

Measuring Satisfaction of Customer and Quality of E -Services Using a Mediated Moderation Analysis

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Abstract

E-commerce has grown in acceptance over the past few years in India. Recent studies have demonstrated and generally acknowledged that customer loyalty and satisfaction levels for online transactions are lower than those for more conventional methods of buying. A problem for online businesses is how to keep and improve online client's loyalty and satisfaction. This article aims to comprehend the service quality factors that influence client's loyalty and satisfaction. Parasuraman's E-S-QUAL four determinants i.e. efficiency, requirement fulfilment, system accessibility, and privacy, are used to construct model for assessing e service quality, consumer satisfaction and online purchases loyalty measures. Data from a sample of 400 respondents was then analysed using a PLS estimation and mediated moderation analysis. 164 online buyers participated from a wide and varied range of backgrounds on the basis of goods purchased. The findings show a positive relationship between efficiency, fulfilment, privacy and consumer loyalty. Customer satisfaction also has a favourable impact from all e service quality measures. The paper examines service quality from many angles, the study concludes that all the factors has a favourable impact on customer loyalty and satisfaction except system accessibility. This paper attempts to explain these results because they are somewhat at odds with earlier research findings.

Keywords: E- commerce, Customer satisfaction, Customer loyalty , SERVQUAL

1. Introduction

Due to the fast growth of the internet in India in recent years, the India Internet Network Information Center (CNNIC) released a report in 2017 says that as of December 31, 2016, there were 13.7 billion Indian netizens. So, the rise of online selling and distribution companies and online banks has set the stage for this paper. The paper was written by the authors, who are very grateful for the helpful comments from the anonymous reader. NBRI 1,3 can be bought online. CNNIC (2006) used Delhi, Kolkata and Mumbai as examples of cities where people buy things online. In these three cities, 25.5% of the netizens buy things online, which shows that buying things online is becoming more common.

Scholars in the United States looked at things like reputation, network security, and privacy that can affect an online purchase. Yaobin and Tao (2005) think that how well the site works and how easy it is to get to, as well as the site's reputation, how quickly clients trust the inline platform affects their motivation to buy online.

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Zhenhua et al. (2006) looked at the effects of these variables by using data from Taiwan. Chuanmei et al. (2006) use the theory of structural equation models to make conceptual models based on study variables. E service quality has a direct effect on their trust. All of these papers have given us a good foundation to conduct a research on service quality of e-services that we do in this paper.

Foreign scholars have also done relevant research on the quality of e-services. Santos (2003) says that e-services are different from traditional services because they let people share information with each other, which can give users amazing experiences. Previously, Rust et al. (1995) and Zeithaml (2000) suggests service quality affects areas, such as making customers more loyal and improving the efficiency and profits of businesses.

Oliveira et al. (2002) think that the quality of e-services can make it harder for companies to meet customer needs. Using the bank as an example, Al-Hawari and Ward (2006) show that quality of service affects loyalty and satisfaction. Yang (2001) and Zeithaml (2002) say that a customer's experience with an e-service has a big impact on building trust and a relationship with that customer, so businesses need to pay attention to this.

Based on the studies cited above, it can be concluded that e service quality impacts satisfaction and loyalty dimensions in India's current online transactions, using the buying and selling of goods online as an example.

2. A Review Of The Literature And Hypotheses Development

2.1 E-service quality

Rowley (2006) says that there is an emphasis on quality of e service as many researches emphasizes on the dimensions, assessment methods of e-service quality, experiences, behaviours, satisfaction. Rowley (2006) gives a definition that sums up what many scholars have said: "e-service, which is includes the provision of information, the logistics of service delivery, and the tracking of services." and information sharing." This paper agrees with this point of view without taking into account the direct services that happen when a business service is done online. Undoubtedly, both managers and academics know that how important it is to keep track of and measure the quality of e-services. There are various online business review sites in other countries. Santos (2003) and Gronroos et al. (2000) both think that online businesses service quality is a good way to tell them apart and a key part of their competitive advantages.

Scholars are now looking into how to judge the quality of an e-service. At the moment, the most important things are online shopping and online banking. So, how do we measure and describe the quality of this service? Many scholars suggest their own ways to do things.

Parasuraman et al. (2005) think that e-service quality is, in part, about how well and quickly goods and services can be browsed, bought, and delivered online. Yoo and Donthu's (2001) SITEQUAL says that the quality of an e-service has four parts, like how easy it is to use, how fast the memory works, how well it looks, and how quickly it responds to user actions. The WEBQUAL was made by Loiacono et al. (2002) to measure the quality of service. They say that the quality of an e-service is measured by 12 factors.

Wolfenbarger and Gilly's (2003) divides the quality of the service into four parts: the design of the site, how well it works, how private or safe it is, and how well it treats customers. Yaobin and Tao (2005) also recommend some other measures such as goodwill. In the scale of e-service quality, some of the characteristics of goodwill have been taken into account, as shown in the above literature.

3. Measures

This paper uses the E-S-QUAL scale from Parasuraman et al. (2005), which is not well-known but is simple. It divides the quality of e-services in four parts, and the E-S-QUAL, which mostly rates the service of exchanging or returning goods when they have problems.

The last part is also important to e-service, according to Parasuraman et al., but they rarely saw it when making the scale, so they made it a separate part. Before deciding on the research model, we did a survey and found that many people who buy things online have never done this before or don't exchange or return goods, even when they need to. This has made sampling a bit harder. So, this paper only looks at how the basic quality of an e-service affects customer loyalty in different ways, using the basis E-S-QUAL scale.

Based on the scale definitions. to be more specific, "efficiency" refers to how easy it is to access and use the site, including how quickly you can get to it and how well it is laid out, as well as how much information it gives you. "Requirement fulfilment" refers to how well the site works and how well it delivers goods. quality of the E-service system.

Accessibility means whether or not the site is based on technology or is open to attacks. Privacy, which is also called security, means whether or not the data related to customers payments is kept confidential and safe.

3.1. Customer satisfaction and loyalty

Oliver (1980) came up with the theory of "expectation inconformity" based on service quality. But more and more experts say that the quality of products and services just what customers expect, is a direct factor in how satisfied they are. This paper is mostly about how satisfied customers are with their online purchases. It is based on the research of Zeithaml et al. (2002), argue that e-service quality itself is a big reason why customers buy online. Anderson and Srinivasan's (2003) research shows that when customers are happy with their online business, they are more likely to stay with that business (i.e. Satisfaction and loyalty).

3.2. Hypotheses Development and modelling

Various researchers emphasizes on quality of an e-service and how satisfied the customers are. Other papers look into how the quality of the service affects customer satisfaction in different ways. But, especially in India, not many studies have looked at the direct effects on customers' loyalty from different angles. This paper thinks it is important to show how service quality affects customers' satisfaction and loyalty in India from different angles.

This is because many studies done in traditional areas also show that satisfaction and loyalty are not the same thing. As Xiucheng and Jiangang (2006) came to the conclusion, they don't think that "satisfied" means "leave" or "satisfied" means "loyal." Because of this, this paper thinks that more work from various angles, so that customers will stay loyal. As for the model's structure, this paper refers to the structure model created by Xiucheng and Jiangang (2006). It then talks about the customers' satisfaction and loyalty are effected by different factors of service quality.

However, it uses a scale that is specific to online businesses, since Xiucheng and Jiangang's (2006) studies relationship between the four aspects of the quality of an e-service and customer satisfaction and loyalty. This model is called "system accessibility," or "accessibility" for short. On the basis of literature review below mentioned hypothesis were framed:

- H1: Being efficient has good effects on customers satisfaction.
- H2: Being efficient has a positive effect on how loyal customers are.
- H3: Meeting customers' needs has good effects on their satisfaction.
- H4: Customers are more likely to stay loyal when their needs are met.
- H5: The accessibility of the system has a positive effect on customer satisfaction.
- H6: The ease of access to the system makes customers more loyal.
- H7: Privacy makes customers more satisfied.
- H8: Privacy makes customers more loyal in ways that are good.
- H9: Customer satisfaction has good effects on customer loyalty.

4. Research methods

4.1 Questionnaire design

Scales in this paper mostly come from foreign literature, C2C online business has taken up more than 60% of all online business. This paper's samples may be from C2C online business. Still, we think that C2C and B2C online businesses have a lot in common when it comes to judging the quality of the service. This means that the E-S-QUAL scale can be used to compare the two. Janda et al., (2002) satisfaction scale, which Oliver adapted, has been used to measure customer satisfaction.

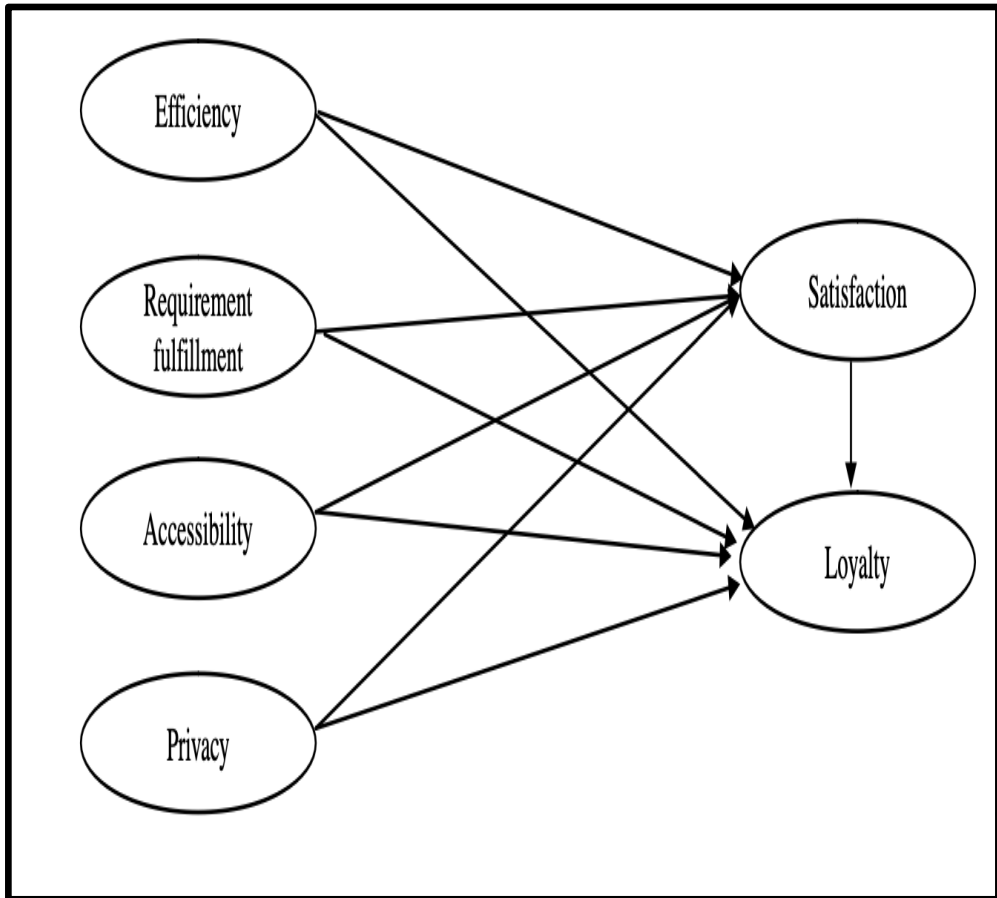


Figure 1. *Quality model for e-service*

NBRI has the trust of 1,3278 clients. Appropriate language, and changes were made to the questionnaire while the samples were being interviewed and the exploratory factors were being looked at for the first time. Take out three of the original eight items on the E-S-QUAL scale for measuring efficiency, making on the E-S-QUAL scale for measuring requirement fulfilment, making a scale of six items. So, after these deletions, the structure's validity can be made better.

4.2 Source of data

Frequent buyers fills the research instrument especially if they were happy with their purchases. Data was collected through google forms with 164 valid questionnaires, because an agreement had been reached. Also, the description of the questionnaire shows that there are 92 men and 72 women, which is a good number of each gender. They all have a lot of experience buying things online. Mostly undergraduate students, participated with 49 percent 4217 percent being graduates, and 2.6 percent being doctors. Many spread out in different jobs and posts in government departments, businesses, and public service units. As for the websites, flipkart.com, Amazon, and other commercial sites are mostly

related. In general, the constructs were mutually exclusive of each other, so that the randomness of the samples can be kept.

5. Analysis of Data And Testing Of Models

This paper uses PLS and for calculations, it also uses PLSGRAPH 3.0, which was made by Professor Wynne Chin. Data analysis begins with a description of the respondents and responding units, as was previously discussed, and is followed by an assessment of the response rate, non-response bias, and response bias. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), both carried out as advanced steps using the statistical software Lisrel 8.80 and SPSS 22.0 respectively, factor analysis methods were used to assess the questionnaire's unidimensionality and establish its structure. After that, Maximum Likelihood Estimation (MLE) was used to perform Structural Equation Modelling (SEM). There are two related phases in SEM. The measurement model's performance is evaluated in the first step within the context of the relationships between the latent and observed variables, and the structural model's performance is evaluated in the second step by estimating the linkages among various latent variables (Anderson & Gerbing, 1988; Bollen, 1993). While each study variable's unidimensionality, validity, and reliability are calculated under the measurement model, the relationship dynamics between independent and dependent variables are estimated using the structural model. The results were interpreted on the basis of path estimates and t values.

5.1 Measurement and final modelling Analysis

To make sure that testing the model hypothesis is a scientific process, measurement model reliability and validity must be checked right from the start. The composite reliability (CR) coefficient is used to measure the interior conformity, while the validities such as convergent and discriminant validities are used to measure the validity. All of the ideas, or the values of the CR coefficients of the latent variables, must be greater than 0.70. ensuring a measure of good interior conformity.

Table 01: Showing CR and AVE for all research constructs

Constructs	CR	AVE
EF	0.656	.578
RF	0.765	.545
AY	0.567	.567
PY	0.786	.546
CS	0.763	.765
CL	0.678	.656

Also, every standardised loading was higher than 0.60, which is the lowest critical value. The (AVE) for each latent variable should be more than 0.50 to ensure good convergent validity. In line with Chin's (1998) research, of each latent variable square root is used to determine if there is a significant difference.

Table 02: Showing inter item correlation for the assessment of convergent and discriminant validities

Constructs	EF	RF	AY	PY	CS	CL
EF	.08-.62	-	-	-	-	-
RF	.02-.43	.14-.80	-	-	-	-
AY	.01-.39	.08-.75	.46-.80	-	-	-
PY	.01-.33	.09-.59	.06-.76	.25-.79	-	-
CS	.01-.41	.06-.66	.20-.67	.04-.69	.19-.75	-
CL	.01-.42	.02-.60	.14-.79	.15-.59	.09-.72	.39-.79

The AVE of a variable in the model should be higher than its coefficient with other variables. Table I shows the results of tests that looked at the reliability and convergent validity of different ideas. Table II shows the results of tests that looked at the discriminant validity. if they meet the above discriminant requirements then they are clear for final structural testing.

5.2 Test of a hypothesis

We will look at the overall structure of the model by using the Path value. So, all variables describe the model built has a pretty good ability to explain things.

Table 03: Showing Std loadings and *t*-Values for all research constructs

Constructs	Path values range	<i>t</i> -Values
EF	.62-0.76	4.89
RF	.73-.79	4.80
AY	.69-0.89	8.75
PY	.73-.88	9.59
CS	.71-.88	6.66
CL	.72-.85	2.60

Regarding the model's path coefficient, we used the significance hypothesis test In Table IV you can see the results of all the hypotheses initially framed, the measures includes the hypothesis decision, the standardised path coefficient, and the t-value. We will find that two of the hypotheses are not accepted. The results for these hypotheses states that the accessibility of the system has no positive effect on customer satisfaction and loyalty (*-0.234, -0.545**). This paper finds that it is interesting that efficiency has useful effects on satisfaction of customer and effects on loyalty of customer (*0.987, 0.543**), on the other hand privacy has positive effects on customer loyalty but on customer satisfaction relatively low significant effects were reported (*0.454, 0.114**). Regarding Reliability/Requirement fulfilment it significantly impacted on satisfaction as compared to loyalty (*0.111, 0.435**). Finally the relationship which is very well documented is strong in this model i.e. satisfaction --- loyalty (*0.943).

Table 04: Summary Of Hypothesis Testing

Hypotheses	Std Path Estimates	t-Value	Decision
H1: Being efficient has good effects on customers satisfaction.	0.987	2.78	<i>Accepted</i>
H2: Being efficient has a positive effect on how loyal customers are.	0.543	14.33	<i>Accepted</i>
H3: Meeting customers' needs has good effects on their satisfaction.	0.454	6.78	<i>Accepted</i>
H4: Customers are more likely to stay loyal when their needs are met.	0.112	6.98	<i>Accepted</i>
H5: The accessibility of the system has a positive effect on customer satisfaction.	-0.234	0.867	<i>Accepted</i>
H6: The ease of access to the system makes customers more loyal.	-0.545	0.545	<i>Not Accepted</i>
H7: Privacy makes customers more satisfied.	0.114	4.56	<i>Not Accepted</i>
H8: Privacy makes customers more loyal in ways that are good.	0.912	4.56	<i>Accepted</i>
H9: Customer satisfaction has good effects on customer loyalty.	0.435	9.45	<i>Accepted</i>

Note: Significance at .005, .001,

6. Discussion

First, this paper discovers that service quality must be examined from various angles when examining the relationship between it and customers' satisfaction and loyalty, and that requirement fulfilment has a disproportionately large impact on both; As these findings are somewhat at odds with the research accomplishments of Parasuraman et al. (2005), this article tends to offer an explanation.

Second, this study examined the association between high-quality online services and customer loyalty and happiness, only to discover that happy customers are the result of high-quality services. The model data also showed that customer satisfaction and loyalty has a substantial relationship which is consistent with the findings of many academics. Customers' loyalty is something that sellers strive for, which emphasises the value of service excellence in and of itself.

Of course, this work has some shortcomings as well. Due to a lack of resources, the samples used in this study are still quite small, and the scale selection had some shortcomings because two B2C and C2C transactions were contained in the samples despite the scales' original B2C orientation. Although a small amount of influence will be generated by this paper's analysis, no trustworthy proof has been gathered, so more work still needs to be done in subsequent studies.

7. Conclusion

The research findings were not very consistent with Parasuraman's findings. We plan to do some initiative analysis to find out more. First, when it comes to efficiency, the data shows finding goods is the initial step in making a purchase and also a requirement. The next step can only be taken after this goal has been reached. But it has no effect on whether or not people will buy again because there is no significant evidence.

Some of the results of this study corroborates with the literature and some findings are unique. As it is apparent from the findings that providing services efficiently influence customer satisfaction a lot. As it is well documented in Rowley (2006). The findings regarding reliability were also in line with Santos (2003). However, the findings regarding Accessibility were surprisingly different and should be considered as unique contribution of this research. This can be attributed to the fact that the field of online shopping is in transformation and many people are not aware of full features of services provided by online platforms. The findings regarding satisfaction and customer loyalty are in line with many well-known researchers (Wolfinger and Gilly's 2003, Janda et al, 2002) When it comes to system accessibility, most people buy from well-known sites, so the site system is usually reliable. System accessibility is also the most basic piece of e-commerce hardware. Third, when it comes to privacy, a lot of people think that the sellers have to make it. When they finish it, the customers might not be happy with it. But if they fail, it will have a big effect on how loyal the customers are, on the other hand, they think that customers won't care privacy protection of the site once they've used it a lot and know whether they're protected or not. Also, this result is not too different from what Janda et al. (2002) found, which is that privacy doesn't have a big effect on how happy customers are.

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