

THE IMPACT OF LOGISTICS SERVICE QUALITY IN E-COMMERCE ON SATISFACTION WITH ONLINE SHOPPING AND PURCHASE INTENTION

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Abstract

E-commerce activities have begun to take place among the important activities of our daily lives. The concept of electronic commerce, which emerged especially with the development of the internet and computers, has led to radical changes for many businesses. While it is possible to carry out all activities electronically in e-commerce, the only process that does not take place electronically is logistics activities. From this perspective, logistics processes in electronic commerce appear as the most important element in ensuring customer satisfaction. In addition, consumers' demands and purchasing preferences change along with businesses. Logistics operations have started to take an important place in e-commerce activities, especially in consumer preferences and demands. This study aims to investigate the effect of logistics service quality in e-commerce processes on consumers' shopping satisfaction and shopping intention. For this purpose, a survey is conducted on 476 participants who are international trade and logistics employees or have received training, and the quantitative research method is used. The data obtained as a result of the research are analyzed through the SPSS (Statistical Package for Social Sciences) program. Within the scope of this research, the effect of logistics service quality on consumers' shopping satisfaction and shopping intention in e-commerce is empirically examined. Correlation and regression analyses were performed on the data collected in the study. As a result of the research, while the effect of logistics service quality in e-commerce on shopping satisfaction was determined, its effect on shopping intention was not determined. This research aims to fill the gap in the relevant literature by measuring the impact of the hypotheses.

Keywords: E-Commerce, E-Commerce Logistics Service Quality, Shopping Satisfaction, Shopping Intention, International Trade and Logistics

JEL Classification: L81, L87, M31

E-TİCARETTE LOJİSTİK HİZMET KALİTESİNİN ALIŞVERİŞ TATMİNİ VE ALIŞVERİŞ YAPMA NİYETİNE ETKİSİ

Öz

E-Ticaret faaliyetleri günlük hayatımızın önemli faaliyetleri arasında yer almaya başlamıştır. Özellikle internet ve bilgisayarın gelişimiyle birlikte ortaya çıkan elektronik ticaret kavramı birçok işletme için köklü değişimlere yol açmıştır. E-ticarette tüm faaliyetleri elektronik ortamda yapma imkânı varken, elektronik ortamda gerçekleşmeyen tek süreç lojistik faaliyetlerdir. Bu açıdan bakıldığında elektronik ticarette lojistik süreçler müşteri memnuniyeti sağlamada en önemli unsur olarak karşımıza çıkmaktadır. Ayrıca işletmelerle birlikte tüketicilerin istekleri ve satın alma tercihleri de değişmektedir. Özellikle tüketici tercihleri ve isteklerinde e-ticaret faaliyetinde lojistik operasyonlar önemli bir yer tutmaya başlamıştır. Bu çalışmada e-ticaret süreçlerinde lojistik hizmet kalitesinin tüketicilerin alışveriş tatmini ile alışveriş yapma niyeti üzerine etkisinin araştırılması amaçlanmaktadır. Bu amaç doğrultusunda araştırmada uluslararası ticaret ve lojistik çalışanı veya eğitimi almış 476 katılımcıya anket uygulaması gerçekleştirilmekte, nicel araştırma yöntemi kullanılmaktadır. Araştırma sonucunda elde edilen veriler SPSS (Statistical Package for Social Sciences) paket programı aracılığıyla analiz edilmektedir. Bu araştırma kapsamında, e-ticarette tüketicilerin alışveriş tatmini ve alışveriş yapma niyetinde lojistik hizmet kalitesinin etkisi ampirik olarak incelenmektedir. Araştırmada toplanan veriler üzerinde korelasyon ve regresyon analizleri gerçekleştirilmiştir. Araştırma sonucunda e-ticarette lojistik hizmet kalitesinin alışveriş tatmini üzerine etkisi tespit edilirken, alışveriş yapma niyeti üzerine etkisi tespit edilememiştir. Bu araştırmada hipotezler arasındaki etki ölçülerek ilgili yazındaki boşluğu doldurmak hedeflenmektedir.

Anahtar kelimeler: E-Ticaret, E-Ticaret Lojistik Hizmet Kalitesi, Alışveriş Tatmini, Alışveriş Yapma Niyeti, Uluslararası Ticaret ve Lojistik

JEL Sınıflaması: L81, L87, M31

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1. Introduction

The incorporation of information and communication technology into business operations is altering the structure of commerce. Commercial operations done in electronic contexts represent key milestones of this transformation. E-commerce statistics are escalating daily and have emerged as a significant catalyst for contemporary worldwide economic advancement (Xianglian & Hua, 2013: 838). E-commerce is radically transforming customers' buying experiences. This shift has significantly influenced the logistics sector, as it has touched all sectors.

The swift proliferation of e-commerce on a worldwide scale has enhanced international logistics operations and fostered market expansion. Furthermore, e-commerce activities have augmented the utilisation of technology in logistical operations (Yu et al., 2017: 179). The logistics operations in e-commerce are mostly conducted through outsourcing, with process controls administered by several organisations (Yıldız, 2020: 38). Studies indicate that the performance of e-commerce enterprises is correlated with their logistics skills, and that the proficient and effective management of logistics processes is crucial for success in e-commerce operations (He, Zang & He, 2019: 1).

The emergence of e-commerce has significantly transformed the shopping experiences of both businesses and consumers. The benefits of e-commerce for organisations and consumers have significantly contributed to the swift transition towards these activities. Research has shown that logistics operations are crucial for e-commerce enterprises in attaining customer happiness and cost efficiencies.

E-commerce activities have fundamentally transformed logistics operations throughout. The transportation, storage, stocking, and handling of unit loads are crucial in traditional commerce; however, the emergence of e-commerce has necessitated the transportation, storage, stocking, and handling of smaller commodities. The implementation of this feature is both expensive and intricate, resulting in substantial problems for logistics organisations during this change.

The execution of e-commerce activities occurs wholly inside a digital framework, with physical components involved solely in logistics, underscoring the significance of logistics in these operations. In light of the current epidemic, customers have wholeheartedly adopted e-commerce, including those previously opposed to internet buying. Cargo firms responsible for the last stage of delivery in e-commerce have gained significant prominence. Cargo businesses unprepared for this shift have emerged as major contributors to customer unhappiness in e-

commerce operations. Logistics operations are crucial in e-commerce for enhancing customer satisfaction and minimising expenses.

E-commerce needs a contemporary logistical approach. The reduction in order sizes, escalation in daily order volume, tiny package shipping, and same-day delivery are significant. The timely and location-specific delivery of items to customers in e-commerce is a complex and demanding operation. The success of enterprises in e-commerce is contingent upon the efficacy of distribution channels, namely the adept management of logistical procedures. E-commerce logistics is essential for the efficient and effective transportation of items within the supply chain (Cho, Ozment & Sink, 2008: 337).

The quality of logistics services, particularly in last-mile delivery, is a critical determinant of successful e-commerce operations. An efficient method to oversee a significant portion of the supply chain in e-commerce is to regulate logistics from warehousing to distribution. The primary supporting approaches for e-commerce logistics encompass the e-commerce system, warehouse management system, and transportation management system. A digital platform is necessary for a firm involved in e-commerce. Currently, several trading methods are employed by enterprises (Yu et al., 2017: 2266). In e-commerce logistics, tasks such as warehousing, shipping, inventory management, and customer support are prominent. The growth of e-commerce has underscored the significance of reverse logistics in facilitating consumer satisfaction through enhanced return processes. The rise of delivery as the concluding phase of e-commerce has resulted in heightened urban traffic and pollution, while e-commerce logistics has emerged as a focus of green logistics and urban logistics initiatives.

This study was conducted within the scope of the international trade and logistics discipline and contributes to the literature by addressing e-commerce logistics from this interdisciplinary perspective. This research investigates the influence of logistics service quality on shopping pleasure and buying intention in e-commerce, highlighting the findings. In this context, it is crucial to assess the perspectives of persons who have utilised e-commerce services and possess training and expertise in logistics. This study is expected to address a notable gap in the literature and practice on the significance of customer satisfaction and purchasing behaviour in e-commerce enterprises. Furthermore, the research is anticipated to enhance awareness among enterprises involved in this activity by elucidating the impact of logistics service quality on e-commerce.

2. Literature Review

The swift advancement and use of computers and the internet as marketing instruments have led to the emergence of "electronic commerce." The internet has facilitated the emergence of a dynamic environment for transactions between consumers and businesses in a virtual marketplace. The tremendous rise of the internet has paralleled an equally fast development of e-commerce (Cho et al., 2008: 337). A multitude of firms are currently participating in e-commerce operations through several methods. The rise of e-commerce has enhanced convenience in people's lives and facilitated the evolution of new business procedures while refining current ones to promote business growth. Although e-commerce transpires over the internet, payments may also be executed online to finalise transactions; nonetheless, the logistical operations remain the sole aspect not handled online. Effectively managing the benefits of e-commerce will be challenging without a well-designed, efficient, and effective logistics infrastructure (Xianglian & Hua, 2013: 838-839).

Contemporary logistics methods are essential for the advancement of e-commerce activities. Logistics operations are crucial for global firms as they provide value for consumers and other stakeholders. Value in logistics may be articulated in terms of temporal and spatial dimensions. Failure to provide items and services to the customer at the specified time and location will result in a diminished value proposition (Burak, 2021: 1). The logistics service of e-commerce is predominantly confined to the delivery of products to clients, as noted in the literature. Nonetheless, e-commerce constitutes a business endeavour that encompasses several other logistical activities. The seller must procure the items from the supplier before dispatching them to the client. Subsequently, it is transported to the warehouse, kept under appropriate conditions, and upon receipt of an order, it is packaged and dispatched to the client. These procedures are characterised by the execution of logistical operations within e-commerce (Kawa, 2017: 429).

The rising popularity of electronic commerce is complicating logistics operations, rendering logistics tasks ever more demanding. The challenges in shipping operations are resulting in diminished consumer satisfaction levels. This circumstance has precipitated a pronounced need for logistics operations that fulfil client requirements, guarantee satisfaction, and are executed at reasonable rates (Kazancı & Bayarçelik, 2022: 801). The swift expansion of e-commerce has intensified the demands on logistics firms responsible for the last stage of delivery operations. The growing propensity of customers for e-commerce is resulting in an ever-increasing need. This feature has rendered the ongoing development of innovative solutions and the ability to meet escalating demands the primary emphasis of logistics companies, especially

cargo enterprises. Businesses consistently endeavour to improve the quality of their offerings (Vakulenko, Hellström & Hjort, 2018: 422).

Table 1: Literature Review

Author(s)	Year	Purpose / Topic	Method	Conclusion
Cho et al.	2008	The study analyzed the impact of logistics competence and logistics outsourcing on organizational performance in e-commerce operations. This study investigates the correlation of a firm's logistical capabilities, logistics outsourcing, and performance.	Survey, Regression	The research concluded that logistics expertise is positively correlated with corporate performance in the e-commerce sector. The correlation between logistical capacity and outsourcing was not substantiated. The interaction impact of outsourcing logistics operations on the connection between logistics competence and company performance was not maintained.
Karadeniz & Işık	2014	The study examined the impact of logistics service quality on customer satisfaction in e-commerce operations.	Survey, Statistical	The survey identified on-time delivery, quality order fulfilment, the development of quality information, and responsiveness as consumer impressions of logistics service quality. Their conclusion indicated that order quality and timeliness are the paramount factors contributing to customer pleasure, with all sub-dimensions influencing this satisfaction effectively.
Hua Zing	2015	The researchers analyzed the impact of logistics service quality on consumer satisfaction within the e-commerce sector.	Survey, Analysis	The research concluded that delivery service quality, after-sales service quality, and the service quality of workers interacting with customers influence consumer happiness.
Yıldız	2020	The study investigated the impact of logistics service quality on loyalty, satisfaction, and	Survey, SEM (N=423)	The research revealed that e-commerce logistics service quality did not influence loyalty, but positively impacted satisfaction and trust.

İlhan	2021	trust within the realm of e-commerce. This research intends to assess the influence of electronic service quality and logistical service quality on customer happiness and loyalty of online buyers.	Survey (N=560)	The research findings indicate that e-service quality and logistics service quality positively enhance customer satisfaction and loyalty. Furthermore, it was established that customer loyalty increases among those satisfied with their purchased products.
Akıl & Ungan	2022	Impact of logistics quality on satisfaction and loyalty	Survey (N=1,562)	The research concluded that punctuality, order status, dispute handling, and order correctness significantly influence consumer satisfaction.
Canöz & Gündüz	2022	In the research, the relationship between logistics service quality, customer satisfaction, and customer loyalty was discussed.	Survey (N=398)	The analysis indicates that logistics service quality is a significant and positive predictor of both customer satisfaction and loyalty.
Kazancı & Bayarçelik	2022	The study investigated the impact of e-commerce logistics service quality on loyalty, satisfaction, and trust.	Survey	The research, which concentrated on e-commerce activities that surged during the COVID-19 era, involved data collection and analysis using survey methodology. The research concluded that order quality, returns, customer service, and information quality influenced customer satisfaction, whereas order quality, timeliness, returns, and customer service affected repurchase intention.
Lin et al.	2023	In the research, the influence of logistics service quality on reuse and customer satisfaction was examined.	Survey, Mediation (N=810)	The research found that the sub-dimensions of logistics service quality influence customer satisfaction. Furthermore, it has been established that consumer satisfaction influences repurchase behavior. The mediation analysis results indicated that the three links exerted a mediating impact on one another.

Rashid & Rasheed	2024	This research investigated the correlation between e-commerce logistics service quality and product satisfaction.	Survey (N=197)	The research concluded that product quality and information quality positively influenced product satisfaction, however, shipping cost, product availability, and delivery time had no impact.
Sipahi	2024	The study investigated the influence of logistics service quality on the conversion of customer pleasure into customer loyalty within e-commerce operations.	Survey (N=146)	According to the research results, it was determined that all dimensions of customer satisfaction and logistics service quality positively affect customer loyalty.
Öztürk & Bozyiğit	2024	The study investigated the impact of physical distribution service quality on e-satisfaction and e-loyalty among e-commerce consumers.	Survey (N=988)	The study concluded that the sub-dimensions of physical distribution service quality, specifically timeliness and delivery status, influenced e-satisfaction. It was noted that the quality of physical distribution services did not influence electronic loyalty. Furthermore, it was found that the participants prioritised delivery status, timeliness, and availability.
Yang et al.	2024	In this study, they examined the effect of logistics service quality on customer satisfaction in e-commerce for fresh products. This work has established a novel logistical service quality evaluation scale tailored for fresh product e-commerce, grounded in the SERVQUAL paradigm. Moreover, factors like consumer	Survey + Theory	The results indicate that the quality of logistics services substantially influences customer satisfaction via both the five dimensions of the SERVQUAL model and the four essential elements of service interactions. Furthermore, it has been established that psychological elements, including consumer expectations, perceived value, and emotional responses, significantly mediate this connection.

expectations and perceived value have a mediating function, aiding in the development of the preliminary hypothesis model. The study also employs the service encounter theory as a theoretical framework.

The literature study indicates that most research employed the survey approach. The quality of e-commerce logistics services is often evaluated in depth for its impact on satisfaction and loyalty. Nonetheless, our review revealed an absence of evidence concerning the impact of shopping pleasure on purchasing intention. Furthermore, the selection of persons engaged in international trade and logistics education or employed in the international logistics sector in Mersin, a limitation of our study, constitutes a significant factor that differentiates our research from others.

3. Research Methodology

The research seeks to examine the influence of logistics service quality in e-commerce on consumer shopping satisfaction and buying intention. A survey will be undertaken for this project, employing the relational scanning model, a quantitative research approach within generic scanning frameworks.

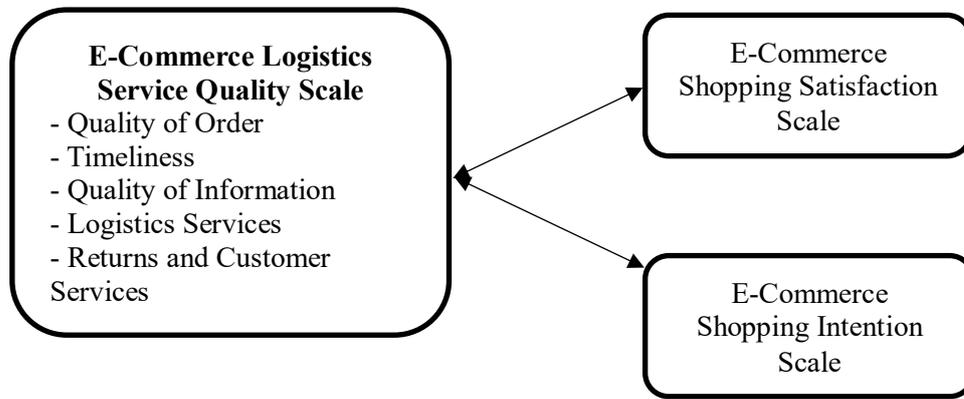
The 35-item scale created by Kazancı & Bayarçelik (2022) in their study "The Effects of E-Commerce Logistics on Customer Satisfaction and Repurchase Intention: During the Covid-19 Global Pandemic" will be utilised to assess the quality of logistics services in e-commerce. To assess shopping pleasure and its influence on purchasing intention, two measures of 7 items each, as detailed in the paper "The Impact of Digital Marketing Mix Elements on Consumer Buying Behaviour in E-Commerce" by Altunay (2023), will be employed. The research will pose a total of 42 questions to the participants, utilising three scales. The study survey was administered voluntarily to alleviate any pressure on participants. The researcher analysed the data obtained from the questionnaires while maintaining anonymity. The study data is being analysed with the SPSS (Statistical Package for Social Sciences) for Windows 26.0 software.

The Ethics Committee of the Social and Human Sciences Research Ethics Committee of Tarsus University has approved the study, under decision number 2024/43.

3.1. Research Model and Hypotheses

The cornerstone of scientific inquiry is the formulation of research questions or hypotheses to begin the research process. In social sciences research, a model serves as a framework to improve comprehension in scenarios that cannot be directly investigated by the researcher (Gürbüz & Şahin, 2018: 76). The model employed in our investigation has been implemented as detailed below.

Figure 1. Research Model



This study utilises the "E-Commerce Logistics Service Quality Scale" to define the dependent variable "E-Commerce Shopping Satisfaction Scale" and the independent variable "E-Commerce Shopping Intention Scale." The study utilised three scales in all.

After the establishment of the research model, the study's hypotheses were articulated. Hypotheses facilitating the examination of the anticipated impact among two or more variables are delineated, accompanied by the necessary data and the procedural steps to fulfil this need (Büyüköztürk et al., 2013: 65; Gürbüz & Şahin, 2018: 73).

Studies are employed in the development of research hypotheses. Hua & Zing (2015) investigated the impact of logistics service quality in e-commerce on customer satisfaction. The study revealed that the quality of delivery service, after-sales support, and staff interactions with consumers significantly influence customer satisfaction. Akıl & Urgan (2022) investigated the influence of e-commerce logistics service quality on customer satisfaction and loyalty. The study determined that elements including punctuality, order status, dispute management, and

order accuracy influence consumer satisfaction. Kazancı & Bayarçelik (2022) conducted a study on the influence of customer satisfaction and repurchase in e-commerce logistics, revealing that order quality, information quality, returns, and customer services significantly affect consumer satisfaction. The punctuality and freight services do not significantly influence customer satisfaction. Order quality, timeliness, returns, and customer service significantly influence repurchase intention, however, information quality and delivery services do not exert a significant effect. Consequently, based on the conducted studies, the hypotheses have been proposed that "The quality of logistics services in e-commerce influences shopping satisfaction" and "The quality of logistics services in e-commerce affects the intention to purchase." Nonetheless, the "E-Commerce Logistics Service Quality" scale employed in the study comprises sub-dimensions, prompting the hypotheses to be formulated in alignment with these dimensions. The hypotheses proposed for this investigation are enumerated below.

H1: The quality of logistics services in e-commerce has an impact on shopping satisfaction.

- H1a: The sub-dimension of order quality in logistics service quality in e-commerce affects shopping satisfaction.
- H1b: The timeliness sub-dimension of logistics service quality in e-commerce affects shopping satisfaction.
- H1c: The sub-dimension of information quality in logistics service quality in e-commerce affects shopping satisfaction.
- H1d: The sub-dimension of cargo services in the quality of logistics services in e-commerce affects shopping satisfaction.
- H1e: The sub-dimensions of return and customer service in logistics service quality in e-commerce affect shopping satisfaction.

H2: The quality of logistics services in e-commerce has an impact on the intention to shop.

- H2a In e-commerce, the quality of logistics services has an impact on the intention to shop, particularly through the sub-dimension of order quality.
- H2b: The timeliness sub-dimension of logistics service quality in e-commerce affects the intention to shop.
- H2c: The sub-dimension of information quality in logistics service quality in e-commerce affects the intention to shop.

- H2d: In e-commerce, the sub-dimension of cargo services in logistics service quality affects the intention to make a purchase.
- H2e: The sub-dimensions of return and customer service in logistics service quality in e-commerce have an impact on the intention to make a purchase.

3.2. Research Universe and Sample

The universe comprises a substantial collection of things that furnish the requisite data to address the enquiries presented in research (Büyüköztürk et al., 2013: 80). The findings of the research are extrapolated to the entire population, with the sample being derived from that population (Gürbüz & Şahin, 2018: 125). The research population comprises customers who are either studying international trade and logistics or employed in the international logistics sector while participating in e-commerce activities in the province of Mersin. These individuals have been designated as a universal group due to the belief that their expertise and experience in logistics, acquired via education and practical application, will be important for the study's outcomes. The heightened sensitivity of these persons to logistics service levels will inform their diverse viewpoints and facilitate the attainment of more precise outcomes. To achieve population representation within a 95% confidence interval, a survey should include a maximum of 384 persons (Yazıcıoğlu & Erdoğan, 2004: 50). The study used 467 volunteers to facilitate the depiction of the cosmos. Participant responses were gathered in person, by email, and via telephone. The survey participants were chosen by a basic random selection technique.

3.3. Research Findings

The participants' socio-demographic characteristics are delineated in Table 2. Of the 467 survey respondents, 54.8% were female and 45.2% were male. 46% of respondents are single, whilst 54% are married. The age breakdown reveals that 27.0% are aged 18-25, 24.8% are aged 26-35, 25.5% are aged 36-45, 13.9% are aged 46-55, and 8.8% are aged 55 and above. Upon analysing the educational background of the participants, it is noted that 11.6% (10.7% + 0.9%) lack a university education. The predominant number of participants possess an associate degree (30.2%) and a bachelor's degree (34.0%). Furthermore, 18.4% hold a master's degree, whilst 5.8% have engaged in doctorate studies. Analysis of the participants' income levels revealed that 2.6% earn 5000 TL or less, 13.7% earn between 5001 TL and 10000 TL, 19.9% earn between 10001 TL and 20000 TL, 39.6% earn between 20001 TL and 30000 TL, and 24.2% earn over 30000 TL.

Table 2. Sociodemographic Characteristics of Participants

Variable	Number	Percentage	Variable	Number	Percentage	Variable	Number	Percentage
Gender			Educational status			Marital status		
Female	256	54,8	Primary education	4	0,9	Single	215	46,0
Male	211	45,2	High school	50	10,7	Married	252	54,0
Age			Associate Degree	141	30,2	Monthly income (TL)		
18-25	126	27,0	Bachelor degree	159	34,0	Less than 5000 TL.	12	2,6
26-35	116	24,8	Master's degree	86	18,4	5001 - 10000 TL	64	13,7
36-45	119	25,5	Doctoral degree	27	5,8	10001- 20000	93	19,9
46-55	65	13,9				20001 - 30000	185	39,6
55 and over	41	8,8				30001 and over	113	24,2

Data collected from 467 participants via survey methodology has been analysed using the SPSS Statistics (Statistical Package for the Social Sciences) for Windows 26.0 software. Before initiating the study, reliability tests were performed to ascertain the validity of the measurement, and the Cronbach's Alpha (α) value was established in line with the Internal Consistency study. The alpha coefficient on a Likert-type scale ranges from 0 to 1, with a minimum acceptable value of 0.70 (Gürbüz & Şahin, 2018: 333).

Table 3. Reliability Analysis

Scale	Cronbach's Alpha
E-Commerce Logistics Service Quality Scale	,737
"Quality of Order"	,904
"Timeliness"	,883
"Quality of Information"	,809
"Logistics Services"	,732
"Returns and Customer Services"	,885
E-Commerce Shopping Satisfaction Scale	,866
E-Commerce Purchase Intention Scale	,902

The Cronbach alpha coefficient is typically favoured for assessing the consistency among variables in Likert-type scales. This approach assesses the dependability of the variables pertinent to the investigation. Cronbach's alpha values are assessed in the following manner.

- "The range $0.00 < \alpha < 0.40$ lacks reliability."

- " $0.40 < \alpha < 0.60$ signifies low reliability."
- " $0.60 < \alpha < 0.80$ is considered highly reliable."
- " $0.80 < \alpha < 1.00$ signifies elevated reliability."

The research indicates that the Cronbach alpha coefficient ranged from 0.60 to 0.80 and from 0.80 to 0.99, suggesting that the scales employed are credible (Özdamar, 2002). It has been established that all scales employed in the study, including their sub-dimensions, demonstrate a dependable level.

The normality distributions of the scales have been investigated to precisely identify the relevant statistical analyses. The skewness and kurtosis values of the scales for normalcy assessment are displayed in Table 4.

Table 4. Results of the Normality Test

	Min.	Max.	X	S.s	Skewness	Kurtosis
"Quality of Order"	10,00	30,00	24,0802	4,51387	-,496	-,454
"Timeliness"	9,00	30,00	21,1276	4,34969	,377	-,057
"Quality of Information"	8,00	30,00	22,7202	3,55746	-,549	1,915
"Logistics Services"	4,00	15,00	11,6770	2,05907	-,807	1,250
"Returns and Customer Services"	17,00	70,00	48,9979	9,94739	-,189	-,008
E-Commerce Shopping Satisfaction Scale	5,00	25,00	18,7428	3,93159	-,557	-,025
E-Commerce Purchase Intention Scale	2,00	10,00	5,1399	2,94362	,227	-1,487

The analyses undertaken yielded the data reported in Table 4. In research, scores within the range of -2 to +2 for the scales signify a normal distribution of the scales. (George & Mallery, 2018). The normality test findings indicate that the scales employed in the study have a normal distribution.

A Pearson Correlation (two-tailed) analysis was conducted to examine the relationships between the sub-dimensions of the "E-Commerce Logistics Service Quality" scale and the total scores of "E-Commerce Shopping Intention" and "E-Commerce Shopping Satisfaction". According to Köklü, Büyüköztürk, and Çokluk-Bökeoğlu (2007), a correlation coefficient of $r < .30$ indicates a weak relationship, $.30 \leq r < .70$ indicates a moderate relationship, and $r \geq .70$ indicates a strong relationship (Köklü, Büyüköztürk & Çokluk-Bökeoğlu, 2007).

Table 5. Pearson Correlation Analysis

Correlations		"Quality of Order"	"Timeliness"	"Quality of Information"	"Logistics Services"	"Returns and Customer Services"	"E-Commerce Logistics Service Quality"
E-Commerce Purchase Intention Scale	Pearson Correlation	0.013	,420**	,328**	,098*	-0.035	,149**
	Sig.(2-tailed)	0.778	0.000	0.000	0.030	0.435	0.001
E-Commerce Shopping Satisfaction Scale	Pearson Correlation	,507**	,279**	,398**	,481**	,555**	,588**
	Sig.(2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000

A statistically significant medium-level positive correlation exists between the overall score of the e-commerce logistics service quality scale and the shopping satisfaction scale (r: 0.588; $p < 0.05$). A statistically significant positive medium-level correlation exists between the order quality sub-dimension of the e-commerce logistics service quality scale and the overall score of the shopping satisfaction scale (r: 0.507; $p < 0.05$). A statistically significant positive low-level correlation exists between the timeliness sub-dimension of the e-commerce logistics service quality scale and the overall score of the shopping satisfaction scale (r: 0.279; $p < 0.05$). A statistically significant positive medium-level correlation exists between the information quality sub-dimension of the e-commerce logistics service quality scale and the overall score of the shopping satisfaction scale (r: 0.398; $p < 0.05$). A statistically significant positive medium-level correlation exists between the freight services sub-dimension of the e-commerce logistics service quality scale and the overall score of the shopping satisfaction scale (r: 0.481; $p < 0.05$). A statistically significant positive medium-level correlation exists between the return and customer service sub-dimension of the e-commerce logistics service quality scale and the overall score of the shopping satisfaction scale (r: 0.555; $p < 0.05$).

A statistically significant positive low-level correlation exists between the overall score of the e-commerce logistics service quality scale and the shopping intention scale (r: 0.149; $p < 0.05$). No statistically significant difference exists between the order quality sub-dimension of the e-commerce logistics service quality scale and the overall score of the shopping intention scale ($p > 0.05$). A statistically significant positive medium-level correlation exists between the

timeliness sub-dimension of the e-commerce logistics service quality scale and the overall score of the shopping intention scale ($r: 0.420; p<0.05$). A statistically significant positive medium-level correlation exists between the information quality sub-dimension of the e-commerce logistics service quality scale and the overall score of the shopping intention scale ($r: 0.328; p<0.05$). A statistically significant positive low-level correlation exists between the freight services sub-dimension of the e-commerce logistics service quality scale and the total score of the shopping intention scale ($r: 0.098; p<0.05$). No statistically significant difference exists between the overall scores of the e-commerce logistics service quality scale's return and customer service sub-dimensions and the shopping intention scale ($p>0.05$).

The research investigated the impact of the independent variables—Order Quality, Timeliness, Information Quality, Logistics Services, Returns, and Customer Services—on the dependent variables of the E-Commerce Shopping Satisfaction Scale and the E-Commerce Purchase Intention Scale using regression analysis.

Upon assessing the regression analysis in Table 6, our primary hypothesis, which posits that the quality of logistical services in e-commerce influences purchasing satisfaction (H1), has been validated ($0.001; p<0.05$). The sub-dimensions of the E-Commerce Logistics Service Quality scale—order quality (H1a), timeliness (H1b), logistics services (H1d), and returns and customer services (H1e)—significantly influence the E-Commerce Shopping Satisfaction Scale. The theories H1a, H1b, H1d, and H1e have been affirmed in this context. The sub-dimension of information quality (H1c) within the e-commerce logistics service quality dimensions was not found to influence the e-commerce shopping satisfaction scale; hence, this hypothesis (H1c) has been rejected.

Table 6. Regression Analysis of Sub-Dimensions of E-Commerce Logistics Service Quality and the E-Commerce Shopping Satisfaction Scale

Dependent variable: Shopping Satisfaction Scale	R	R ²	Adj R ²	F	F Sig.	Unstandardized coefficients		Standardized t	Value	p Value
Model 1	,635	,403	,397	64,935	,000	β	Std. Hata	β		
Stable						3,428	,985		3,479	,001
Quality of Order						,255	,040	,293	6,442	,000
Timeliness						-,112	,043	-,124	-2,586	,010
Quality of Information						,070	,062	,063	1,130	,259

Logistics Services	,254	,101	,133	2,507	,013
Returns and Customer Services	,143	,018	,361	8,018	,000

The regression analysis of Table 7 indicates that our second primary hypothesis, which asserts that the quality of logistical services in e-commerce influences shopping intention (H2), has been rejected ($p < 0.05$). The sub-dimensions of the E-Commerce Logistics Service Quality scale—order quality (H2a), timeliness (H2b), information quality (H2c), and return and customer service (H2e)—significantly influence the Purchase Intention Scale. The theories H2a, H2b, H2c, and H2e have been affirmed in this context. The sub-dimension of cargo services (H2d) within the e-commerce logistics service quality dimensions did not influence the e-commerce purchasing intention scale; hence, this hypothesis (H2d) has been dismissed.

Table 7. Regression Analysis of E-Commerce Logistics Service Quality Sub-dimensions and E-Commerce Shopping Intention Scale

Dependent variable: Shopping Intention Scale	R	R ²	Adj R ²	F	F Sig.	Unstandardized coefficients	Standardized	t Value	p Value
Model 1	,546	,298	,291	40,775	,000	β	Std. Hata	β	
Stable Quality of Order						,773	,800	,966	,335
Timeliness Quality of Information						-,139	,032	-,214	-,4331
Logistics Services						,322	,035	,476	9,121
Returns and Customer Services						,245	,050	,297	4,886
						-,076	,082	-,053	-,927
						-,077	,014	-,260	-5,322

Table 8. Hypothesis Testing Results

Hypothesis	Statement	Decision
H1	The quality of logistics services in e-commerce has an impact on shopping satisfaction.	Accepted
H1a	The sub-dimension of order quality in logistics service quality in e-commerce affects shopping satisfaction.	Accepted
H1b	The timeliness sub-dimension of logistics service quality in e-commerce affects shopping satisfaction.	Accepted
H1c	The sub-dimension of information quality in logistics service quality in e-commerce affects shopping satisfaction.	Rejected

H1d	The sub-dimension of cargo services in the quality of logistics services in e-commerce affects shopping satisfaction.	Accepted
H1e	The sub-dimensions of return and customer service in logistics service quality in e-commerce affect shopping satisfaction.	Accepted
H2	The quality of logistics services in e-commerce has an impact on the intention to shop.	Rejected
H2a	In e-commerce, the quality of logistics services has an impact on the intention to shop, particularly through the sub-dimension of order quality.	Accepted
H2b	The timeliness sub-dimension of logistics service quality in e-commerce affects the intention to shop.	Accepted
H2c	The sub-dimension of information quality in logistics service quality in e-commerce affects the intention to shop.	Accepted
H2d	In e-commerce, the sub-dimension of cargo services in logistics service quality affects the intention to make a purchase.	Rejected
H2e	The sub-dimensions of return and customer service in logistics service quality in e-commerce have an impact on the intention to make a purchase.	Accepted

4. Conclusion And Discussion

Companies involved in e-commerce want to regain consumer preference during purchasing decisions. To do this, they must guarantee shopping happiness and cultivate client loyalty. Our research sought to elucidate the influence of logistics service quality in e-commerce on consumer shopping satisfaction and purchase intention.

The correlation analyses performed in the research indicated a link between the quality of e-commerce logistics services and both the desire to purchase online and shopping satisfaction in e-commerce. No correlation has been shown between the order quality sub-dimension of the e-commerce logistics service quality scale and the return and customer service sub-dimension with the shopping intention scale. In e-commerce, the quality of logistics services and their sub-dimensions significantly contribute to customer happiness. In their 2014 research, Karadeniz and Işık determined that all aspects of logistics service quality in e-commerce influence consumer satisfaction, yielding results consistent with our analysis. In their 2022 study, Akıl and Ungan determined that the quality of logistics services in e-commerce positively influences customer satisfaction via timeliness, order status, and order accuracy. Their study also identified a favourable correlation between customer happiness and customer loyalty. Consequently, they have attained comparable quality outcomes.

The regression analysis findings demonstrate that the quality of logistical services in e-commerce influences shopper satisfaction. No impact of the information quality sub-dimension on logistics service quality has been discovered in consumer e-commerce, but the impacts of all other sub-dimensions have been demonstrated. Hua & Zing (2015) investigated the influence

of logistics service quality on consumer satisfaction within the e-commerce sector. The study revealed that the quality of delivery services, after-sales services, and staff services positively influences customer happiness; nevertheless, the effect of information service quality on customer satisfaction was deemed insignificant. The research findings indicate that information quality does not influence the quality of logistical services in e-commerce, which aligns with our study's conclusions. Yıldız's 2020 research showed that the quality of e-commerce logistics services significantly influences satisfaction and trust. The outcomes of this investigation have corroborated our findings.

No substantial influence of logistics service quality in e-commerce on shopping intention has been discovered. In this context, it cannot be asserted that customers regard the quality of logistical services in e-commerce while planning to make a purchase. The quality of logistics services is a significant influence on customer satisfaction; nevertheless, it is not a decisive aspect in the intention to purchase. Rashid & Rasheed (2024) studied the influence of logistics service quality on product satisfaction in e-commerce. The research indicates that product availability, delivery duration, and shipping expenses had a negligible influence on product satisfaction. Conversely, research indicates that product quality and information quality significantly and positively influence product satisfaction. Kazancı & Bayarçelik (2022) determined that order quality, returns, customer service, and information quality influence consumer happiness, however, timeliness and shipping services do not significantly affect it. Our research was unable to ascertain the influence of cargo services on purchasing intentions. The discrepancies that emerge are contingent upon the variances within the selected universe.

We urge that academics and practitioners investigate the influence of e-commerce logistics service quality across diverse scales and many aspects. Novel research may be undertaken on various worlds and sample cohorts. Service quality may be assessed using qualitative research methodologies. Practitioners must establish policies to enhance the quality of logistics services in e-commerce to foster consumer pleasure. An extensive e-commerce enterprise ought to maintain regulatory oversight of its logistical operations. Nevertheless, a firm classified as an SME should exercise caution in selecting the delivery service provider and must consistently solicit client feedback. Otherwise, customer loyalty will not be cultivated, and clients may seek alternative organisations. We urge that governments enhance university education and certification programs in this domain. Incentives and other supportive mechanisms should expedite the digital transformation of logistics enterprises.

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