needs.	1	2	3	4	5