

Impact of E-commerce Logistics Service Quality on Customer Satisfaction and Loyalty in India

A case study of Flipkart

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Summary: In a highly competitive business market of the E-commerce industry, providing high quality services are one of the most important factors in staying in the market and Customer satisfaction is one of the most important aspects of gaining a competitive advantage in business, particularly in services. This study aimed to investigate the level of customer satisfaction among Flipkart online shopping using a standardized measure of logistics service quality and to determine the dimensions of logistics service quality that have the greatest impact on customer satisfaction. Additionally, the study evaluated the impact of customer satisfaction on customer loyalty to develop a better future strategy to satisfy customers and enhance their loyalty. Data was collected from 162 customers using a combination of purposive and convenient sampling techniques and analyzed using SPSS Statistics 27. The results showed a positive and significant relationship between logistics service quality and customer satisfaction. Personal contact quality was found to be the most influencing factor of customer satisfaction, while order conditions were the weakest influencing factor. The study also revealed a strong significant impact of customer satisfaction on customer loyalty. Based on these findings, it is recommended that the company should focus on improving order condition and order accuracy to enhance logistics service quality dimensions, customer satisfaction, and loyalty.

Keywords: *e-commerce, logistics service quality, customer satisfaction, loyalty*

1 Introduction

In this digital era, E-commerce industry is one of the major developing industries and very popular in the world. At the same time the economy is growing quickly, the E-commerce business is becoming the most significant contributor to the overall economic growth of a nation. It plays an important role in the making it easy to purchase and sale of products or services via the Internet. E-commerce has become an essential tool for many of us to carry out activities that are required on a regular basis, such as making payments online and purchasing online. People nowadays never imagined their lives without E-commerce. Without the convenience of online shopping, daily

life would be more challenging, time-consuming, and difficult to do. E-commerce has evolved into something that many of us now need, not just to showcase our lavish lifestyle (Devi et al., 2018).

Offering high-quality services is one of the crucial factors for being competitive in the industry today. Because a company's survival is dependent on people using its services, it is critical to give customers what they desire. As a result, the service offered must fulfil the expectations of the consumer (Meidutė-Kavaliauskienė et al., 2020). Logistics service quality excellence has become an essential source of competitive advantage as the number of express delivery providers on the market has grown and also contributing to customer satisfaction and further Loyalty (Liu & Liu, 2014). So, it's important for companies to evaluate and improve the quality of their logistics services based on their customers' needs and levels of satisfaction.

In today's competitive market, customer satisfaction is seen as one of the most important factors that determines an organization's performance. Knowing the degree of customer satisfaction enables a business to evaluate the effectiveness of its efforts, establish future goals, and take the required steps to sustain or increase customer satisfaction (Ramachandran & Vijayabanu, 2012).

Delivering products to customers is very important in any business, and how it's done matters to the customers. Currently, people are looking for more convenience and comfort in their shopping experience, and businesses are constantly adapting their strategies to meet these customer needs. The main problem is that Indian customers are complaining about the delivery not arriving on time, receiving damaged products, poor customer service, and other similar issues. This negatively impacts their shopping experience. Hence, researching the factors in logistics services that impact customer satisfaction can improve the quality of logistics services, enhance the shopping experience, and promote better business practices.

The main aim of this research is to determine the level of customer satisfaction among Flipkart online shopping using a standardized measure of logistics service quality and to determine the dimensions of logistics service quality that have the greatest impact on customer satisfaction. The objective of this study is to explore the relationship between logistics service quality, customer satisfaction, and customer loyalty in the context of Flipkart's online shopping platform. To achieve these objectives, the research will address the following questions:

1. What is the impact of logistics service quality on customer satisfaction?
2. What is the relationship between customer satisfaction and customer loyalty?
3. Which logistics service quality dimensions have the greatest effect on customer satisfaction and loyalty?

This study will provide empirical evidence on the importance of logistics service quality in determining customer satisfaction and loyalty in the e-commerce sector. The findings will offer valuable insights for online retailers to improve their logistics services and customer experiences, thereby enhancing their competitive edge in the market.

2 Literature review

2.1 Logistics Service Quality

Logistics has always played a supportive role in the manufacturing and consumption processes during the past many decade (Saura et al., 2008). Functions are only seen as a cost by traditional courier services. However, beginning in the 1990s, a change occurs in the marketing strategy used to determine courier service capacity, ultimately leading in greater customer satisfaction and more loyal customer (Mentzer et al., 2018). According to Perrault and Russ, Logistics service quality (LSQ) was the first research that stated that everything done in logistics creates time, place, and utility. Logistics companies that provide high-quality services are a significant factor in the

purchase decisions made by industrial companies. On the other hand, the study that was done at the time shows that it was done from the point of view of the suppliers of logistical services rather than the customers (Perreault & Russ, 1976).

2.2 Logistics service quality model

In an online shopping environment, logistics services quality is strongly connected to customers, LSQ is defined as meeting the needs of customers who receive logistics services. We are currently conducting research with a modified version of the SERVQUAL model (Mentzer et al., 2001; Parasuraman et al., 1985). There are numerous research which is done and empirically investigate the five dimension of SERVQUAL, In order to develop scales for evaluating the effect of logistics service quality on customer satisfaction, several academics have expanded on Parasuraman's work (Lehtinen, 1991). Mentzer established the identification components of LSQ that were the most detailed and relevant. A set of dimensions for measuring LSQ have been identified through analysis of these components and other significant contribution from these references (Mentzer et al., 2001; Thai, 2013). The nine components of LSQ are personnel contact quality, order release quantities, information quality, ordering procedures, order accuracy, order condition, order quality, handling of order discrepancy, and timeliness. This research only focuses on Timeliness, order accuracy, order condition, personal contact quality.

2.2.1 Timeliness

Globalization and changes in technology make it easier for customers to get the products they want. These customers also do not like to wait, so they expect their orders to be completed by the promised date. This refers to that requested order should be delivered at the time agreed upon by the customer and the supplier (Hult et al., 2000). This cycle time, which includes transportation time and back-order time when products are inconvenient, is the most significant indicator of the delivery system's performance (Hult et al., 2000; Mentzer et al., 2001). Time utility is the most traditional and important aspect of logistics service quality, just as the development of place utility has an impact on the perception of logistics service quality (Flint & Kent, 2001). Many authors in many different organizations concluded and found a positive relationship between timeliness and customer satisfaction.

2.2.2 Order accuracy

The term "order accuracy" refers to the accuracy with which the products will be delivered to the customer. This demonstrates that customers want their order to be delivered exactly as requested in their order. The courier must ensure that the goods will reach the recipient undamaged, in the right quantity, and without delivering the wrong order (Flint & Kent, 2001; Mentzer et al., 2001). Furthermore, to discuss order accuracy, the logistics service provider must clearly understand and deliver the logistical service requested by the customer (Wallenburg, 2009). Some researchers have shown in previous studies that the positive relationship between order accuracy and customer satisfaction.

2.2.3 Order condition

The term order condition refers to the degree to which orders have been damaged (Mentzer et al., 2001). the supplier must communicate with the customers if the products were damaged when they were delivered. The condition of the provided goods, as well as their fast and complete delivery, are critical to the customer. The products may be damaged during transportation if they are not properly protected. Customers expect to receive the requested product in its entirety. It is

indicated that damaged orders will lower customers' satisfaction with the company's logistics service. Companies have a responsibility to their customers to keep their orders in a safe and secure environment, as products may be damaged during the multiple transfer and handling steps needed to get them to the customer. Since customers cannot utilize damaged items, suppliers or other vendors, depending on the cause of the damage, must execute corrective operations (Flint & Kent, 2001). Some researcher found the result that shows the damage product or damage order considerably lower the customer satisfaction and loyalty. Additionally, the delivery of products that are damaged will result in dissatisfied customers as well as additional costs for the company, such as the cost of retrieving and repairing the damaged products (Sutrisno et al., 2019).

2.2.4 Personnel contact quality

Personnel contact quality of suppliers is an important factor of LSQ dimensions. They have a direct effect on customer satisfaction and other things, such as the accuracy, condition, timeliness, and quality of an order. Customers or people who use logistics should pay attention to service personnel that is knowledgeable, helpful, and willing to solve customers' problems (Mentzer et al., 2001). Communication between the customer and the contact person is critical throughout service delivery to improve the customer's impression of their expectations (Parasuraman et al., 1985). communication with service providers is a significant role in determining customer expectation. Many authors found the result that the personal quality has a positive impact on customer satisfaction (Choi et al., 2019; Hafez et al., 2021).

2.3 Customer satisfaction

Customer satisfaction is among the most widely investigated concepts in consumer behavior. Consumer satisfaction is used as both a parameter and a result variable in many studies. Customer satisfaction is often measured by how well the product meets the customer's expectations before the purchase and how well it performs after the purchase (Mentzer & Williams, 2001). Customer satisfaction is defined as the difference between prior expectations and actual product, or service performance as perceived by the customer (Buttle, 2009). Online Customer satisfaction is the most important factor of purchasing behavior in the future. Customers who are satisfied with the support given by a service provider are more likely to continue using the company's services and to be loyal in the future (Rita et al., 2019). Because of these reasons, customers can save money on future purchases and increase their confidence and loyalty with online Shopping systems by personalizing the screening, pre-purchase, search process. Many studies demonstrated that the strong positive relationship between logistics service quality and customer satisfaction (Blut et al., 2015; Rita et al., 2019). Logistics service quality and customer satisfaction has significantly relationship with online shopping and the trust that customers place in the shopping centre, as well as the concept that this trust is one of the factors that connecting customer satisfaction to customer loyalty (Koivumäki, 2001).

2.4 Customer loyalty

Customer loyalty is crucial for the company to sustain company continuity and continuity of operations; loyal customers are individuals who are incredibly satisfied with a product or service and are eager to recommend it to everyone they know. Loyal customers will eventually extend their "loyalty" to other products produced by the same producer in the following stage. In the end, they are customers who have always bought from a certain brand or company. A consumer with high loyalty is one who purchases from a specific company at a higher rate than other companies (Kotler, 2000). Customer satisfaction is seen as a direct cause of customer loyalty or the buyer's in-

tention to buy from the retail shop again. Many studies show that customer satisfaction is a stronger predictor of customer loyalty online and a key factor in keeping customers loyal, which means they are more likely to give positive reviews, buy the product or service again, or tell others about it. Additionally, studies have demonstrated that online consumer loyalty is positively impacted by online customer satisfaction (Hafez et al., 2021).

2.5 Relationship between Logistics service quality and customer satisfaction

There are many approaches to describe and explain how logistics makes customer satisfied. Most of them are based on creating time and place utilities (Rosenbloom, 1979). The most of study's findings indicate that in order to increase customer satisfaction, organizations should provide a high level of service quality, as service quality is commonly regarded as a predictor of customer satisfaction (Saura et al., 2008). The performance of logistics services is an important key component in creating customer satisfaction. Logistics excellence has been identified as an area in which firms can gain a competitive advantage due to the visible service impact on customers (Wang, 2015).

Consumer satisfaction and logistics service quality are also measured in different ways. Consumer satisfaction is a strategy that companies use to keep and attract new customers for the long term. Logistic service quality, on the other hand, is an effort by a company to meet the desires and needs of its clients in the optimal manner so that goods and services get to them on time (Yumurtacı Hüseyinoğlu et al., 2020). Based on some definition, a type of service quality must be based on consumer satisfaction, with consumers who are satisfied with the service demonstrating the intention of a type of service quality. Other journals state that satisfaction influences service quality, as demonstrated by the desire to make repeat purchases (Rasheed & Abadi, 2014).

2.6 Relationship between customer satisfaction and loyalty

It is very crucial to understand how the ideas of customer satisfaction and customer loyalty are related. Both ideas are very essential for the success of any company or organization. Customer satisfaction is one of the most important things a business needs to think about if it wants to keep customers coming back and improve its performance. Customers that are satisfied are more likely to make repeat purchases, have less affordability, spread good word of mouth, and

stay with a company. Customer satisfaction indicates how well a product or service matches the customer's expectations, whereas loyalty is determined by product or service quality and other dimensions (Chen et al., 2006). Based on previous studies, many of the researcher demonstrated that the customer satisfaction is a important indicator to measure the customer loyalty. The positive impacts of satisfaction on loyalty influence customer desire to purchase again and willingness to suggest the service or item to others. Customers that are satisfied are more likely to purchase again and generate good word of mouth about the company, resulting in greater sales and market share. Because customer satisfaction influences positive repurchase intention, a consumer will remain loyal to the provider as his or her level of satisfaction rises (Soh et al., 2015). According to some authors, a satisfied consumer will stay and sustain a relationship with the provider. Their results demonstrated that customer retention occurs when rising business is accompanied by greater customer satisfaction (Eriksson & Vaghult, 2000)

3 Research model and hypothesis

LSQ is the modified method of SERVQUAL can be used to assess the logistics service quality. Based on the literature review, this research purposes a conceptual framework showing the relationship between logistics service quality, customer satisfaction and customer loyalty. the LSQ framework

consists of nine dimensions, but this study will only focus on four dimensions, which are presented in the framework below.

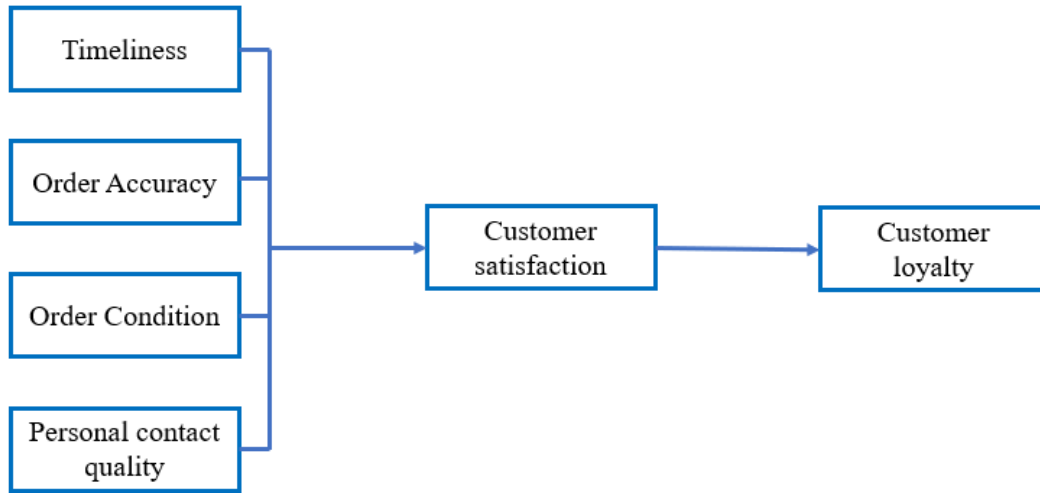


Figure 1. Proposed research model

Based on the literature review I took the following hypotheses:

- H1: Timeliness has a positive significance relationship with the customer satisfaction.
- H2: Order Accuracy has a positive significance relationship with the customer satisfaction.
- H3: Order condition has a positive significance relationship with the customer satisfaction.
- H4: Personal contact quality has a positive significance relationship with the customer satisfaction.
- H5: Customer satisfaction has a positive significance relationship with the customer loyalty.

4 Research methodology

This study employs a quantitative, deductive approach to evaluate the logistics service quality of Flipkart online shopping and its impact on customer satisfaction and loyalty. It combines descriptive, quantitative, and causal research designs, focusing on numerical data collected through surveys to derive general conclusions from individual responses. The target of the population of this study consists of all customers who have visited and purchased the products from Flipkart online shopping. This study used nonprobability sampling, which means that not all parts of the population have the same chance of being chosen as research subjects. The study participants responses are obtained using a non-probabilistic sampling technique that involves the use of both purposive and convenient sampling methods. This research is based primary and secondary data. The Primary data collected from the sampled customers by using online self-administered questionnaires and the secondary data collected from the previous literature and the website. The questionnaire is consisting of 18 questions, was directly given to the customers who purchase the product from Flipkart online shopping. This study was conducted in the Aligarh city, Uttar Pradesh, India. According to Cochran formula used to calculate the sample size with a 95% confidence level recommended 385 participants, but only 162 responses were obtained. However, the sample size was deemed sufficient to represent the population because previous literature suggests that sample sizes between 30 and 500 are appropriate (Hafez et al., 2021).

The survey consisted of four sections. The first section is the demographic section which is consist of 6 questions and aimed to gather basic information about the Gender, age, income and

visit reason of the respondents. The second section is designed to gather the customers' perspectives on the logistics quality service dimensions of Flipkart online shopping, using 12 questions and all the questionnaire was constructed on five-point Likert scale, ranging from “Strongly Disagree” (1) to “Strongly Agree” (5). Each dimension has 3 questions, and the 12 questions are divided among the four dimensions of logistics service quality such as timeliness, order accuracy, order condition and personal contact quality. The third section is to measure the satisfaction level which is consist of 3 questions constructed. The last and final section is to measure the customer loyalty which is consist of 3 questions and it is based on attitudinal and behavioural approach.

In this study, the analysis is conducted using SPSS 22.0 as the primary tool. Firstly, a descriptive analysis is performed to present the demographic data of the respondents and the logistics service quality attributes. Secondly, the internal consistency of the questionnaire is tested using Cronbach's Alpha analysis. Thirdly, Pearson's correlation coefficient analysis is applied to examine the degree of correlation between logistics service quality dimensions, customer satisfaction, and customer loyalty. Lastly, linear regressions are used to determine influence of each dimension of logistics service quality on customer satisfaction and also used for impact of customer satisfaction on customer loyalty.

5 Results and Data analysis

5.1 Demographic analysis

This study includes the use of multiple queries regarding demographic profiles to collect essential information from the respondents and to understand the characteristics of general population.

Table 1 Demographic characteristics of respondent

Variables		Frequency (N = 162)	Percentage of sample
Gender	Male	131	80.9
	Female	31	19.1
Age	Below 18	20	12.3
	18-30	136	84
	31-45	4	2.5
	above 45	2	1.2
Occupation	Student	117	72.2
	Private employed	30	18.5
	Government employed	6	3.7
	Unemployed	7	4.3
	Other	2	1.2
Income per month (in INR)	Less than 10k	76	46.9
	10k – 30k	32	19.8
	30k – 50k	18	11.1
	Above 50k	22	13.6
	Other	14	8.6

The total 6 variable related demographic were asked to respondents in this study such as gender, age group, occupation, income per month (in INR), type of product do you usually purchase from Flipkart online shopping and customer purchase frequency time. The general demographic characteristics of respondents are examined using descriptive statistics such as frequency distribution. we can see the frequency table of age, gender, occupation, and income discussed below.

According to Table 1, a total of 162 respondents participated in the survey and filled it out the questionnaires. There were male respondents 131 with accounting for 80.9% and dominated of

the Sample, the female participants numbers were 31 which represent 19.1% of the total. Regarding the age group, most of the respondents were aged between 18 to 30 age group which represent 72.2% of the total respondents. Specifically, 12.3% of the participants were in the age group of below 18-year-old. The smallest percentage of the sample was 31-45 years old, who represented only 2.5% and the remaining respondents 1.2% were above 45-year-old. We can see the occupation status of the respondents, majority of the respondent 72.2% were student from out of total, 18.5% were private employed, 4.3% were unemployed, 3.7% were government employed and remaining the respondents were other such as trader, own business. In term of Income of respondents, the highest percentage 46.9% of respondents were earning month income less than 10k INR, 19.8% respondents earned between 10k-30k INR, 11.1% respondents were earning between 30k-50k INR, and 13.6% respondents earned more than 50K INR. Remaining respondents 8.6% were other they answered have no income.

5.2. Reliability analysis

A reliability test is a statistical technique used to check the internal consistency and stability of a measurement tool such as a survey. Cronbach's α analysis is used to assess the internal consistency of the research survey which is developed the constructed items. this method used to test how well the survey questions are related to one another. It measures the extent to which the questions in the survey are measuring the same construct. The most common way to measure internal consistency is through Cronbach's alpha, which ranges from 0 to 1, with higher values indicating greater reliability. In this study, all the dimensions of LSQ, customer satisfaction and customer loyalty are accepted and high internal consistency result because all coefficients are higher than 0.7 and more toward to 1. Therefore, all constructed questionnaires found to be highly reliable and consistent for the analysis.

5.3 Respondents purchasing behaviour

To determine the purchasing behaviour of respondents we need to know about how often they visited and how familiar they were with the company. According to the below Table 2, the result shows that majority of the respondents (41.4%) purchase Clothes and shoes out of total participants, 25.9% of respondents purchase usually Smartphones and laptops products, 20.9% of respondents purchase usually electric products, 8.0% of respondents purchase cosmetics product from Flipkart online shopping. Remaining the 7% respondents were other and they purchase the product such as books, decoration, grocery...etc.

Table 2 Respondents purchasing behaviour

Variables		Frequency	Percentage
Which type of product do you usually purchase from Flipkart online shopping?	Smartphones and Laptops	42	25.9
	Electric products	33	20.4
	Clothes and shoes	67	41.4
	Cosmetics	13	8
	Other	7	4.3
How many times do you shop online in a month?	1-2 times	117	72.2
	2-3 times	30	18.5
	5-6 times	7	4.3
	above 6 times	8	4.9

Source: own calculation

5.4 Correlation analysis

Correlation analysis is a statistical technique used to examine the relationships between variables and determine the strength and direction of the relationship between them. Correlation coefficients range from -1 to 1, where -1 indicates a negative correlation, 0 indicates no correlation, and +1 indicates a positive correlation. The sign of the correlation coefficient indicates the direction of the relationship, while the absolute value indicates the strength of the correlation. According to Dancey and Reidy (2004), a correlation result of 0 suggests no correlation between variables, while a result between 0.1 and 0.3 indicates a weak correlation, a result between 0.4 and 0.6 indicates a moderate correlation, a result between 0.7 and 0.9 indicates a strong correlation, and a result of 1 indicates a perfect correlation.

5.4.1 Correlation analysis between logistics service quality dimensions and customer satisfaction

The correlation coefficient used to investigate the relationship between logistics service quality dimension and customer satisfaction and discussed below.

From the above Table 3, we can see that there is a positive moderate relationship between the dimensions of logistics service quality and customer satisfaction. As the table shows, Timeliness dimension have moderate significant positive relationship with the customer satisfaction and the coefficient value is 0.635 at the significant level 0.01. order accuracy dimension have moderate significant positive relationship with the customer satisfaction and the coefficient value is 0.581 at the significant level 0.01. order condition dimension has moderate significant positive relationship with the customer satisfaction and the coefficient value is 0.539 at the significant level 0.01. personal contact quality dimension has moderate significant positive relationship with the customer satisfaction and the coefficient value is 0.622 at the significant level 0.01. so we can conclude that the all the dimensions of logistics service quality have positive significant correlation with the customer satisfaction.

Table 3 Correlation analysis between Logistics service quality dimensions and customer satisfaction

Correlations						
		Timeliness	Order Accuracy	Order condition	Personal contact quality	Customer satisfaction
Timeliness	Pearson Correlation	1	.593**	.484**	.540**	.635**
Order Accuracy	Pearson Correlation	.593**	1	.557**	.466**	.581**
Order condition	Pearson Correlation	.484**	.557**	1	.507**	.539**
Personal contact quality	Pearson Correlation	.540**	.466**	.507**	1	.622**
Customer satisfaction	Pearson Correlation	.635**	.581**	.539**	.622**	1

** . Correlation is significant at the 0.01 level (2-tailed).

Source: own calculation

According to their study, order condition has the lowest score of correlation with the customer satisfaction. However, since a positive correlation is observed between all dimensions of logistics service quality and customer satisfaction, it can be said that there is a positive relationship between logistics service quality and customer satisfaction. In other words, it implies that the dimensions (Timeliness, order accuracy, order condition and personal contact quality) of logistics service quality of Flipkart online shopping improves, there is a corresponding increase in customer satisfaction.

5.4.2 Correlation between customer loyalty and customer satisfaction

The relationship between the customer loyalty which deals with the tendency of a customer to repeatedly purchase products and customer experience. The analysis was done by using correlation analysis below.

Table 4 Correlations between Customer satisfaction and Customer loyalty

Correlations			
		Customer Loyalty	Customer satisfaction
Customer Loyalty	Person Correlation	1	.811**
	Sig. (2-tailed)		0.000
	N	162	162
Customer satisfaction	Person Correlation	.811**	1
	Sig. (2-tailed)		0.000
	N	162	162
**. Correlation is significant at the 0.01 level (2-tailed).			

Source: own calculation

According to Table 4, It can be seen that there is strong positive relationship between customer satisfaction and customer loyalty because Pearson correlation coefficient value was 0.811 at the 0.01 level of significance and coefficient value is going towards 1.

5.5 Regression analysis

Regression analysis is a statistical method that involves the examination of two or more independent variables to forecast the dependent variable. It is an effective tool that helps researchers to determine the factors that can predict the dependent variable, as well as the individual influence of each independent variable and the extent to which they affect the dependent variable (Revindran et al., 2020).

5.5.1 Impact of logistics service quality dimensions on customer satisfaction

This analysis used the following dimensions of logistics service quality (Timeliness, order accuracy, order condition and personal contact quality) which is the independent variable and customer satisfaction is the dependent variable. All the variables are measured on scale. This analysis will show the influence of dimensions of logistics service quality on customer satisfaction below.

According to Table 5, Coefficient of determination R square is the proportion of the dependent variable's customer satisfaction variation explained by the independent variable dimensions of logistics service quality.

Table 5 Model summary of regression analysis between logistics service quality dimension and customer satisfaction

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.748 ^a	.559	.548	.667
a. Predictors: (Constant), Personal contact quality, Order Accuracy, Order condition, Timeliness				

Source: own calculation

The third column shows that the value of R square is 0.559 it's mean that our independent variable dimensions of logistics service quality explain only about 55.9% of the variability of our dependent variable customer satisfaction. the value of adjusted R square is 0.548 it's mean that the model is explain 54.8% and the model is approx. fit. R and R square is seeming like tell us about the how well regression fit model, but it does not talk about the whole story do we need to understand about all the table like Coefficients, ANOVA, and other statistics.

Table 6 ANOVA Table of regression analysis between logistics service quality dimension and customer satisfaction

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	88.492	4	22.123	49.810	.000 ^b
	Residual	69.730	157	.444		
	Total	158.222	161			
a. Dependent Variable: Customer satisfaction						
b. Predictors: (Constant), Personal contact quality, Order Accuracy, Order condition, Timeliness						

Source: own calculation

Table 6, represent the analysis of variance (ANOVA) it shows that whether our regression model is significant predictor or not of the outcome variable. We can see in the ANOVA table the value of F-ratio is 49.810 at F (4, 157) and the significant value (p-value = 0.000) is less than 0.05 so it's mean that our model is significantly predict for the dependent variable customer satisfaction. Overall, the regression model is good fit for the data, and we can say that the regression model is significantly predict the customer satisfaction.

Table 7, The coefficients table shows that coefficient and significance of model it tells us whether the predictors had a meaningful impact on the model or not. So, we can see in the table Timeliness, order accuracy, order condition and personal contact is statistically significant because significance value (p-value) of Timeliness, order accuracy, order condition and personal contact quality is 0.000, 0.009, 0.045 and 0.000 less than 0.05 respectively. it's mean that all the explanatory

variable contribution to explaining the customer satisfaction. It shows also estimate of the intercept or constant value is 0.206 and this constant can be interpreted as the average predicted value of the dependent variable customer satisfaction if all the independent variable is zero. In the data set dimensions does not have zero value so our interpretation is not real only based on intercept.

Table 7 Coefficients Table of regression analysis between logistics service quality dimension and customer satisfaction

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.206	.262		.787	.432
	Timeliness	.304	.075	.289	4.056	.000
	Order Accuracy	.201	.076	.190	2.654	.009
	Order Condition	.146	.072	.138	2.022	.045
	Personal contact quality	.307	.067	.307	4.576	.000
a. Dependent Variable: Customer satisfaction						

Source: own calculation

The beta value measures the degree to which each predictor variable affects the outcome or dependent variable. This implies that a larger beta value indicates a greater influence of the predictor variable on the dependent variable. The value of dependent variable is the beta value, and it shows change in independent variable, whenever independent variable changes, the change happens also in the dependent variable. The standard coefficients between customer satisfaction and Timeliness are (Beta= 0.289, $p < 0.05$), customer satisfaction with order accuracy (Beta= 0.190, $p < 0.05$), customer satisfaction with order condition (Beta= 0.138, $p < 0.005$) and customer satisfaction with personal contact quality (Beta= 0.307, $p < 0.005$). it' s mean that the impact of each dimension of logistics service quality on customer satisfaction is positive and significant. It can also be seen that the personal contact quality has the highest value of beta (Beta= 0.307) it' s mean that this variable is the strongest influencing factor of customer satisfaction in Flipkart online shopping and order condition has least value of beta is (Beta= 0.138) which means that the weakest influencing factor of customer satisfaction.

The result of hypothesis showed that H1, H2, H3, H4 and H5 have an important role in Flipkart online shopping proved as per hypothesis testing using regression analysis and correlation. This result showed that the dimensions of logistics service quality Timeliness, order accuracy, order condition and personal contact quality are significant and have positive effect with the customer satisfaction. Customer satisfaction has a positive significant impact with the customer loyalty as well.

6 Conclusion

The study aimed to investigate the impact of logistics service quality dimensions on customer satisfaction and the relationship between logistics service quality dimensions and customer satisfaction in Flipkart online shopping. This to determine the most significant dimensions of services that affect logistics service quality and customer satisfaction. Furthermore, this research also showed that how customer loyalty is affected by customer satisfaction it' s mean when customers are satisfied with a company's products or services, they are more likely to remain loyal

to that company and the relationship between customer satisfaction and customer loyalty in Flipkart online shopping. The four dimensions of logistics service quality from the LSQ model, which is timeliness, order accuracy, order condition, personal contact quality was hypothesized to evaluate logistics service quality and customer satisfaction. Another hypothesis was formulated to examine the influence of customer satisfaction on customer loyalty.

Based on the result, this result showed that all the dimensions timeliness, order condition, order accuracy and personal contact quality has statistically positive significant effect on customer satisfaction. Some previous research also supports this finding result (Akil & Ungan, 2022). It was also found that customer satisfaction have strongest positive significant relationship and effect on customer loyalty.

Timeliness is now viewed as a basic requirement for every company in the logistics industry due to the rising expectations of customers. logistics companies should prioritize timely delivery to improve customer satisfaction. It's referring to the timely delivery of the ordered product to customers, as promised at the time of ordering. When the delivery date is later than expected, customers may not receive the product as intended, and may choose to switch to another company for their future purchases. it's implying that if the company provides services correctly and delivers them within the promised timeframe, customers will likely have a higher level of satisfaction with the company. The least influencing factor of logistic service quality is order condition which had a lower impact on customer satisfaction compared to other dimensions. Order condition requires that the products ordered by customers must be delivered to them in an undamaged and intact state. To ensure this, it is important to use appropriate packaging that can withstand the handling and transportation process. It is also important to consider the duration of transportation in order to maintain the quality of the product. Additionally, special measures must be taken to prevent spoilage, particularly for products that require specific temperature conditions such as health and food products. Order accuracy is another dimension of logistics service quality that has a lower impact on customer satisfaction compared to order condition so improving the order accuracy can lead to higher levels of customer satisfaction. This would suggest that logistics companies should focus on improving their order accuracy as a means of improving customer satisfaction, which in turn could lead to increased customer loyalty and business success. Personal contact quality is found to be the most significant influencing factor of logistics service quality and has a significant relationship with customer satisfaction, it implies that logistics companies should focus on improving the quality of personal contact with customers to enhance their satisfaction levels. This could include training staff to provide excellent customer service, being friendly and helpful, and addressing customer concerns and complaints promptly and effectively. This study also investigated that the customer satisfaction has a significant effect on customer loyalty and found the positive significant relationship between customer satisfaction and customer loyalty. This means that when a customer is satisfied with the services provided, they are likely to become loyal customers who will continue to use online shopping and even recommend them to others.

Finally, effective quality of logistics services have the potential to increase customer satisfaction, leading to repeat purchases and continued loyalty. Customers who are satisfied with their experience are more likely to make future purchases with the company. Therefore, it is important for companies to prioritize the delivery of high-quality logistics services to ensure customer satisfaction and loyalty.

References

Akil, S., Ungan, M. C. (2022). E-Commerce Logistics Service Loyalty. *Journal of Electronic Commerce in Organizations*, 20(1), 1–19. <https://doi.org/10.4018/jeco.292473>

- Blut, M., Frennea, C. M., Mittal, V., Mothersbaugh, D. L. (2015). How procedural, financial and relational switching costs affect customer satisfaction, repurchase intentions, and repurchase behavior: A meta-analysis. *International Journal of Research in Marketing*, 32(2), 226–229. <https://doi.org/10.1016/j.ijresmar.2015.01.001>
- Chen, M.-F., Wang, L.-H., Chen, M.-F., Wang, L.-H. (2006). The moderating role of switching barriers on customer loyalty in the life insurance industry. *The Service Industries Journal*, 29(8), 1105–1123. <https://doi.org/10.1080/02642060902764574>
- Choi, D., Chung, C. Y., Young, J. (2019). Sustainable online shopping logistics for customer satisfaction and repeat purchasing behavior: Evidence from China. *Sustainability*, 11(20), 5626. <https://doi.org/10.3390/SU11205626>
- Devi, S., R., Norida, S., W., Way, Y., L., Shin, L., Y. (2018). The Impact of Logistics Services On The E-Shoppers' Satisfaction. *International Journal of Supply Chain Management*, 7(5), 461–469. <https://doi.org/10.59160/IJSCM.V7I5.2390>
- Eriksson, K., Vaghult, A. L. (2000). Customer retention, purchasing behavior and relationship substance in professional services. *Industrial Marketing Management*, 29(4), 363–372. [https://doi.org/10.1016/S0019-8501\(00\)00113-9](https://doi.org/10.1016/S0019-8501(00)00113-9)
- Hafez, L., Elakkad, E., Gamil, M. (2021). A Study on the Impact of Logistics Service Quality on the Satisfaction and Loyalty of E-Shoppers in Egypt. *Open Journal of Business and Management*, 9(5), 2464–2478. <https://doi.org/10.4236/ojbm.2021.95133>
- Hult, G. T. M., Hurley, R. F., Giunipero, L. C., Nichols, E. L. (2000). Organizational Learning in Global Purchasing: A Model and Test of Internal Users and Corporate Buyers. *Decision Sciences*, 31(2), 293–325. <https://doi.org/10.1111/J.1540-5915.2000.TB01625.X>
- Koivumäki, T. (2001). Customer Satisfaction and Purchasing Behaviour in a Web-based Shopping Environment. *Electronic Markets*, 11(3), 186–192. <https://doi.org/10.1080/101967801681008022>
- Lehtinen, J. R. (1991). Two approaches to service quality dimensions. *The Service Industries Journal*, 11(3), 287–303. <https://doi.org/10.1080/02642069100000047>
- Liu, L., Liu, C. (2014). Empirical Study of Express Logistics Service Quality –A Survey of Changdao County Express Sector. *Proceedings of the 2014 International Conference on Education Technology and Information System (ICETIS 2014)*, 115(Icetis), 542–546. <https://doi.org/10.2991/icetis-14.2014.121>
- Meidutė-Kavaliauskienė, I., Vasilienė-Vasiliauskienė, V., Vasilis-Vasiliauskas, A. (2020). Identification of sectoral logistics service quality gaps by applying servqual method. *Transport*, 35(4), 419–434. <https://doi.org/10.3846/transport.2020.13879>
- Mentzer, J. T., Flint, D. J., & Hult, G. T. M. (2001). Logistics service quality as a segment customized process. *Journal of Marketing*, 65(4), 82–104. <https://doi.org/10.1509/JMKG.65.4.82.18390>
- Mentzer, J. T., Williams, L. R. (2001). The role of logistics leverage in marketing strategy. *Journal of Marketing Channels*, 8(3–4), 29–47. https://doi.org/10.1300/J049V08N03_03
- Parasuraman, A., Zeithaml, V. A., Berry, L. L. (1985). A Conceptual Model of Service Quality and Its Implications for Future Research. *Journal of Marketing*, 49(4), 41–50. <https://doi.org/10.1177/002224298504900403>
- Perreault, W. D., Russ, F. A. (1976). Quantifying marketing trade-offs in physical distribution policy decisions. *Decision Sciences*, 7(2), 186–201. <https://doi.org/10.1111/J.1540-5915.1976.TB00670.X>
- Ramachandran, A., Vijayabanu, C. (2012). A review of customer satisfaction towards service quality of banking sector. *Periodica Polytechnica Social and Management Sciences*, 20(2), 71–79. <https://doi.org/10.3311/PP.SO.2012-2.02>
- Rasheed, F. A., Abadi, M. F. (2014). Impact of Service Quality, Trust and Perceived Value on Customer Loyalty in Malaysia Services Industries. *Procedia - Social and Behavioral Sciences*, 164(Dec), 298–304. <https://doi.org/10.1016/J.SBSPRO.2014.11.080>

- Revindran, M., Ragen, P. N. K., Mahmud, B. (2020). A study on Logistics Service Quality in E-Retailing Amongst Online Shoppers in Kuala Lumpur. *IOP Conference Series: Materials Science and Engineering*, 780(6). <https://doi.org/10.1088/1757-899X/780/6/062016>
- Rita, P., Oliveira, T., Farisa, A. (2019). The impact of e-service quality and customer satisfaction on customer behavior in online shopping. *Heliyon*, 5(10), e02690. <https://doi.org/10.1016/J.HELIYON.2019.E02690>
- Rosenbloom, B. (1979). Using Physical Distribution Strategy for Better Channel Management. *Journal of the Academy of Marketing Science*, 7(1), 61–70. <https://doi.org/10.1177/009207037900700106>
- Saura, I. G., Francés, D. S., Contrí, G. B., Blasco, M. F. (2008). Logistics service quality: A new way to loyalty. *Industrial Management and Data Systems*, 108(5), 650–668. <https://doi.org/10.1108/02635570810876778>
- Soh, K. L., Chin, S. H., Wong, W. P. (2015). A theoretical model to investigate customer loyalty on logistics service providers for sustainable business performance. *International Journal of Business Performance and Supply Chain Modelling*, 7(3), 212–232. <https://doi.org/10.1504/IJBPSM.2015.071609>
- Sutrisno, A., Andajani, E., Widjaja, F. N. (2019). The Effects of Service Quality on Customer Satisfaction and Loyalty in a Logistics Company. *KnE Social Sciences*, 2019, 85–92. <https://doi.org/10.18502/kss.v3i26.5360>
- Thai, V. V. (2013). Logistics service quality: Conceptual model and empirical evidence. *International Journal of Logistics Research and Applications*, 16(2), 114–131. <https://doi.org/10.1080/13675567.2013.804907>
- Wallenburg, C. M. (2009). Innovation in logistics outsourcing relationships: proactive improvement by logistics service providers as a driver of customer loyalty. *Journal of Supply Chain Management*, 45(2), 75–93. <https://doi.org/10.1111/J.1745-493X.2009.03164.X>
- Wang, L. (2015). Research on the impact of e-commerce to logistics economy: An Empirical Analysis based on Zhengzhou Airport Logistics. *International Journal of Security and Its Applications*, 9(10), 275–286. <https://doi.org/10.14257/IJSIA.2015.9.10.25>
- Yumurtacı Hüseyinoğlu, I. Ö., Kotzab, H., Köstegen, K. G., Halaszovich, T. (2020). Assessing consumer logistics functions in grocery shopping: Evidence from an emerging market. *Journal of Marketing Channels*, 26(1), 72–86. <https://doi.org/10.1080/1046669X.2019.1700868>



