Are the Effects of Service Quality on Customer Satisfaction Different between Online Store Purchases and Brick-and-Mortar Purchases?

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Abstract. This paper examines how service quality affects customer satisfaction. We collected data from 790 customers to compare the differences between online store purchases and brick-and-mortar purchases. Regression analysis indicates that the effect of service quality on customer satisfaction is significantly positive for brick-and-mortar purchases. However, for online store purchase, customer satisfaction is positively correlated with reliability, responsiveness and assurance, but negatively correlated with tangibles. There are also some significant differences between online store purchase and brick-and-mortar purchase in each of the five service quality dimensions.

Introduction

Many enterprises regard service quality as a way to achieve differentiation and superior performance [1]. Much of the past research on service quality argues that delivering superior service quality is a prerequisite for improving customer satisfaction. For example, Yee, Yeung, Cheng (2008) find that service quality has a positive impact on customer satisfaction, which in turn improve firm profitability [2]. Scholars focus on how to improve service quality and propose that firms should care about five aspects: tangibles, reliability, responsiveness, assurance and empathy [1]. Researchers are particularly interested in service quality and the five dimensions [2,3]. Considerable studies focus on how firms can obtain higher service quality to improve customer satisfaction. In this article, we argue that an equally important issue is whether the effect of service quality on customer satisfaction differs between online store purchase and brick-and-mortar purchase.

Previous literature emphasizes the impact of service quality on customer satisfaction and loyalty [2,4]. A common view is that firms are likely to outperform competitors if they provide superior service quality, but these literatures regard service quality as a whole [2]. There are, however, other service quality dimensions exist, should be taken into consideration. In recent years, scholars began to explore the impact of various dimensions of service quality on customer satisfaction and their relative importance. For instance, Song, Song, & Di Benedetto (2009) indicates that tangibles do not affect service performance, while responsiveness is the most important aspect for service company to improve its performance [5].

Existing literature suggests there is a complex relationship between service quality and customer satisfaction. We intend to extend the current literature in two ways. First, exploring the direct effect of service quality on customer satisfaction. Second, we compare the difference of service quality between online store purchase and brick-and-mortar purchase.

Literature Review and Hypothesis Development

Service Quality

Service quality refers to the difference between the customer’s perceptions of service quality and
their expectations [1]. Parasuraman et al. (1985) proposed service quality includes 10 dimensions [6], and further integrated 10 dimensions into five dimensions: tangibles, reliability, responsiveness, assurance and empathy, and proposed the SERVQUAL scale [1]. To better capture the characteristics of service quality, Parasuraman et al. collected questionnaires from three industries to validate the previous SERVQUAL scale, surprisingly, they found some statements in previous SERVQUAL scale were inaccurate and refined them to form the final SERVQUAL scale [7]. This scale has been widely used to measure service quality [8].

Service Quality and Customer Satisfaction

A large number of literatures adopted SERVQUAL scale to measure service quality and reported that there is high correlation between service quality and customer satisfaction [2,3,9]. Previous studies have shown that a company with superior service quality is more likely to get satisfied customers. Yee, Yeung, & Cheng (2008) confirmed service quality has a significant positive effect on customer satisfaction [2], that is, service quality is an important determinant of customer satisfaction. Moreover, Cenfetelli, Benbasat, & Al-Natour (2008) posited that the website with higher service quality will bring more satisfied customer [10]. Hence, an important consequence of service quality is to improve customer satisfaction.

In addition, many scholars explore the consequence of service quality from its dimensions. Hung, Cheng, & Chiu (2018) found that reliability, empathy and responsiveness positively affect satisfaction, while assurance doesn’t affect satisfaction [8]. Moreover, Xu, Benbasat, & Cenfetelli (2013) indicate that tangibles, responsiveness, empathy and reliability are the important antecedents of service quality, which have positive impact on service satisfaction [3]. Furthermore, Olorunniwo, Hsu, & Udo (2006) proposed service quality should be measured by tangibles, responsiveness, knowledge and recovery [9], and the results also show that service quality have a positive impact on satisfaction and behavioral intention. Meesala & Paul (2018) found that only reliability and responsiveness positive influence patient satisfaction [11]. Based on this, we hypothesize:

H1: Customer satisfaction is positively related to service quality (tangibles, reliability, responsiveness, assurance and empathy).

Methodology

Data

Data were collected from universities and shopping mall in four Chinese cities, all respondents were required to have two online store/brick-and-mortar purchase experiences recently, and rate each item based on their latest purchase experiences. Each research participant was paid 60RMB after quality check for completeness. A total of 790 valid data were collected, including 432 online store customers and 358 brick-and-mortar customers.

The product categories included lap computers, handbags and phones. Within the sample, 15.70% of the research participants graduated from high school, 35.82% of the participants graduated from four-year college, 31.52% of the participants had a master degree, 16.96% of participants had a doctoral degree. The average monthly income for all participants was 11262 RMB. The age of the respondents ranged from 18 to 48. All respondents have a lot of experience in online and brick-and-mortar purchases. For the past three months, the minimum number of purchases was 7 and the maximum number of purchases was 40.

The sample average for tangibles was 4.412, for reliability was 4.833, for responsiveness was 4.445, for assurance was 4.622, and for empathy was 4.405, respectively. The sample mean for customer satisfaction was 3.738.

Measures

We adopted SERVQUAL scale developed by Parasuraman, Berry, and Zeithaml (1991) to measure service quality [7]. Tangibles ($\alpha = 0.856$) were measured with four items that assess service-related equipment and the appearance of employees. Reliability ($\alpha = 0.874$) was measured
with five items that address the firm’s capability to perform their promise. **Responsiveness** ($\alpha = 0.851$) was measured with four items that assess the employee’s willingness to help customers. **Assurance** ($\alpha = 0.872$) was measured with four items that emphasize the firm’s capability to instill confidence in their customers. Five items were used to measure **empathy** ($\alpha = 0.753$) that assess the firm’s ability to provide customers with individual attention. For **satisfaction** ($\alpha = 0.936$), we used three items to measure this construct that evaluate the customer satisfaction with the firm and its product.

Two control variables were selected, namely monthly income and education level. **Monthly income** was measured as the family’s total monthly income, **education level** was measured as the highest education level of respondents.

### Analyses and Results

We conducted factor analysis and all factors were grouped into the five categories: tangibles, reliability, responsiveness, assurance and empathy. Then we performed regression analysis for online store and brick-and-mortar purchase separately, considered customer satisfaction as the dependent variable. The regression analysis results are reported in Table 1.

#### Results of Service Quality

As Table 1 indicates, for online store purchase, customer satisfaction is positively related to reliability ($\beta = 0.430, p < 0.01$), responsiveness ($\beta = 0.549, p < 0.01$) and assurance ($\beta = 0.248, p < 0.01$), while negatively related to tangibles ($\beta = -0.169, p < 0.01$). Surprisingly, consistent with previous conclusions [11], empathy does not have a significant effect on customer satisfaction ($\beta = -0.045, p = 0.426$).

For brick-and-mortar purchase, five service quality dimensions have significant positive impact on customer satisfaction, confirmed Yee et al. opinions that service quality positively affects customer satisfaction [2]. Thus, H1 was fully supported for brick-and-mortar purchase, whereas partly supported for online store purchase.

#### Additional Analysis

Table 1 also shows the differences in the effect of service quality on satisfaction across two types of purchase channels. Parameter estimate indicates that, reliability and responsiveness are significantly higher important to improve customer satisfaction for online store purchase ($\beta = 0.430, p < 0.01; \beta = 0.549, p < 0.01$) than for brick-and-mortar purchase ($\beta = 0.233, p < 0.01; \beta = 0.142, p < 0.05$).

In contrast, tangibles and empathy appear to be significantly more important for brick-and-mortar purchase ($\beta = 0.398, p < 0.01; \beta = 0.396, p < 0.01$) than for online store purchase ($\beta = -0.169, p < 0.01; \beta = -0.045, p = 0.426$). Tangibles have a negative effect on satisfaction for online store purchase. Different from our expected, the effect of assurance is virtually identical among online store purchase and brick-and-mortar purchase.
Table 1. Results of Regression Analysis.

<table>
<thead>
<tr>
<th></th>
<th>Parameter Estimate</th>
<th>Standard Error</th>
<th>Parameter Estimate</th>
<th>Standard Error</th>
<th>Parameter Estimate</th>
<th>Standard Error</th>
<th>F-value</th>
<th>R²</th>
<th>Adjusted R²</th>
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</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.669</td>
<td>0.926</td>
<td>-1.619</td>
<td>0.939</td>
<td>-1.619</td>
<td>0.939</td>
<td>54.100</td>
<td>0.472</td>
<td>0.463</td>
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<td>Tangibles</td>
<td>-0.169***</td>
<td>0.057</td>
<td>0.398***</td>
<td>0.059</td>
<td>0.398***</td>
<td>0.059</td>
<td>47.99***</td>
<td>0.467</td>
<td>0.456</td>
</tr>
<tr>
<td>Reliability</td>
<td>0.430***</td>
<td>0.057</td>
<td>0.233***</td>
<td>0.045</td>
<td>0.233***</td>
<td>0.045</td>
<td>7.27***</td>
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<tr>
<td>Responsiveness</td>
<td>0.549***</td>
<td>0.063</td>
<td>0.142**</td>
<td>0.061</td>
<td>0.142**</td>
<td>0.061</td>
<td>21.68***</td>
<td></td>
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<tr>
<td>Assurance</td>
<td>0.248***</td>
<td>0.068</td>
<td>0.159**</td>
<td>0.062</td>
<td>0.159**</td>
<td>0.062</td>
<td>0.93</td>
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<tr>
<td>Empathy</td>
<td>-0.045</td>
<td>0.056</td>
<td>0.396***</td>
<td>0.068</td>
<td>0.396***</td>
<td>0.068</td>
<td>25.29***</td>
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<td>Monthly Income</td>
<td>-0.076</td>
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<td>-0.098</td>
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<tr>
<td>Education Level</td>
<td>0.014</td>
<td>0.069</td>
<td>0.037</td>
<td>0.077</td>
<td>0.037</td>
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</table>

Note: *p<0.10; **p<0.05; ***p<0.01.

Conclusions

This paper makes several important theoretical and practical contributions. First, we compare the difference in service quality between online store purchase and brick-and-mortar purchase and explore which dimension is more important for online store purchase than for brick-and-mortar purchase. Second, our results are useful for managers to improve customer satisfaction, managers can pay attention to specific dimension to improve customer satisfaction based on the types of store they operate. If the companies want to achieve the desired satisfaction, online stores should first emphasize responsiveness, followed by reliability, while reducing investment in tangibles and empathy. But empathy is the main driver for brick-and-mortar to improve satisfaction and responsiveness is the least important. Surprisingly, the conclusion indicates that increased assurance can enhance satisfaction are applicable for both types of stores.

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