Impact of Demographic Characteristics on Relationship between Customers’ Perceived Service Quality and Websites’ Services in Electronic Markets

Mohammad Doostar¹, Mohsen Akbari¹ and Roza Abbasi¹

1. Department of Management, Faculty of Humanities, University of Guilan, International Campus, Rasht, Iran.

Corresponding Author: Roza Abbasi

ABSTRACT: In this work, it is attempted to investigate opinions of potential purchasers of these markets and identify the impact of different factors on perceived service quality in these markets. 200 online consumer of Khoram Abad City are surveyed through the questionnaire. "Usefulness", "enjoyment", "external characteristics", "reliability" and "responsiveness" are the factors that have a positive impact on perceived service quality. The effect of "ease of use" and "guarantee" on perceived service quality is not confirmed. Among the demographic variables, while gender, marital status moderate the relationship between usefulness, enjoyment, external characteristics and reliability, age has no moderating role.

Keywords: Consumer behavior, electronic markets, perceived service quality, Website quality, Technology Acceptance Model

INTRODUCTION

Today all concepts related to the market and customer have been changed by advancement of technology. Prevalence of computer use as one of the most influential technologies of the current century as well as prevalence of internet and its integration with goods and service supply and sale have caused electronic markets and goods sale through websites become one of the most profitable and necessary ways of goods sale. Highly low costs of internet sale compared to face-to-face sale and o limitation in offering goods and services have made considerable growth in this sector of sale industry in recent years.

In Iran, necessary infrastructures for e-commerce have been prepared over last decade. It can be said all people have one or more bank cards and are familiar with such concepts as second card password and CVV2 code for doing acts like buying charge, etc. thus, appropriate ground for development of e-commerce has been provided and the number of people who sale their goods and services on internet space are increasing. Competition in this market will become intensified like traditional markets in the near future. Hence it is necessary to identify what effects on the customer and consumer in this market and think for overcoming potential problems. In addition, due to being virtual sale and purchase process and not seeing goods physically in e-commerce, there different perceptions of the goods and services quality and cases which lead to dissatisfaction of goods and services have wider scope and occurs quicker. Understanding these factors is very important. For answering these questions, principles and concepts of consumer behavior should be used.

Similar to traditional market sector, attracting customer satisfaction and attempt for turning them to loyal customers is one of the basic principles. According to most authors, quality of offered services is one of the main factors influencing business of sellers in electronic markets (Bolton, 2004; Gale, 2011). This idea is based on the fact that service quality leads to customer satisfaction and satisfaction causes loyalty and tendency to purchase (Gremler and Gwinner, 2000). Service quality means ability to see service in the view of the customer and meeting expectations of customer of service (Kaliski, 2001). To ensure high perceived quality by customers in electronic markets, it is necessary to evaluate offered services quality using novel and scientific methods.

Research Background
Electronic Commerce

Authors in different fields have provided different definitions for e-commerce. According to some
definitions, e-commerce manes:
Performing all business activities using computer communicative networks especially internet (Sarmad, 2003)
Making practical all information systems for enhancing and controlling business processes. Today these processes develop using web-based technologies.
Application of integrated information and communication technology in activities, redesigning business process or full innovation in business models by a company in internal processes (Sanayei, 2011).

Customer Satisfaction
By review of related literature, two approaches for definition of satisfaction are identified: in the first one, satisfaction is a state which is obtained for the customer after using the product or service. In the second approach, satisfaction is defined as the process of customer’s perception and evaluation of the product or service use experience. In this work, second approach was adopted for defining customer satisfaction and thus following definitions are provided for customer satisfaction.

Satisfaction is emotional reaction of the customer which is obtained from interaction with the organization offering the product or from using the product. Satisfaction is obtained from different perception between customer expectations and actual performance of the product or the organization. Customer’s previous experiences of the produce use and his experience of interaction with the offering organization play significant role in shaping his expectations (Lasser et al., 2009).

Customer satisfaction is a positive feeling which is created after using product or receiving services. If the received goods and services meet customer’s expectations, satisfaction feeling is created in him. If customer’s expectations level is higher than goods and service level, it leads to his dissatisfaction (Lin and Charlotte, 2008).

Customer satisfaction means solving needs and demands of the suppliant (Basterfield, 2010)
Customer satisfaction is defined as the customer's feeling or attitude to a product or service after using it (Jamal and Naser, 2010).

According to Richard Oliver, customer satisfaction or dissatisfaction results from difference between his expectations and the received quality (Anderson et al., 2008). According to mentioned definitions, it is clear the customer satisfaction is a conceptual process and it varies by individuals perceptions. Also it results form comparison of expected performance and real performance (Hill, 2007).

Perceived Quality Definitions
Perceived quality can be defined as follows: perception of the customer of overall quality or superiority of a good or service over customer tendency to its alternatives (Aaker, 2011). Perceived quality necessarily cannot be determined actually since it is a perception and it is somehow related to the judgment about something which is important for the customer. Customers are different in terms of character, need and priorities. Perceived quality is a general and intangible feeling and it is not necessarily based on customer knowledge about trivial characteristics. For better understanding perceived quality, it is necessary to identify and measure its influential aspects. Different methods have been proposed for evaluating services quality. One of the most common methods for service quality evaluation is using SERVEQUAL method (Van Dyke et al., 2010). SERVEQUAL method was developed by Parasuraman, Zeithaml, and Berry. According to this model, service quality is viewed as difference between customer perceptions and his expectations for the services. The basic assumption in this method is that if customer expectations of the service are adopted with high perceptions of the service it can be concluded quality of the offered services is satisfactory. In this method, gaps between customers’ demand and existing reality are identified for investigating service quality (Zeithaml and Berry, 2010). These gaps which are known as service quality gaps are classified into 5 categories:

Gap 1: difference between customer expectations and managers' perception of expectations: factors such as lack of marketing research, high managerial levels and inadequate relationship between managers cause this gap.
Gap 2: difference between management perception for service characteristics: this gap is created due to lack of management commitment and sensitivity
Gap 3: difference between service characteristics and service delivery: gap between characteristics considered for services and what has been offered in reality.
Gap 4: difference between service delivery and company's external communication: it means gap between characteristics of the offered service and the way of informing to the outside of the organization. This gap determines the extent of customer expectations based on external communication (media, ads, etc.).
Gap 5: difference between customer expectations and customer observations of the offered services.
Parasuraman et al. identified 10 indices for identifying the gaps: Access, communication, mastery, politeness and courtesy, credibility, reliability, responsiveness, security, tangible customers and understanding. Following experimental tests, 10 factors were summarized in the following 5 aspects (Parasuraman, 2009):
External Characteristics: physical facilities and equipment, appearance of the staffs, ad communicative tools in
the place of service delivery
Reliability: capacity for implementing and offering promised services in an appropriate, accurate and reliable manner
Responsiveness: tendency to help customers and offering quick services
Assurance and Confidence: knowledge and skills in attracting customers' confidence and low risk and ambiguity. The ability to induce a sense of competence and confidence in the customer
Empathy: The ability to communicate with customers and special attention to each of them to fulfill their demands. A special treatment with every person with respect to his spirit (Aladwani, 2002).

In this work, quality of services offered in electronic markets is investigated and it is attempted to identify factors affecting customers' perception of the quality in this market. To answer this question, SERVEQUAL model's criteria were used. Considering this work was done in virtual electronic markets, it was necessary to have some modifications in the model. To this end, Technology Acceptance Model (TAM) was used. TAM is a model which has been widely used for explaining technology acceptance technology acceptance. According to reference index in social sciences, technology acceptance model has been cited in 2000 in 424 cases. This model argues perceived usefulness and perceived ease of use the main determinants of behavioral tendency to use technology. Behavioral tendency refers to "power of a tendency to a performing a special behavior" and it is expected to lead to real use of the system. In this model, decision to use a technology is associated with one's tendency toward ease and enjoyment of using technology as well as its usefulness. These criteria are replaced with empathy aspect in the model. Research conceptual model is described as follows:

![Research Conceptual Model](image)

**Research Hypotheses**
The main hypotheses include:
- The way of offering services affects perceived service quality.
- Demographic variables adjust relationship of research variables and perceived service quality.

Minor hypotheses include:
- Individuals' perception of usefulness affects perceived service quality.
- Individuals' perception of ease of use affects perceived service quality.
- Individuals' perception of enjoyment of use affects perceived service quality.
- Individuals' perception of external characteristics affects perceived service quality.
- Individuals' perception of reliability affects perceived service quality.
- Individuals' perception of responsiveness affects perceived service quality.
- Individuals' perception of guarantee affects perceived service quality.
- Individuals' perception of usefulness affects perceived service quality.
- Gender variable adjusts relationship between research variables and perceived service quality.
- Age variable adjusts relationship between research variables and perceived service quality.
- Marital status variable adjusts relationship between research variables and perceived service quality.
- Usage level variable adjusts relationship between research variables and perceived service quality.
- Education variable adjusts relationship between research variables and perceived service quality.
METHODOLOGY

Statistical Society

Statistical society includes all potential customers who have had at least one electronic purchase at the time of research. Considering performing research in Kohram Abad City, sample was selected from inhabitants in this city who had experience of electronic purchase. Their experience was specified by a simple question before questioning. Considering high number of these people, the society can be considered as an unlimited society and sample method can be used. For ensuring validity of the questionnaire, experts and professionals in e-commerce were visited and after taking their opinions, initial questionnaire was modified and finally approved. In the current work, reliability was calculated using Cronbach's Alpha method. For calculating reliability, 20 questionnaires were initially distributed among 20 members of statistical society. After receiving filled questionnaires, Cronbach's Alpha was calculated as 0.92 using SPSS Software which suggests reliability of the research tool.

SAMPLE SIZE AND SAMPLING METHOD

The best way for investigating the society is studying the whole society. In this case, statistical population is equal to the whole population of the society. However, time and cost limitations, accuracy in data collection and its control are limitations causing using sampling. In this work, following formula was used for specifying sample size:

\[
 n = \frac{Z_{\alpha/2}^2 \overline{p}(1-\overline{p})}{d^2} = \frac{Z_{\alpha/2}^2 \times pq}{d^2} \approx \frac{0.96}{0.0049} \approx 196
\]

Where, \(\alpha\) is type I error probability, \(z\) is coefficient of confidence for generalization of the results and \(d\) is desired accuracy for generalization of results of the samples to the population (sampling error). Also, \(p\) is supposed relative frequency of the characteristic under study in the population which is obtained from similar works or after an initial investigation or it should be regarded as 0.5 for larger sample (Selkaind, 2006). In this work, \(p\) is considered as 0.5 and sampling error is considered as 7%. Sample size is 196. For ensuring completion of the questionnaires, 200 questionnaires were provided for statistical sample. In this work, stratified probability method was used for selecting sample members. First, statistical society were classified into several classes considering such indices as geographical location, age and gender and some people were assigned in each class (Dawas, 2010). When sampling, the city was classified into 5 regions (north, south, center, west, and east) and the sample was distributed in these regions.

Findings

Following model designing by AMOS software, 7 latent independent variables observed by 34 variables and latent dependent variable observed by 3 variables, were evaluated. Confirmatory factor analysis was used for investigating influence of items in explaining related latent variable. Considering significance level it is clear that all items explain their related latent variable significantly because of being smaller than 0.05. Fitting Indices was measured for model and following results were obtained:

CMIN/DF or relative Chi-square was reported as 1.563 which shows acceptable status for the model.

NFI or normalized fit index of Bentler- Bonet was reported as 0.821. Considering standard value 0.9, the model has not optimal fit in this regard.

RFI or relative fit index was obtained as 0.801 which is close to 1, thus it refers to inappropriate model fit. IFI or incremental fit index was reported as 0.927 which is close to 1 and it refers to appropriate model fit in this regard.

TLI or Tucker-Lewis fit index was obtained as 0.918 which is acceptable considering standard value 0.90.

CFI or comparative fit index was reported as 0.926 which is acceptable considering its approximation to 1.

RMSEA or root mean square error of approximation was obtained as 0.054 which is optimal considering standard value (0.07). Following implementing the model it was clear variables ease of use and guarantee do not have significant relationship with perceived service quality because of being larger than significance level which is 0.05. Also some fit indices were not in optimal status. Thus two mentioned variables were eliminated and research model is as follows:
Research findings can be classified into two general parts:
Investigation of effect of independent variables on perceived service quality
Effect of demographic variables on the relationship between variables and perceived service quality
Effect of independent variables on perceived service quality was investigated and following results were obtained.

![Figure2](image)

**Table 1.**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Standard Error</th>
<th>Significance Level</th>
<th>Effect and Relationship of Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals' perception of usefulness affects perceived service quality.</td>
<td>0.058</td>
<td>0.000</td>
<td>Effect and relationship is significant. Hypothesis is approved</td>
</tr>
<tr>
<td>Individuals' perception of ease of use affects perceived service quality.</td>
<td>0.143</td>
<td>0.089</td>
<td>Effect and relationship is not significant.</td>
</tr>
<tr>
<td>Individuals' perception of enjoyment of use affects perceived service quality.</td>
<td>0.055</td>
<td>0.000</td>
<td>Effect and relationship is significant. Hypothesis is approved</td>
</tr>
<tr>
<td>Individuals' perception of external characteristics affects perceived service quality.</td>
<td>0.073</td>
<td>0.000</td>
<td>Effect and relationship is significant. Hypothesis is approved</td>
</tr>
<tr>
<td>Individuals' perception of reliability affects perceived service quality.</td>
<td>0.046</td>
<td>0.000</td>
<td>Effect and relationship is significant. Hypothesis is approved</td>
</tr>
<tr>
<td>Individuals' perception of responsiveness affects perceived service quality.</td>
<td>0.054</td>
<td>0.000</td>
<td>Effect and relationship is significant. Hypothesis is approved</td>
</tr>
<tr>
<td>Individuals' perception of guarantee affects perceived service quality.</td>
<td>0.097</td>
<td>0.181</td>
<td>Effect and relationship is not significant.</td>
</tr>
</tbody>
</table>

**H1:** Individuals' perception of usefulness affects perceived service quality. Considering table 1, reported significance level for individuals' perception of usefulness and perceived service quality is smaller than 0.05, thus the effect and relationship is significant, reported vales in estimation column, reports effect of
individuals' perception on perceived service quality. Positive value indicates positive direct effect. Thus the H1 is confirmed. Individuals' perception of usefulness affects perceived service quality. The effect is 0.443.

H2: Individuals' perception of ease of use affects perceived service quality.

Considering table 1, reported significance level for individuals' perception of ease of use and perceived service quality is larger than 0.05, thus the effect and relationship is not significant.

H3: Individuals' perception of enjoyment of use affects perceived service quality.

Considering table 1, reported significance level for individuals' perception of enjoyment and perceived service quality is smaller than 0.05, thus the effect and relationship is significant, reported values in estimation column, reports effect of individuals' perception on perceived service quality. Positive value indicates positive direct effect. Thus the H3 is confirmed. Individuals' perception of enjoyment affects perceived service quality. The effect is 0.380.

Individuals' perception of external characteristics affects perceived service quality.

Considering table 1, reported significance level for individuals' perception of external characteristics and perceived service quality is smaller than 0.05, thus the effect and relationship is significant, reported values in estimation column, reports effect of individuals' perception of external characteristics on perceived service quality. Positive value indicates positive direct effect. Thus the hypothesis is confirmed. Individuals' perception of external characteristics affects perceived service quality. The effect is 0.0685.

H5: Individuals' perception of reliability affects perceived service quality.

Considering table 1, reported significance level for individuals' perception of reliability and perceived service quality is smaller than 0.05, thus the effect and relationship is significant, reported values in estimation column, reports effect of individuals' perception of reliability on perceived service quality. Positive value indicates positive direct effect. Thus the hypothesis is confirmed. Individuals' perception of reliability affects perceived service quality. The effect is 0.313.

Individuals' perception of reliance affects perceived service quality.

Considering table 1, reported significance level for individuals' perception of reliance and perceived service quality is smaller than 0.05, thus the effect and relationship is significant, reported values in estimation column, reports effect of individuals' perception of reliance on perceived service quality. Positive value indicates positive direct effect. Thus the hypothesis is confirmed. Individuals' perception of reliance affects perceived service quality. The effect is 0.401.

Considering table 1, reported significance level for individuals' perception of reliability and perceived service quality is smaller than 0.05, thus the effect and relationship is significant.

Impact of demographic variables on relationship between variables and perceived service quality was investigated and following results were obtained.

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Significance level</th>
<th>Impact level</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usefulness</td>
<td>Female 0.000</td>
<td>Male 0.000</td>
<td>Higher for male than female Gender adjusts effect level</td>
</tr>
<tr>
<td>Enjoyment</td>
<td>Female 0.000</td>
<td>Male 0.000</td>
<td>Higher for female than men Gender adjusts effect level</td>
</tr>
<tr>
<td>External characteristics</td>
<td>Female 0.000</td>
<td>Male 0.000</td>
<td>Higher for male than female Gender adjusts effect level</td>
</tr>
<tr>
<td>Reliability</td>
<td>Female 0.000</td>
<td>Male 0.000</td>
<td>Higher for male than female Gender adjusts effect level</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Female 0.000</td>
<td>Male 0.625</td>
<td>It has effect in female group relationship and effect is significant only in female group</td>
</tr>
</tbody>
</table>

H8: Gender variable adjusts relationship between research variables and perceived service quality. For investigating this hypothesis, the model was run at two subgroups by structural equations and impact level was compared in subgroups.

Considering table 2, it is clear reported significance level in relation with female group is smaller than 0.05. Thus the effect and relationship is significant in this group. In male group, it is significant in all variables except responsiveness variable. Considering table 2, it is clear that individuals' perception effect for usefulness on perceived service quality is more in male cases than female ones. Thus gender adjusts the effect level. Considering table 2, it is found individuals' perception effect of enjoyment on perceived service quality is more in female group than male group. Hence gender adjusts the effect level. Considering table 2, it is found individuals' perception effect of external characteristics on perceived service quality is more in male group than female group. Hence gender adjusts the effect level.

In relation with effect level of individuals' perception effect of responsiveness on perceived service quality, no significant value was reported in male group, and the relationship and effect is significant only in female group.

H9: Age variable adjusts relationship between research variables and perceived service quality.
In relation with age variable, significant relations were observed only in the age group above 55 years old and relations are not significant in three other age ranges. Thus age variable has no adjusting role in relations.

H10: Marital status variable adjusts relationship between research variables and perceived service quality. For investigating this hypothesis, the model was run at two subgroups by structural equations and impact level was compared in subgroups.

### Table 3.

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Significance level</th>
<th>Impact level</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Single</td>
<td>Married</td>
<td></td>
</tr>
<tr>
<td>Usefulness</td>
<td>0.000</td>
<td>0.000</td>
<td>Higher for single than married</td>
</tr>
<tr>
<td>Enjoyment</td>
<td>0.000</td>
<td>0.000</td>
<td>Higher for single than married</td>
</tr>
<tr>
<td>External characteristics</td>
<td>0.000</td>
<td>0.000</td>
<td>Higher for single than married</td>
</tr>
<tr>
<td>Reliability</td>
<td>0.000</td>
<td>0.003</td>
<td>Higher for single than married</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>0.000</td>
<td>0.000</td>
<td>Higher for married than single</td>
</tr>
</tbody>
</table>

Considering table 3, it is clear reported significance level in relation with two groups is smaller than 0.05. Thus the effect and relationship is significant in them. Considering table 3, it is clear that individuals' perception effect for usefulness on perceived service quality is more in single cases than married ones. Hence marital status adjusts the effect level. Considering table 3, it is found individuals' perception effect of enjoyment on perceived service quality is more in single cases than married ones. Hence marital status adjusts the effect level.

Considering table 3, it is found individuals' perception effect of external characteristics on perceived service quality is more in single cases than married ones. Hence marital status adjusts the effect level. Considering table 3, it is found individuals' perception effect of reliability on perceived service quality is more in single cases than married ones. Hence marital status adjusts the effect level. Considering table 3, it is found individuals' perception effect of responsiveness on perceived service quality is more in single cases than married ones. Hence marital status adjusts the effect level.

H11: Usage level variable adjusts relationship between research variables and perceived service quality.

### Table 4.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Significance level</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>Very low</td>
</tr>
<tr>
<td>Usefulness</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Enjoyment</td>
<td>0.000</td>
<td>0.222</td>
</tr>
<tr>
<td>External characteristics</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Reliability</td>
<td>0.000</td>
<td>0.17</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>0.000</td>
<td>0.007</td>
</tr>
</tbody>
</table>

Considering table 4, it is clear reported significance level in relation with low and high use groups is smaller than 0.05, thus relationship and effect is significant in both groups. In very low use groups, enjoyment of use and reliability variables are larger than 0.05 and the relationship is not significant. Effect and relationships indicate effect level is influenced by usage level. Also it is found in relation with usefulness and
enjoyment of use and reliability and responsiveness, effect is increased by increasing purchase history. Reported values indicate usage level variable adjusts relationship between research variables with perceived service quality. In relation with very high use group, no significant relationship was observed.

H12: Education variable adjusts relationship between research variables and perceived service quality. Considering reported significance level in relation with BA, high school diploma and associate degree groups is smaller than 0.05, thus relationship and effect is significant in groups. Variables of enjoyment of use and reliability are larger than 0.05 in below high school diploma group. As it can be observed, education variable plays a role in effect level for variables and different effect level was obtained in different educational groups. Hence education variable adjusts relationship between research variables with perceived service quality. No significant relationship was observed in MA group.

Recommendations for Future Works

It is suggested works are done regarding activity of business sites and electronic markets in developed and industrial countries and obtained results are compared with the current work. It seems performing research aiming at identifying weak and strength points of the country’s banking infrastructure for web-based purchase helps these findings in the current work.

It is suggested to research on available current goods in websites for sale and marketing mix and strategies of web sites’ managers for them are identified.

REFERENCES