Science, Technology, and Social Sciences Procedia
2024; 2024(5): CiM27
https://wjst.wu.ac.th/index.php/stssp

The Impact of Logistics Service Quality on Customer Satisfaction: A Case of Jingdong Mall in Xiamen City, China[†]

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Abstract

This paper aims to explore the impact of logistics service quality on customer satisfaction at Jingdong Mall in Xiamen, China. This paper adopted quantitative research method and used "Questionnaire Star" to conduct a questionnaire survey on users of Jingdong Mall in Siming District, Xiamen City, and collected a total of 400 valid questionnaires. And use SPSS software to analyze and test the research data through descriptive statistics, correlation analysis and regression analysis. Research results show that logistics service quality has a significant and direct positive impact on customer satisfaction. This paper found that the logistics service quality of enterprises can be improved and improved through 5 aspects, including: reliability, assurance, tangibles, empathy and responsiveness. This research provides more support for enterprises to improve logistics service quality, improve customer satisfaction, enhance enterprise core competitiveness and other related developments.

Keywords: Logistics service quality, Customer satisfaction, Jingdong Mall, Xiamen.

Introduction

With the popularization of the Internet and the rapid development of e-commerce in China, online shopping has become one of the most important shopping methods in people's daily lives. As China's consumption level continues to improve, customers have increasingly higher requirements for logistics service quality in the e-commerce online shopping experience. The logistics service quality of an enterprise directly affects customer satisfaction (Kawa & Światowiec-Szczepańska, 2021). In the current fierce competition among e-commerce companies, improving logistics service quality plays a decisive role in the survival and development of companies (Bungatang & Reynel, 2021).

Logistics service quality refers to the ability of a logistics company to meet customer expectations and exceed customer needs in providing various logistics activities from receiving, storage, handling, transportation to delivery (Burity, 2021). Customer satisfaction refers to the subjective experience that customers get after consuming a certain service or product relative to their previous psychological expectations (Ejdys & Gulc, 2020). Logistics service quality is a key factor in measuring an enterprise's logistics competitiveness. It directly affects an enterprise's market share and customer loyalty (Dam & Dam, 2021).

The significance of studying the impact of logistics service quality on customer satisfaction: First, this paper incorporates the RATER model into the customer satisfaction survey of e-commerce logistics service quality, and establishes a theoretical framework for customer satisfaction evaluation in the context of e-commerce logistics service quality, which has considerable theoretical significance (Afthanorhan et al., 2019). Second, by building a customer satisfaction evaluation mechanism based on Jingdong Mall in Xiamen City, the service quality of e-commerce companies can be strengthened and the service process improved, thereby improving customer satisfaction and the overall competitiveness of e-commerce companies (Akıl & Ünğan, 2021).

The specific research question raised in this paper is: Does logistics service quality have an impact on customer satisfaction? Therefore, the specific research objectives of this paper are as follows: First,

[†]Presented at the 6th Conference in Management: Summer 2024 (May 25, 2024 at Walailak University, Thailand)

explore the current situation of logistics service quality in Jingdong Mall, Xiamen, China. Secondly, it discusses the current situation of customer satisfaction in Jingdong Mall, Xiamen City, China. Finally, the impact of logistics service quality on customer satisfaction at Jingdong Mall in Xiamen City, China is discussed.

This paper uses logistics service quality as the independent variable and customer satisfaction as the dependent variable. Based on the RATER theory, a conceptual framework is constructed to expound the 5 dimensions of logistics service quality, namely: Reliability, assurance, tangibles, empathy, and responsiveness, which have an impact on customer satisfaction. The relationship between independent variables and dependent variables is studied as a whole relation (DeCarlo et al., 2011).

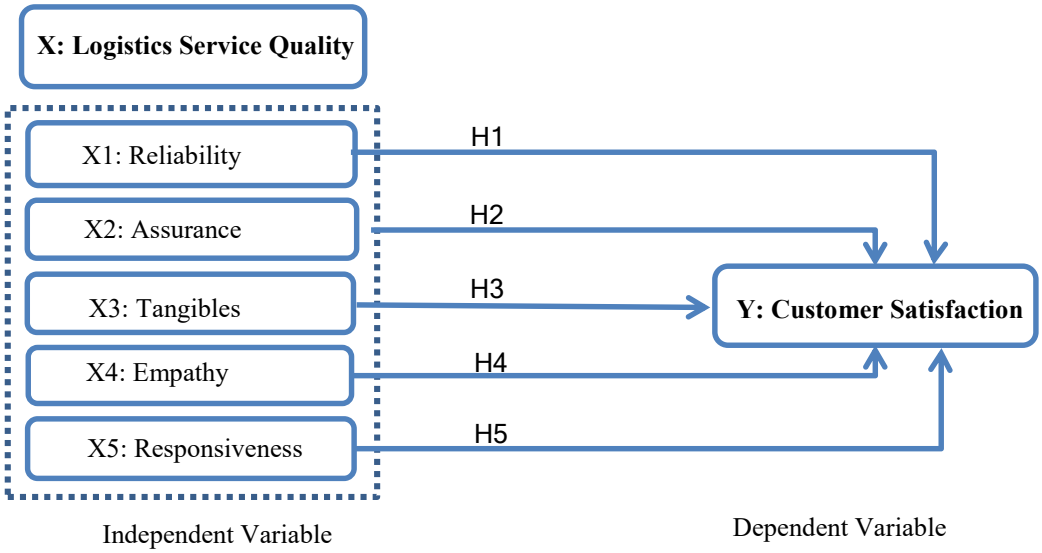

Figure 1 The conceptual framework of the impact of logistics service quality on customer satisfaction.

The conceptual framework diagram (**Figure 1**) shows that the 5 dimensions of logistics service quality: Reliability, assurance, tangibles, empathy, and responsiveness affect customer satisfaction. This paper is based on the conceptual framework diagram and puts forward the following 6 hypotheses:

Logistics service quality refers to the level of ability to meet customer requirements. High-quality logistics services can increase customer satisfaction because they provide accurate, timely, reliable and personalized services that meet customer needs and expectations. Logistics service quality is mainly reflected in aspects such as reliability, assurance, tangibles, empathy and responsiveness. If the quality of logistics services can meet customer expectations, customers will have positive emotions towards the company, thereby increasing their satisfaction with the company (Huma et al., 2019). Therefore, the following hypotheses are proposed:

Hypothesis 1: Logistics service quality has an impact on customer satisfaction;

Reliability refers to the trustworthiness of logistics services, including on-time delivery, cargo safety, error-free service execution, etc. If the logistics company's operations are stable and the promised services are delivered accurately, customers will be satisfied. When a logistics company's operations are stable and promised services can be delivered accurately, customers' trust increases and they think the company is worth relying on. On the contrary, frequent delays or damages may lead to reduced customer satisfaction and loss of trust (Lie et al., 2019). Therefore, the following hypotheses are proposed:

Hypothesis 2: Reliability has an impact on customer satisfaction;

Assurance covers an employee's expertise, abilities, trustworthiness and their commitment to delivering services. Logistics personnel's rich knowledge, strong problem-solving abilities, and familiarity

with the process will enhance customers' confidence in service quality. Professional and trustworthy service personnel are an important source of customer satisfaction. Customers will feel at ease when employees have professional knowledge and can effectively solve problems. High assurance means that the service provider has the ability to provide high-quality services that meet or exceed customer expectations, thereby increasing satisfaction (Parasuraman et al., 1985). Therefore, the following hypotheses are proposed:

Hypothesis 3: Assurance has an impact on customer satisfaction;

Tangibles refer to the physical environment, facilities and visible characteristics of logistics services. For example, the cleanliness of the warehouse, the condition of the transportation tools, and the quality of the packaging can directly affect the customer's first impression and final satisfaction with logistics. The physical appearance of logistics services, such as facilities, equipment and packaging, directly affects customers' first impression. Good appearance and facilities can convey professionalism and quality and create positive expectations before customers contact the service, thereby increasing satisfaction (Uvet, 2020). Therefore, the following hypotheses are proposed:

Hypothesis 4: Tangibles have an impact on customer satisfaction;

Empathy involves whether logistics service providers understand and care about customers' needs and feelings. If logistics companies can demonstrate an understanding of customer needs, resolve difficulties in a timely manner, and provide personalized services, customers will feel valued, thereby increasing satisfaction. If logistics service providers can understand and care about customers' needs and provide personalized and caring services, customers will feel valued. This emotional connection helps build long-term relationships, and customers are more likely to be tolerant and understanding even when faced with problems, thereby increasing satisfaction (Xin & Chen, 2020). Therefore, the following hypotheses are proposed:

Hypothesis 5: Empathy has an impact on customer satisfaction;

Responsiveness refers to quick response to customer needs and problems, such as order processing, query answering, complaint handling, etc. Fast response time and service efficiency can often significantly affect customer satisfaction. Responding quickly to customer needs is key to improving satisfaction. When customers' problems are solved in a timely manner and their needs are met, they feel respected and efficient. Delay or neglect can lead to customer dissatisfaction and reduced loyalty. Therefore, quick response is an important factor in improving customer satisfaction (Marcos & Coelho, 2021). Therefore, the following hypotheses are proposed:

Hypothesis 6: Responsiveness has an impact on customer satisfaction;

In summary, this article examines the impact of logistics service quality on customer satisfaction through the 5 dimensions of logistics service quality, including reliability, assurance, tangibles, empathy and responsiveness, and proposes hypotheses.

Literature review

Logistics service quality refers to the ability of a logistics company to meet customer expectations and exceed customer needs in providing various logistics activities from receiving, storage, handling, transportation to delivery (Akıl & Ünğan, 2021). Research has found that logistics service quality has the characteristics of intangibility, dependence, multi-dimensionality, dynamics and subjectivity (Uvet, 2020). Many scholars point out that logistics service quality includes Reliability, Assurance, Tangibles, Empathy and Responsiveness (Kaswengi & Lambey-Checchin, 2019). Therefore, logistics service quality is a key factor in measuring the competitiveness of the logistics industry. It directly affects an enterprise's customer satisfaction, customer loyalty and market share. In the context of globalization and the rapid development of e-commerce, logistics service providers must continue to innovate and optimize service processes to meet customers' growing expectations. A comprehensive understanding of customer needs and

expectations enables companies to continuously improve logistics service quality, thereby enhancing the overall competitive advantage of the company (Bungatang & Reynel, 2021).

Customer satisfaction is a subjective measurement that refers to the subjective experience a customer obtains after consuming a certain service or product relative to their previous psychological expectations. It indicates customer satisfaction with a product or service and is an evaluation based on the customer's experience and expectations in terms of product functionality, performance, price, delivery, service, etc (Burity, 2021). Research has found that customer satisfaction has the characteristics of subjectivity, multi-dimensionality, dynamics, correlation and measurability (Ejdys & Gulc, 2020). Many scholars believe that customer satisfaction usually includes satisfaction with product performance, service quality, price perception, expectation management, communication and information, etc (Kawa & Świątowiec-Szczepańska, 2021). Customer satisfaction is a key indicator of a company's success. It not only affects a company's sales, but also affects the brand's long-term reputation and market share. Enterprises should continuously collect, analyze and respond to customer feedback to improve customer satisfaction and achieve sustained business growth. As the business environment evolves, customer satisfaction research continues to evolve to adapt to consumers' ever-evolving needs and expectations (Marcos & Coelho, 2021).

Methodology

This paper uses the questionnaire survey method as the research method, and uses the quantitative research method for the questionnaire survey results. Questionnaire survey is a survey method that collects a large amount of personal and group information data extensively, quickly and effectively through the design of standardized electronic questionnaires. It is systematic and objective, suitable for different samples, and can quantitatively process a large amount of collected information. The diversity of data collected by the questionnaire can provide a more comprehensive and comprehensive understanding, and provide more reliable and accurate data support for research (Afthanorhan et al., 2019).

The research object of this article is the users of Jingdong Mall, Siming District, Xiamen City, China. As of January 2024, Xiamen City's permanent population is 5,163,970. It consists of 6 administrative districts: Siming District, Huli District, Jimei District, Haicang District, Xiang'an District, and Tong'an District, and its municipal government is located in Siming District. In addition, Siming District is the central urban area of Xiamen City, with a population of 1,073,315 people. Research on this administrative district is of representative significance (Xiamen People's Government, 2024). The user coverage rate of Jingdong Mall in Xiamen City is approximately 71 %. Therefore, this article will use the calculated number of users of Jingdong Mall in Siming District, Xiamen City as 762,054 as the total population of this article.

This paper uses Taro Yamane's formula to calculate the number of persons to be surveyed. The calculation formula is $n = \frac{N}{(1+N(e)^2)}$, where n is the sample size, N is the population size, and e is the error margin. If e is selected as 5 %, the sample size is $\frac{762{,}054}{(1+762{,}054 \times (0.05)^2)} = 399.79$, and the final number of people to be investigated is approximately 400. The sampling method of this article adopts stratified sampling in probability sampling. Stratified sampling has the characteristics of clear levels, independent extraction, and proportional distribution, which can ensure the representativeness and diversity of the sample and improve the reliability and accuracy of this paper (Morgeson et al., 2023).

This questionnaire provides statistics and comparisons for the variable analysis of this article through the paper of basic demographic characteristics and background information. Subsequently, a comprehensive survey was conducted on the users of Jingdong Mall in Siming District, Xiamen City in terms of gender, age, occupation, online shopping frequency, online shopping years, etc., which provided basic assistance for subsequent research.

In terms of questionnaire design, this paper reviewed relevant literature on the impact of logistics service quality on customer satisfaction, looked for successful questionnaire cases for reference, and designed the questionnaire under the guidance of the instructor and the careful thinking of this researcher.

This paper collected data through the following steps: First, use the online survey software "Questionnaire Star" to create a questionnaire. Design and compile in strict accordance with standards to avoid collecting invalid data. Secondly, distributing questionnaires through Internet platforms with a large number of users in China, such as WeChat, Weibo, Tencent QQ, email and other platforms, can improve the breadth and effectiveness of data collection. Finally, collect the questionnaire and check the completion status.

This paper uses Excel worksheets and SPSS statistical software to organize and statistically analyze the collected raw data, paper the impact of logistics service quality on customer satisfaction, test the development of hypotheses, and finally draw data analysis conclusions. The data analysis of this article includes the following 2 parts:

In the first part, descriptive data are analyzed and presented in the form of frequencies, means, percentages and standard deviations (Refer **Table 1**). It will describe the respondent's satisfaction with each variable and will use a six-point Likert scale to assess user satisfaction and collect satisfaction data.

Table 1 Likert 6 level attitude scale.

Serial number	Option answer to the question	Score	Reference
1	Very dissatisfied	1 point	(Taherdoost, 2019)
2	Dissatisfied	2 point	
3	Somewhat dissatisfied	3 point	
4	Somewhat satisfied	4 point	
5	Satisfied	5 point	
6	Very satisfied	6 point	

Maximum value rating - minimum value rating /6 = (6 − 1)/6 = 0.83 for **Table 2**. The attitude degree report of this paper is shown in the table below.

Table 2 Attitude report form.

Serial number	Range	Attitude
1	1.00 - 1.83	Very dissatisfied
2	1.84 - 2.67	Dissatisfied
3	2.68 - 3.51	Somewhat dissatisfied
4	3.52 - 4.35	Somewhat satisfied
5	4.36 - 5.19	Satisfied
6	5.19 - 6.00	Very satisfied

In the second part, this article will use Correlation analysis and Regression analysis for inferential statistics and analysis. Use descriptive statistical analysis such as frequency, mean, and standard deviation to explore the impact of logistics service quality on customer satisfaction.

First, this article uses descriptive statistics analysis to statistically describe the variable data of the questionnaire. Descriptive statistics refers to various activities that use data tabulation, classification, and calculation to describe data characteristics. Descriptive statistics provides statistical descriptions of all

variables in the survey population, mainly including data frequency, mean, standard deviation, central tendency analysis, dispersion analysis and some basic statistical graphics. Descriptive statistics helps organize, summarize, summarize and summarize questionnaire data.

Secondly, use Pearson correlation coefficient for Correlation analysis. The Pearson correlation coefficient in Correlation analysis is a statistical tool mainly used to test the degree of correlation between 2 or more variables. It mainly includes whether the correlation is significant, the direction of the correlation and the size of the correlation coefficient. This method of analysis helps reveal interactions between variables and determine the strength and direction of relationships between variables. It helps to understand the correlation between variables, thereby better understanding the data and providing data support for this article.

Finally, this article uses Regression analysis to test the impact of logistics service quality on customer satisfaction. Regression analysis is a mathematical statistical analysis method used to determine the relationship between a dependent variable and one or more independent variables. It helps in understanding the nature and strength of the relationship between dependent and independent variables and identifying important variables. This will help to better investigate the impact of logistics service quality on customer satisfaction to improve the reliability and accuracy of data.

Results and discussion

First, descriptive statistics analysis of basic population information was performed on the recovered valid questionnaire data. The research subjects of this paper are users of Jingdong Mall, Siming District, Xiamen City, China. Based on the basic demographic information of Xiamen Jingdong Mall users such as Gender, Age, Profession, Average number of online purchases per month, Years of online shopping, etc., the analysis results are shown in **Table 3**.

Table 3 Descriptive statistics of user population information of Jingdong Mall, Siming District, Xiamen.

	Frequency	Valid Percent	Cumulative percent
Gender			
Male	196.00	49.00	49.00
Female	204.00	51.00	100.00
Age			
18 - 24	81.00	20.25	20.25
25 - 34	127.00	31.75	52.00
35 - 54	122.00	30.50	82.50
Above 55	70.00	17.50	100.00
Profession			
Enterprise staff	71.00	17.75	17.75
Self-employed businessman	147.00	36.75	54.50
Student	46.00	11.50	66.00
Else	136.00	34.00	100.00
Average number of online purchases per month			
Less than 1 time per month	113.00	28.25	28.25
1 - 3 times per month	123.00	30.75	59.00
4 - 10 times per month	112.00	28.00	87.00
More than 10 times per month	52.00	13.00	100.00

Years of online shopping			
Less than 1 year	85.00	21.25	21.25
1 - 5 years	123.00	30.75	52.00
6 - 10 years	125.00	31.25	83.25
More than 10 years	67.00	16.75	100.00

This paper collected 400 valid questionnaires from Jingdong Mall users in Siming District, Xiamen City, China. The survey shows that female users account for a slightly larger proportion, with 51.00% of respondents being female. 49.00 % were male. Most users are between 35 and 54 years old, accounting for 30.50 %. The population aged 18 to 24 was 20.25 %, and the population aged 55 or older was 17.50 %. In terms of occupation classification, the majority of users are Self-employed businessmen, accounting for 36.75 %. Other occupations accounted for 34.00 %. Enterprise staff accounted for 17.75 %. Students accounted for 11.50%. Judging from the Average number of online purchases per month, most users purchase 1-3 times, accounting for 30.75 %. 28.25 % of the users are less than 1 time per month. Users from 4 to 10 times per month account for 28.00 %. More than 10 times per month accounts for 13.00% of users. From the perspective of Years of online shopping, the majority of users are 6 - 10 years old, accounting for 31.25 %. Users of 1 - 5 years account for 30.75 %. 21.25 % of users are less than 1 year old. Users over 10 years account for 16.75 %.

This paper uses SPSS software to conduct descriptive statistics analysis on the independent variable "logistics service quality". The analysis results are shown **Table 4**.

Table 4 Descriptive statistical results of logistics service quality.

Question	Mean	Standard deviation	Level of perception	Rank
Logistics service quality	4.753	1.243	Agree	
X1. Reliability	4.743	1.231	Agree	4
X2. Assurance	4.740	1.243	Agree	5
X3. Tangibles	4.749	1.237	Agree	3
X4. Empathy	4.771	1.265	Agree	1
X5. Responsiveness	4.762	1.238	Agree	2

Analyzing the data from the table shows that the average value of logistics service quality is 4.753, which shows that users of Jingdong Mall in Xiamen, China have a positive attitude towards logistics service quality. Analyze the data from the 5 dimensions of the independent variable Responsiveness" has an average of 4.762; "X3. Tangibles" has an average of 4.749; "X1. Reliability" has an average of 4.743; At the same time, the independent variables are divided into 5 dimensions, and 5 checklist questions are asked for each dimension. The average value of logistics service quality can be used to initially judge the attitude of users of Jingdong Mall in Xiamen, China. Most users have a positive attitude towards logistics service quality.

In this paper, SPSS software was used to make a descriptive statistics analysis of the dependent variable "customer satisfaction". The analysis results are shown in **Table 5**.

Table 5 Descriptive statistical results of customer satisfaction.

Question	Mean	Standard deviation	Level of perception	Rank
1) Previous consumption experience in Jingdong and satisfaction with the experience.	4.780	1.421	Agree	2
2) Satisfaction with the whole process of purchasing goods in Jingdong enterprises.	4.700	1.356	Agree	8
3) Jingdong Enterprise's products and logistics services can meet your needs.	4.730	1.518	Agree	6
4) Jingdong enterprises have high delivery efficiency.	4.840	1.452	Agree	1
5) Jingdong enterprise goods can arrive on time.	4.740	1.324	Agree	5
6) Jingdong enterprises respond to orders quickly, with short delivery time and timely delivery.	4.770	1.382	Agree	3
7) Jingdong platform provides perfect logistics guarantee for the goods I ordered.	4.720	1.303	Agree	7
8) Jingdong enterprise personalized service is very satisfied.	4.750	1.336	Agree	4
9) Your overall satisfaction with the products and logistics services provided by Jingdong.	4.690	1.287	Agree	9
10) Satisfaction compared to your expectations.	4.640	1.329	Agree	10
Y. Customer satisfaction	4.737	1.371	Agree	

Analyzing the data from the table shows that the average value of customer satisfaction is 4.737, which shows that users of Jingdong Mall in Xiamen, China have a positive attitude towards improving customer satisfaction. In the theoretical framework of this paper, the dependent variable Y is not divided into dimensions, and only 10 list questions about the dependent variable are asked, represented by the letter Q. Arrange the values in descending order according to the average value of each questionnaire question. The results are as follows: the average value of Q4 is 4.840; the average value of Q1 is 4.780; the average value of Q6 is 4.770; the average value of Q8 is 4.750; and the average value of Q5 is The average Q3 is 4.730; the average Q7 is 4.720; the average Q2 is 4.700; the average Q9 is 4.690; the average Q10 is 4.640. Therefore, the average value of customer satisfaction can be used to initially judge the attitude of users of Jingdong Mall in Xiamen, China towards improving customer satisfaction. Most users have a positive attitude towards improving customer satisfaction.

This paper uses SPSS software to conduct correlation analysis on each dimension of "logistics service quality" and "customer satisfaction". The analysis results are shown in **Table 6**.

Table 6 Correlation analysis table of logistics service quality and customer satisfaction.

X. Logistics service quality	1	2	3	4	5	6
X1. Reliability	1					
X2. Assurance	0.947**	1				

X. Logistics service quality	1	2	3	4	5	6
X3. Tangibles	0.951**	0.940**	1			
X4. Empathy	0.947**	0.943**	0.947**	1		
X5. Responsiveness	0.955**	0.944**	0.947**	0.946**	1	
Y. Customer Satisfaction	0.963**	0.959**	0.959**	0.960**	0.960**	1

**At the 0.01 level (two-tailed), the correlation was significant.

Analyzing the data from the table shows that the correlation coefficient between logistics service quality and customer satisfaction is above 0.01, which is of research significance and is a positive correlation. The value range of the correlation is between −1 ~ 0 ~ 1. According to the data in the table, the 5 dimensions of the independent variables of logistics service quality are studied: X1. Reliability, X2. Assurance, X3. Tangibles, X4. Empathy, X5. Responsiveness, and the Pearson correlation between the dependent variable "customer satisfaction" The maximum value of the coefficient is 0.963 and the minimum value is 0.940, and the values of the 5 dimensions remain within the range of correlation values. It can be seen from the correlation coefficients of the 5 independent variable dimensions and the dependent variable that each value is higher than the moderate positive correlation value of 0.5, which is a highly positive correlation. Therefore, for the hypotheses H2, H3, and H4 proposed in this paper, H5, H6, can be initially verified. At the same time, the average value of the correlation coefficients of the 5 dimensions is 0.951, which is also a highly positive correlation and can be used to preliminarily verify the hypothesis H1 proposed in this paper.

This paper uses regression analysis to examine whether logistics service quality of Jingdong Mall in Xiamen, China has an impact on customer satisfaction. The specific regression analysis data is shown in **Table 7**.

Table 7 Logistic service quality and customer satisfaction regression analysis.

	Unstandardised Coefficients		Sig.		VIF
	B	Std. Error			
Constant	0.677	0.181		3.742	0.000
X1. Reliability (R)	0.253	0.043	0.264	5.831	0.000
X2. Assurance (A)	0.109	0.041	0.121	2.697	0.007
X3. Tangibles (T)	0.136	0.041	0.145	3.315	0.001
X4. Empathy (E)	0.207	0.041	0.235	5.012	0.000
X5. Responsiveness (R)	0.166	0.043	0.173	3.864	0.000
R^2 = 0.577, Adjusted R^2 = 0.571, F = 107.334, Sig. = 0.000					

*** denotes significance at 1 %
** denotes significance at 5 %
SA = 0.677 +0.253R + 0.109A + 0.136T + 0.207E + 0.166R = 0.577

From the regression analysis of logistics service quality on customer satisfaction: SA = 0.677 +0.253R + 0.109A + 0.136T + 0.207E + 0.166R = 0.577. The adjusted R^2 value is 0.571, indicating that logistics service quality can explain 57.10 % of the variation in customer satisfaction. From the table, it is found that the VIF value of each dimension is less than 5, indicating that there is no covariance problem in

the model. For the F test, F = 107.334, Sig = 0.000 is less than 0.01, indicating that logistics service quality has an impact on customer satisfaction.

Moreover, it can be seen from the table analysis that the regression coefficient of X1 is 0.253 (t = 5.831, sig < 0.01), indicating that X1 has a significant positive impact on customer satisfaction and verifying hypothesis H2. The regression coefficient of X2 was 0.109 (t = 2.697, sig < 0.01), indicating that X2 has a significant positive impact on customer satisfaction, verifying hypothesis H3. The regression coefficient of X3 was 0.136 (t = 3.315, sig < 0.01), indicating that X3 has a significant positive impact on customer satisfaction, verifying hypothesis H4. The regression coefficient of X4 was 0.207 (t = 5.012, sig < 0.01), indicating that X4 has a significant positive impact on customer satisfaction and verifying hypothesis H5. The regression coefficient of X5 was 0.166 (t = 3.864, sig < 0.01), indicating that X5 has a significant positive impact on customer satisfaction and verifying hypothesis H6.

Summarize the research results. Through Regression analysis, this paper verified 5 factors affecting logistics service quality of customer satisfaction: There is a positive correlation among X1, X2, X3, X4 and X5, which verifies the positive correlation effect of logistics service quality on customer satisfaction and verifies hypothesis H1. Thus, the research goal is realized and many research problems are solved (Refer **Table 8**).

Table 8 Regression analysis of logistics service quality and customer satisfaction.

Research Hypothesis	Result
H1: Logistics service quality has a positive impact on customer satisfaction;	Support
H2: Reliability has a positive impact on customer satisfaction;	Support
H3: Assurance has a positive impact on customer satisfaction;	Support
H4: Tangibles has a positive impact on customer satisfaction;	Support
H5: Empathy has positive effect on customer satisfaction;	Support
H6: Responsiveness has a positive impact on customer satisfaction.	Support

From the survey analysis results, it can be seen that the 6 hypotheses of this paper have been recognized, which shows that logistics service quality is positively related to customer satisfaction. This also answers the research question of this paper: Does logistics service quality affect customer satisfaction? Therefore, this paper supports and verifies the hypotheses formulated based on the theoretical framework: H1, H2, H3, H4, H5, H6.

Conclusions

This paper used stratified sampling to conduct a questionnaire survey among 400 users in Jingdong Mall, Siming District, Xiamen City, China. SPSS software was used to analyze the impact of logistics service quality on customer satisfaction, and an empirical analysis was conducted. The conclusions drawn include: descriptive statistics analysis such as frequencies, percentages, means, and standard deviations of the basic information of the interviewees, Pearson correlation analysis and regression analysis, and discussion of the research results. The research results verified the 6 research hypotheses proposed in this paper, including: H1, H2, H3, H4, H5, and H6. The paper found that logistics service quality has a positive impact on customer satisfaction. The 5 dimensions of logistics service quality, including: Reliability, Assurance, Tangibles, Empathy and Responsiveness, each have a positive impact on improving customer satisfaction. This research not only has important theoretical value, but also has significant practical significance for this field. Related studies provide empirical conclusions.

This paper conducts an empirical paper on the logistics service quality and customer satisfaction of Jingdong Mall in Xiamen City, and draws the following conclusions: In the case of Jingdong Mall in

Xiamen City, its logistics service quality performs better in terms of Empathy and Responsiveness, but in Reliability and Assurance still needs to be improved. For example, some customers reported problems such as lost and damaged packages and unprofessional delivery personnel. In response to existing problems, JD.com can take a series of measures to improve the quality of logistics services. For example, strengthen the construction of logistics information systems and improve the accuracy and efficiency of order processing. Optimize the distribution network and shorten delivery time. Strengthen employee training and improve service awareness and professionalism. Improving the quality of logistics services not only helps improve customer satisfaction and loyalty, but also enhances the company's brand image and competitiveness. In the fiercely competitive e-commerce market, high-quality logistics services are an important means for companies to attract and retain customers (Subaebasni et al., 2019).

Although this paper has achieved certain results in exploring the impact of logistics service quality on customer satisfaction, there are still some limitations, mainly reflected in the following aspects: First, this paper uses Jingdong Mall in Xiamen City as an example for empirical research. , although it is representative to a certain extent, it cannot fully reflect the general situation of the entire e-commerce logistics industry. Therefore, future research can further expand the sample scope to enhance the generalizability and applicability of the paper (Afthanorhan et al., 2019). Secondly, this paper mainly uses questionnaires to collect data. Although this method can directly obtain real feedback from customers, it may also be affected by various factors such as questionnaire design and sample selection. There may be problems such as the questionnaire design may not be comprehensive enough and the sample selection may be biased. Therefore, future research can be conducted using a combination of multiple data collection methods to improve the accuracy and reliability of the data (Dam & Dam, 2021). Finally, this paper mainly focuses on the impact of logistics service quality on customer satisfaction, but in the actual process, customer satisfaction may be affected by many factors, such as product quality, price, after-sales service, etc. Although this paper tried to control the influence of these factors when constructing the model, there may still be certain omissions or biases (Uvet, 2020). Therefore, future research can further improve the model and include more factors that may affect customer satisfaction to more fully reveal the relationship between logistics service quality and customer satisfaction.

In summary, this paper has achieved certain results in exploring the impact of logistics service quality on customer satisfaction, but there are still certain limitations. Future research can improve and improve these limitations to further promote research development in related fields. At the same time, companies should also pay attention to the impact of logistics service quality on customer satisfaction and continuously improve the company's logistics service level to win the trust and support of more consumers.

Acknowledgements

I would like to extend my heartfelt thanks to my tutors Assistant Professor Dr. Shubham Pathak and Assistant Professor Dr. Trairong Swatdikun. The rigorous academic attitude and profound professional background of the tutors have given me great help and inspiration. Not only did I make academic progress, but also benefited a lot in my life. Secondly, I want to thank my parents and my husband. They are my most solid backing and the warmest harbor. Finally, thank you to my classmates. The friendship and cooperation between the students made me feel the strength and warmth of the team.

Looking back on this period of postgraduate life, I deeply feel that my growth and progress cannot be separated from the support and help of many people. Here again, I would like to express my heartfelt thanks to all those who have given me help and support. In the future, I will continue to work hard to continuously improve my academic level and comprehensive quality, and contribute my strength to the development and progress of society.

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