Abstract

The development of e-business and intensified competition in online environment made e-marketing activities and especially customer satisfaction an important part of these businesses. Previous research took the online customer satisfaction from marketing or from technical perspective. Although these approaches helped improve our understanding, a framework to integrate them is missing from the current literature. In this study, the customer satisfaction is taken into account using an integrative view of these multiple perspectives. A survey is conducted with 1312 customers of 5 online stores. Marketing and technical constructs were incorporated into a Structural Equation Modeling (SEM) to understand the effect of each variable on customer satisfaction. The analysis results show that although these constructs do have a significant influence on customer satisfaction, not all the variables of each construct have the same effect. Thus it is important to take an integrative approach and improve key marketing and technical factors.

Keywords: e-business; e-commerce; customer satisfaction

Jel Classification: M31, M20

1. Introduction

In today's e-business, the competition grows fast and profit margins get lower so firms are looking for new ways to differentiate their service to create and sustain competitive advantages. The experience and service quality in e-business are important differentiators of success as they enable the e-business service provider
to manage effectively and efficiently customer interactions and to meet the
customer expectations (Madu and Madu, 2002). However, measuring e-service
quality is a difficult process as it involves many attributes including reliability,
access, responsiveness, empathy, assurance, ease of navigation, etc. (Kim, Kim,
and Lennon, 2006).

Trustworthiness of websites and website design can influence the perceptions of
customers about e-service quality (Liang and Lai, 2002). Search engine optimization
is another quality critical to the increase of customer satisfaction (Otim and Grover,
2006). The convenience element in the shopping environment is also important for
customers (Torkzadeh and Dhillon, 2002). Other researches focus on improving
system and information quality (Hung, Chen, Hung, and Ho, 2013; Chen and
Holsapple, 2013). Although there is abundant research examining the growing
complexity of online customer satisfaction, most of it has adopted a simplified view
of examining the effect of individual factors on customer satisfaction, such as risks,
shopping experience, service quality, trust, website design and product
characteristics. An integrative framework can enable a clearer understanding of e-
service quality (Collier and Bienstock, 2006). In order to provide an integrative view
of e-business success, this study adopts an approach to examine e-service quality
from consumer, business and technical perspectives. Individual customer’s
satisfaction with online stores is also used as a secondary measure.

Online stores are striving to increase customer satisfaction with their services but
the presence of technical factors alone does not render customer satisfaction,
consumer and business factors also need to be considered (Zeithaml, Parasuraman,
and Malhotra, 2002). In the Business to Consumer (B2C) environment, a customer’s
perceived online shopping attitude, perceived risks, innovativeness, impulse
purchasing and perceived convenience are important consumer characteristics
(Donthu and Gilliard, 1996).

In recent years, an increasing number of stores have also started in capitalizing on
social media to engage customers and increase their satisfaction via word-of-mouth
communication (Zhang and Daugherty, 2009). The marketing factor of word-of-
mouth communication is growing in importance for B2C business. Technical factors,
including information, system, and the service quality of online store sites, are
fundamental to the successful delivery of e-services. This study investigates the
potential influence of these consumer, business and technical factors on customer
satisfaction. The findings provide an integrative view of online customer
satisfaction.

2. Conceptual framework

The current e-business research primarily focuses on either marketing or technical
factors and their potential effect on customer satisfaction. There are only few
researches focusing on their joint effect on customer satisfaction and accordingly in this study, customer satisfaction as an important element of e-service quality is investigated from the marketing and technical perspectives in an online retailing business context. The factors both marketing and technical will be examined in the following sections. First the marketing factors such as the online shopping attitude, perceived risks, perceived convenience, impulse purchasing, consumer innovativeness and word-of-mouth marketing then in the following section the technical factors such as information, system and service quality will be examined.

Marketing Factors

The customer satisfaction is very important for every business as the satisfaction is the first step that leads to loyalty(Devaraj, Fan, and Kohli, 2002). In the online environment, consumers’ attitudes toward online shopping and computer systems are highly associated with customer satisfaction (Cho, 2010). Online shopping depends on the use of computer systems. Therefore, consumers’ positive attitudes toward online shopping systems can have a beneficial influence on user satisfaction. Customers with higher computer proficiency are more likely to adopt online shopping than those with lower computer proficiency (Kwak, Fox, and Zinkhan, 2002). Many online stores help their customers create a more positive attitude toward online shopping via recommendation and user rating mechanisms. In addition, web interactivity channels are being leveraged to help strengthen this positive attitude (Cho, 2010).

All purchasing activities involve a certain degree of risk (Bauer, 1960). These risks are perceptonal and vary with products and buyers (Alpert, 2008). A customer’s perceived risks can influence their preference and willingness to purchase (Shimp and Bearden, 1982; Van der Heijden, Verhagen, and Creemers, 2003) and they tend to be higher than those for the traditional shopping (Tan, 1999). Geographic and spatial differences can create a high degree of uncertainty for customers since they are not able to touch and sense goods, or try services before making a purchase decision however some can tolerate higher risks than others. As a result, those with a higher degree of risk tolerance are more likely to accept online shopping than those with a lower degree (Tan, 1999). In order to reduce a consumer’s perceived risks, many online merchants are increasing the amount of relevant information in the shopping process (Kim and Lennon, 2010). They are introducing product features to potential customers via interactive videos (Alpert, 2008). All these approaches help minimize a customer’s perceived risks of online shopping. Lowering perceived risks can increase customer satisfaction, thereby increasing their commitment and involvement in the purchasing process (Anvari and Amin, 2010).

One major benefit for online shoppers is the removal of physical constraints, including spatial and geographic distance, traditional payment methods and fixed
store hours. The removal of these constraints creates shopping convenience. From the economic utility perspective this convenience is comprised of five dimensions: time, place, acquisition, use and execution (Brown, 1989). They also offer customers the convenience of comparison shopping and enable them to quickly access preferred goods and services. Online shopping is perceived as advantageous if it offers convenience and cost savings. Online convenience as a part of customer service can lower transactional costs, particularly for busy or uninformed customers who may have high transaction costs (Morton, 2006).

People make impulse decisions when a sudden and compelling purchase prevents them from thoughtfully considering alternative choices (Bayley and Nancarrow, 1998). Many online stores purposely offer shopping convenience to customers in order to encourage them to make impulse purchases (Donthu and Garcia, 1999). Although satisfaction may be related to customers’ impulse purchase orientation, several studies verified that an impulse purchase was significantly related to regret as to time, place, and product because of not being able to pay much attention to the detail (Spears, 2011). Because of the potential negative effect of impulse purchasing on customer satisfaction, many online stores have employed user reviews and recommendations to help customers make rational impulse purchase decisions thereby decreasing customer dissatisfaction (Lee and Kacen, 2008). So, it is also important for an online store to properly assess the potential negative effect of impulse purchasing on customer satisfaction.

Innovative customers are more likely to adopt and be satisfied with innovative shopping methods, such as online and mobile shopping (Lu, Yao and Yu, 2005). Online shopping is less likely to deter innovative customers from engaging in it as an alternative to traditional shopping. Online stores often group customers into online shoppers and non-web shoppers based on their innovativeness (Kim, 2010). Customer innovativeness is an important predictor for satisfaction with novelty products or services (Limayem et al. 2000).

The Internet transforms the word-of-mouth marketing strategy, eliminates geographic and spatial limitations, and enables two-way communication at any time and from anywhere (Hennig-Thurau et al., 2004). A customer can immediately post product reviews on discussion forums, personal blogs or social media after using products. This customer’s online friends can be instantly alerted to the customer’s positive or negative product reviews. Word-of-mouth marketing is an indispensable element of information flow in the social structure and has a significant influence on online consumer behavior (Godes and Mayzlin, 2004). Many online customers alter their purchase decisions because of the electronic word-of-mouth effect (Banerjee, 1992). User ratings, discussion forums, and product demos are typical methods adopted to improve the effectiveness of word-of-mouth marketing (Riegner, 2007, Klie 2011). Such marketing saves customers’ time searching for the right
information and gives them confidence in making purchase decisions (Vijayasarathy and Jones, 2001).

Technical Factors

According to the information systems (IS) model, IS quality, including information, system and service quality, can affect a customer’s satisfaction and related future decisions (DeLone and McLean, 2003). In the online retailing industry, companies need to first and foremost compete with each other on the quality of their websites.

Information quality is the measure of information system outputs, including information accuracy, timeliness, relevance, aggregation and format (Ahituv, 1980). A customer’s perceived value of these measures varies with services. Online investors care more about market and product information accuracy and timeliness. In contrast, online customers are concerned with buying quality products at the lowest price. Thus, information relevance and aggregation are more important to them (McKinney, Yoon, and Zahedi, 2002). Information quality is an essential element of e-business success (Liu et al., 2001). Customers provided with quality information are more likely to be satisfied with their purchase decisions.

Information system service quality is growing in importance for online stores because of increased competition. Service quality is the confirmation or disconfirmation experience between customer expectations and the actual services received by a customer (Zeithaml, Parasuraman, and Malhotra, 2002). Many measures can be put in place to help improve IS service quality. These measures include a friendly website design, fulfillment efficiency, system reliability, ease of privacy control, security improvements, and better customer service (Wolfinbarger and Gilly, 2003). E-service quality is defined as “the extent to which a website can facilitate efficient and effective shopping, purchasing and delivery” (Parasuraman, Zeithaml and Malhotra 2005, p. 5). E-service quality comprises eleven dimensions, including IS reliability, responsiveness, accessibility, flexibility, ease of navigation, efficiency, assurance, security, price information, site aesthetics, and personalization. Upgrading the quality of these measures can enhance consumer satisfaction. The improvement of overall service quality can have a positive influence on general customer satisfaction (Joseph and Taylor, 1992).

3. Methodology

An online survey is conducted with subjects who had an experience of shopping from at least two online stores in the last two months. An online survey is an appropriate and reliable method because the objective of this study is to assess
online customer behavior (Hoffman and Novak, 1996). The online survey was posted on these shopping websites as a banner for three days.

Subjects filled out information about their experiences of online shopping. Answering the survey questions based on their most recent shopping experiences helped minimize the information errors caused by memory loss. The survey instrument contained two parts. The first collected demographic data, including gender, age, educational background, annual salary, Internet use experience, etc. The second included questions used to measure the studied constructs. In order to improve the content validity, a panel of experts was invited to check the wording and syntax of the questions and those with errors were subsequently removed. A pilot study using twenty subjects with online shopping experiences was conducted to ensure that the meaning of the questions was understood. The original questions were revised by incorporating this feedback and were then used to conduct the full-scale study.

Some little gifts were also prepared for every 500th survey filled in order to increase participation rate. A total of 1494 samples were collected. We conducted the Box Plot analysis to locate potential outliers and removed 32 of them from the final analysis. A total of 1,312 valid samples were collected. There were 788 males and 524 females, accounting for 60.06% and 39.93% of the respondents, respectively.

This study adopted Donthu and Gilliland’s (1996) survey instrument to measure the multi-attributes of consumer attitudes, including the online shopping attitude, perceived risks, consumer innovation, impulse purchasing and convenience. This survey instrument adopted/used a 7-point Likert’s scale with 1 = “strongly disagree” and 7 = “strongly agree”. Information quality can be measured separately from system quality because the content and content-delivery web system can be individually examined (McKinney et al., 2002). Information quality is a multi-attribute construct, including relevance, understandability, reliability, adequacy, scope, and usefulness (McKinney et al., 2002). McKinney et al.’s (2002) survey instrument was adopted to measure these attributes. System quality is also a multi-attribute construct, including access, usability, entertainment, hyperlinks, navigation, and interactivity (McKinney et al., 2002). And again, McKinney’s (2002) survey instrument was adopted to measure these attributes. Service quality is the overall evaluation of services with respect to their relative superiority (Parasuraman et al., 1988). Some studies have compared traditional service with e-service quality (Zeithaml et al., 2002). This study adopted Devaraj et al.’s (2002) survey instrument to measure e-service quality with respect to reliability, responsiveness, assurance, and empathy.

This study defines word-of-mouth marketing as the use of Internet applications to facilitate a customer’s informal communication about services. Bansal and Voyer’s (2000) survey instrument was adopted to measure the online word-of-mouth
marketing. This survey instrument adopted the 7-point Likert’s scale with 1 = “strongly disagree” and 7 = “strongly agree”. The satisfaction level will be lower if the purchased goods do not meet the customer’s expectation. Satisfaction is an important determinant for information system success (DeLone and McLean, 2003; McKinney et al., 2002). This study adopted Spreng, Harrell, and Mackoy’s (1995) instrument to measure customer satisfaction with online shopping.

4. Data analysis

We analyzed the distribution of subjects by age, educational background, marriage, and profession. Subjects between age 21 and 25, accounted for 48.4% of the sample, followed by other age groups. Those with a college degree and currently studying in college accounted for 35.86% of the sample. Married subjects accounted for 60.76% of the sample. Students accounted for 49.95% of the sample. Only 7.96% of subjects had less than one-year of online shopping experience.

Most of the subjects were experienced online shoppers (80.3%). Subjects were also asked which websites they shopped from. In order to understand if the demographical data would have an influence on the statistical test results, we conducted a t-test on all variables. In consideration of the potential effect of data collected in the beginning and the latter stages, we entered the average value of each variable for the t test. The test indicated that none of these nine variables had a significant effect on the collected data. This finding warranted our further testing of the causal relationships between the studied constructs.

All Cronbach’s α values exceed 0.7 and have a very high reliability (Straub, 1989; Kerlinger and Lee, 1999). In order to improve both the internal and external validities, we assessed our survey instrument with respect to its content, construct, and criterion-related validity. We made changes to the original questions based on the feedback of the experts.

Construct validity was first assessed by conducting the principal component analysis, followed by the Varimax method to maximize it. KMO values of all constructs exceeded the threshold value of 0.5 (Hair et al., 2006). In addition, Bartlett’s tests of all constructs are significant (p<0.01). Positive results of these two tests indicate that the survey instrument has high construct validity and can be entered for factor loading analysis. The initial factor loading analysis showed that all questions used to measure each construct have loadings exceeding the threshold value of 0.3.

The Probability Plot test was performed and showed that all the data was normally distributed. Furthermore, Pearson’s Correlation analysis was conducted to assess if any correlations between variables existed. Our results showed a maximum correlation coefficient for the relationships of variables was 0.665. This value is
below the threshold of 0.8, indicating that none of studied variables have a high correlation with each other. The Variance Inflation factor (VIF) analysis was further conducted to measure the impact of collinearity, all VIF values are much below the threshold value 10 and the multicollinearity concern can be removed.

5. Results

Structural Equation Modeling (SEM) was performed to calculate the estimated path coefficients, path significance and R2 values. Table 1 shows the SEM test results, including path coefficients and their respective t-statistics. Six of the nine relations were statistically significant at either p<.01 or p<.05.

- Online shopping attitude has significantly positive effect on the increase of customer satisfaction with online store services.
- Perceived risk has statistically significant negative impact upon customer satisfaction.
- Customer innovativeness, impulse purchase and perceived convenience have no effect on customer satisfaction.
- Word-of-mouth has positive effect on customer satisfaction.
- Website’s information quality, system quality, and service quality have positive effect on customer satisfaction.

All these factors together can explain 64.2% (R² value) of the variance in customer satisfaction. In addition, e-store’s service quality (β=0.429) has the largest impact on user satisfaction, followed by information quality (β=0.249), word-of-mouth (β=0.148), system quality (β=0.147), perceived risks (β=-0.103), and online shopping attitude (β=0.088).

<table>
<thead>
<tr>
<th>Paths</th>
<th>Path Coefficients (β)</th>
<th>T-statistics</th>
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<tbody>
<tr>
<td>Shopping Attitude → Satisfaction**</td>
<td>0.088</td>
<td>2.158</td>
</tr>
<tr>
<td>Perceived Risk → Satisfaction**</td>
<td>-0.103</td>
<td>1.981</td>
</tr>
<tr>
<td>Shopping Convenience → Satisfaction</td>
<td>-0.058</td>
<td>1.489</td>
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<tr>
<td>Impulse Purchase → Satisfaction</td>
<td>0</td>
<td>0.006</td>
</tr>
<tr>
<td>Innovativeness → Satisfaction</td>
<td>-0.039</td>
<td>0.801</td>
</tr>
<tr>
<td>Word of Mouth → Satisfaction**</td>
<td>0.148</td>
<td>3.22</td>
</tr>
<tr>
<td>Information quality → Satisfaction**</td>
<td>0.249</td>
<td>4.141</td>
</tr>
<tr>
<td>System Quality → Satisfaction**</td>
<td>0.147</td>
<td>2.622</td>
</tr>
<tr>
<td>Service Quality → Satisfaction**</td>
<td>0.429</td>
<td>7.078</td>
</tr>
</tbody>
</table>

* P <0.1; ** P<0.05; *** P<0.01
6. Discussion

E-business success research has focused extensively on the factors that foster the continuous improvement of e-service quality in the B2C context. This prior research has focused on marketing factors and the system design of the website that facilitate e-business success via customer satisfaction. However, most studies have chosen to study only one factor over the others. Little attention has been given to the joint effect of these factors on customer satisfaction.

This study adopts the service science theory to investigate the joint effect of the consumer, marketing, and technical constructs. Our research shows that customers’ perceived service quality exhibits the largest effect on customer satisfaction among all nine factors examined in this study. This direct effect is evident in many e-commerce settings (Kassim et al., 2010).

Information quality is the second most important element of customer satisfaction, it can enhance loyalty (Jaiswal et al., 2010). System quality has a positive influence on customer satisfaction. This finding corroborates most findings in the B2C E-commerce context (Lin, 2007). Information quality, system quality, and service quality are the three primary contributors to user satisfaction in regard to information systems (DeLone and McLean, 2003). This study further confirms the importance of measured customer satisfaction through these three attributes.

Word-of-mouth marketing via posting reviews, sharing photos, and adding new postings to a website or a social media platform is the most important marketing factor in the study. Since word-of-mouth marketing requires extra time and effort, those customers who are very pleased or displeased with their purchases are more likely to engage in such an activity. When customers are unhappy with their purchased services, they express negative emotions electronically by posting comments on the social networks or emailing friends. This dysfunctional behavior can cause customers frustration and attrition (Tuzovic, 2010). On the other hand, customers, who are satisfied with products and/or services, will positively influence their friends through word-of-mouth (Kassim et al., 2010). Many firms used web to create campaigns for their services, and/or against their competitors. This study confirms the usefulness of word-of-mouth marketing for increasing customer satisfaction with online shopping.

Electronic payment is an indispensable service for e-business. However, especially in the recent years potential security threats have deterred customers from providing their credit card information and completing the entire shopping process. To prevent them from abandoning their shopping cart, online merchants and financial institutions made efforts to reduce the risks and the customers’ perceived
risks (e.g. security seals, virtual credit cards). Accordingly, the decrease in perceived risks and its influence on satisfaction is also shown in the results.

Using the smart phones and new devices customers started to feel more comfortable with online shopping as their computer expertise and proficiency is increased so these developments helped improve the perceived attitude towards online shopping which has a positive influence on customer satisfaction.

Customer innovativeness, impulse purchase, and perceived convenience have no significant influence on customer satisfaction. Customer innovativeness is the willingness of customers to try a new method or a new technology (Agarwal and Prasad, 1998). Consequently, innovative customers tend to have more positive perceptions to the advantages of a specific innovation (Robinson, Marshall and Stamps, 2005). Since online shopping becomes a common practice and is no longer considered an innovation technology from customer’s perspective.

As for the weak influence of impulse purchase, it may have to do with the fact that the effect of impulse purchase is largely reduced in the online shopping environment. As for the shopping convenience, customers overloaded with too much information to find shopping a satisfying experience, often end up wasting time when comparing one product with another. This may explain why impulse purchase and perceived convenience have no effect on customer satisfaction. A study shows that a required wait can actually signal quality to consumers, thereby increasing customer satisfaction and purchase decision (Giebelhausen, Robinson and Cronin Jr., 2011).

7. Implications and Conclusion

The information quality of online shopping websites could be further divided into product information and service information quality (Park and Kim, 2006). Future research could try to replicate the findings of this study to other e-business models. New factors could also be incorporated into the design to discover their importance with respect to increasing customer satisfaction in other e-businesses.

The existing literature primarily examines e-business success via a single perspective. This study offers an integrated view of the marketing and technical constructs affecting the customer satisfaction in the B2C context. Our findings indicate that all of these constructs have differential impacts on customer satisfaction.

Online merchants should particularly focus on improving customer satisfaction focusing on technical factors because customers will stay loyal to them as long as they receive good quality information, system and service. Many banks are increasing website usability and improving personalized services in order to improve customer satisfaction (Casalo, Flavian, and Guinaliu, 2008). A profitable cycle can
be created as a result of improving the effect of information quality on customer satisfaction. In terms of marketing factors, the influence of word-of-mouth marketing on the Internet far exceeds that of the traditional word-of-mouth marketing (Tanimoto and Fuji, 2003). This online information sharing exerts a strong influence on the decisions of its shoppers (Bickart and Schindler, 2001). Disparity between customer wants, needs and perceptions can influence a customer’s purchase decisions (Sirgy, 1982). Through word-of-mouth marketing, a company can increase customer satisfaction by narrowing this disparity. Top product reviews from customers are an example of electronic word-of-mouth marketing used to increase customer satisfaction.

This study investigates the differential effects of marketing and technical quality on customer satisfaction. Our findings show that the service quality has the largest impact, followed by the information quality, the system quality, the perceived risks, perceived online shopping attitudes, and word-of-mouth marketing. Online merchants should focus on aligning and improving these e-service qualities to increase customer satisfaction, thereby sustaining their businesses.

**REFERENCES**


