THE EFFECTS OF PICK UP SERVICE, LOADING UNLOADING, AND TRANSPORTATION ON LOGISTICS CUSTOMER SATISFACTION THROUGH LOGISTICS SERVICE QUALITY: A STUDY ON UNIVERSITAS TERBUKA LEARNING MATERIAL DISTRIBUTION AT PT POS INDONESIA TANGERANG MAIN BRANCH, INDONESIA

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Abstract: *The PT Pos Indonesia Tangerang Main Branch Office (KCU) plays a strategic role in distributing learning materials for Universitas Terbuka (UT) to various regions across Indonesia and contributes significantly to the company's logistics revenue. However, numerous complaints from employees of UPBJJ Bandung indicate shortcomings in logistics service implementation, particularly in service quality and customer satisfaction. This study aims to analyze the effects of PickUp Service, Loading Unloading, and Transportation on Logistics Service Quality (LSQ), and to examine the impact of LSQ on Logistics Customer Satisfaction, both directly and as a mediating variable. This research employs a quantitative approach with descriptive and verificative methods. The population consists of 189 UPBJJ Bandung employees, with 128 respondents selected using the Slovin formula. Data were collected through questionnaires, interviews, observations, documentation, and literature review. Analysis was conducted using SEM-PLS with SmartPLS 3, including validity and reliability testing. The results are expected to provide empirical evidence on LSQ's mediating role and offer recommendations to enhance UT material distribution services.*

Keywords: *Pick Up Service, Loading Unloading, Transportation, Logistics Service Quality, Logistics Customer Satisfaction*

Introduction

The Tangerang Main Branch Office (KCU) of PT Pos Indonesia is one of the technical operating units of PT Pos Indonesia located in Banten Province, providing various services including courier, parcel, and logistics services, as well as financial services and agency services for several financial institutions and insurance companies. One of the strategic activities carried out by KCU Tangerang is the distribution of Universitas Terbuka (UT) learning materials from the UT Jakarta Campus to UT students spread across Indonesia.

The distribution of UT learning materials contributes significantly to the logistics revenue performance of KCU Tangerang. In 2024, logistics revenue generated from this activity amounted to IDR 35,000,000,000. By October 2025, logistics revenue increased to IDR 60,000,000,000, representing an increase of IDR 25,000,000,000 or a growth rate of 71.42 percent. This increase indicates that UT learning material distribution services play a crucial role

in supporting the sustainability of PT Pos Indonesia's logistics business, particularly within the operational area of KCU Tangerang.

Operationally, the distribution process begins at the UT Jakarta Campus and continues to the Distance Learning Program Units (UPBJJ) in various regions. Subsequently, the learning materials are distributed by UPBJJ to internal staff, Universitas Terbuka Service Units (Salut), and Study Groups (Pokjar) before ultimately being received by students. In this study, UPBJJ Bandung was selected as the research location because it handles the largest volume of learning material receipts, totaling 99,908 packages or approximately 11.62 percent of the total UT learning materials distributed nationwide.

The number of UPBJJ Bandung employees directly involved in managing the distribution of learning materials in the Bandung area totals 189 people. Based on internal reports, UPBJJ Bandung employees submitted numerous complaints regarding the performance of KCU Tangerang in the delivery process from UT Jakarta. Throughout 2025, the recorded number of complaints reached 6,769 cases, representing approximately 10.15 percent of the total learning material packages received. This high complaint rate indicates problems in logistics service quality that may affect logistics customer satisfaction.

Logistics customer satisfaction fundamentally reflects customers' evaluations of the conformity between perceived logistics service performance and prior expectations. When service performance meets expectations, customers feel satisfied; conversely, when performance falls below expectations, dissatisfaction arises. Under certain conditions, when service performance exceeds expectations, customers may experience a higher level of satisfaction known as logistics customer delight (Fornell, 2020).

Previous studies indicate a relationship between logistics service quality and customer satisfaction, although findings remain inconsistent. Lin et al. (2024) found that Logistics Service Quality significantly affects customer satisfaction in logistics companies in China, while Hui et al. (2025) reported that logistics service quality does not significantly affect online customer satisfaction in the same country. In Indonesia, Ogunnowo (2021) demonstrated that Logistics Service Quality influences customer satisfaction in third-party logistics (3PL) companies.

Logistics Service Quality refers to the overall characteristics and activities of logistics services designed to meet and exceed customer needs and expectations.(Christopher, 2022). In operational contexts, pickup timeliness is a critical indicator of logistics service quality; therefore, delays in pickup processes may reflect deficiencies in Logistics Service Quality (Lin, 2024).

Complaint data from UPBJJ Bandung indicate that logistics service quality issues include delays in pickup at UT Jakarta, delays in loading and unloading processes, and late vehicle arrivals at several distribution points. These conditions suggest that Pick Up Service, Loading Unloading, and Transportation aspects still require serious attention and improvement to enhance overall logistics service quality.

Pick Up Service refers to logistics services related to collecting goods from the origin location by the logistics service provider . (Paksoy & Turan, 2021). The high proportion of complaints related to delayed pickup at UT Jakarta indicates that Pick Up Service quality plays a vital role in shaping Logistics Service Quality. This finding aligns with previous studies showing that pickup service quality positively affects Logistics Service Quality and ultimately impacts Logistics Customer Satisfaction.

In addition to pickup activities, Loading Unloading operations are also an essential component of logistics operations. Loading Unloading includes the process of loading and unloading goods onto and from transportation vehicles in accordance with applicable procedures,

documentation, and safety standards (Paksoy & Turan, 2021). Complaint data reveal significant delays in loading and unloading, indicating the need to evaluate the efficiency and reliability of these processes. Previous studies have also shown that Loading Unloading quality influences Logistics Service Quality and logistics customer satisfaction.

Transportation, on the other hand, is a logistics subsystem that connects various locations within the supply chain through transportation network and operations management, including route planning, cost control, security, and service flexibility (Putra Wijaya et al., 2025). Delays in vehicle arrivals at several UT learning material distribution points indicate transportation-related issues that may affect logistics service quality and customer satisfaction. Numerous empirical studies have confirmed that transportation performance influences Logistics Service Quality and Logistics Customer Satisfaction, although research findings vary across contexts and regions.

Based on the above discussion, this study focuses on examining the effects of Pick Up Service, Loading Unloading, and Transportation on Logistics Service Quality, as well as the effect of Logistics Service Quality on Logistics Customer Satisfaction. Additionally, this study analyzes the role of Logistics Service Quality as an intervening variable in the relationship between the three logistics operational variables and logistics customer satisfaction. Considering the inconsistencies in previous research findings, this study is expected to provide new empirical contributions and practical recommendations for improving PT Pos Indonesia's logistics service performance in distributing Universitas Terbuka learning materials.

Literature Review

Effect of Pick Up Service on Logistics Service Quality

Pick Up Service is one of the initial logistics activities that plays a strategic role in determining overall service quality. This service relates to fleet availability, ease of booking access, pickup timeliness, and reliability and accuracy in collecting goods. Suboptimal Pick Up Service performance may cause delays in subsequent logistics stages, thereby reducing Logistics Service Quality.

Several empirical studies have demonstrated a significant effect of Pick Up Service on Logistics Service Quality. Natarajan (2023), You Li and Zhehao Liang (2024), Elizabeth C. Gibson (2024), and Fotouhi (2021) found that high-quality pickup services positively contribute to improving logistics service quality. However, other studies reported contrasting results. Cai et al. (2024), Neto and Vieira (2023), Jin et al. (2023), and Al-Mu'ani et al. (2024) concluded that Pick Up Service does not significantly affect Logistics Service Quality.

These inconsistencies indicate a research gap regarding the role of Pick Up Service in shaping logistics service quality. Therefore, this study reexamines the effect of Pick Up Service on Logistics Service Quality by simultaneously incorporating Loading Unloading and Transportation as exogenous variables, aiming to provide a more comprehensive empirical perspective.

Effect of Loading Unloading on Logistics Service Quality

Loading Unloading is a logistics operational activity involving the loading and unloading of goods from transportation vehicles to destination locations. Efficiency, safety, and accuracy in this process are critical determinants of smooth goods flow and perceived logistics service quality.

Several studies have found that Loading Unloading significantly affects Logistics Service Quality. Phong Nha Nguyen and Kim (2024), Yang et al. (2023), Mermertas (2024), and

Jakovlev (2025) reported that effective loading and unloading processes positively contribute to improved logistics service quality. Conversely, studies by Ningrum (2021), Ricardianto et al. (2022), Mawikere (2023), Siregar et al. (2023), and Hidayat et al. (2024) concluded that Loading Unloading does not significantly influence Logistics Service Quality.

These divergent findings suggest that the effect of Loading Unloading on logistics service quality remains context-dependent. Therefore, this study reexamines the influence of Loading Unloading on Logistics Service Quality in the context of UT learning material distribution by PT Pos Indonesia.

Effect of Transportation on Logistics Service Quality

Transportation is a logistics subsystem that connects various points in the supply chain through goods transportation activities. Vehicle capacity, fleet condition, route flexibility, and delivery timeliness are key indicators in evaluating transportation performance.

Several studies indicate that transportation significantly affects Logistics Service Quality. Arabelen (2021), Lin et al. (2023), Cai (2024), Minh et al. (2024), and Hui (2025) demonstrated that good transportation performance enhances logistics service quality. However, studies by Mawikere and Herijanto (2023), Siregar et al. (2023), Ningrum (2022), Ricardianto et al. (2022), and Hidayat et al. (2024) reported that transportation does not significantly influence Logistics Service Quality.

These inconsistencies reinforce the need for further research. The uniqueness of this study lies in testing the effect of transportation simultaneously with Pick Up Service and Loading Unloading on Logistics Service Quality.

Effect of Logistics Service Quality on Logistics Customer Satisfaction

Logistics Service Quality is a key determinant in shaping logistics customer satisfaction. Service quality dimensions such as timeliness, information accuracy, product condition, and service responsiveness are believed to influence customer perceptions and satisfaction levels.

Numerous studies have confirmed a positive effect of Logistics Service Quality on Logistics Customer Satisfaction, including Lin et al. (2024), Hui et al. (2025), Rane (2023), and Ogunnowo (2021). However, other studies such as Hafez et al. (2021), Hui (2025), Lorentsia et al. (2025), Lin (2023), and Yu (2025) found no significant effect.

These inconsistent findings indicate the need for reexamination. In this study, Logistics Service Quality is positioned not as an exogenous variable but as an intervening variable linking logistics operational variables to customer satisfaction.

Effect of Pick Up Service on Logistics Customer Satisfaction through Logistics Service Quality

Previous studies indicate that Pick Up Service not only directly affects logistics service quality but also indirectly affects customer satisfaction through Logistics Service Quality. Natarajan et al. (2023), Thamaraiselvan and Ramanan (2023), Neto and Vieira (2023), Al-Mu'ani et al. (2024), and Guan et al. (2025) demonstrated that Logistics Service Quality mediates the relationship between Pick Up Service and Logistics Customer Satisfaction.

To date, no empirical studies have shown that Pick Up Service does not affect Logistics Customer Satisfaction through Logistics Service Quality. This creates an opportunity to reexamine this mediating relationship within the UT learning material distribution context.

Effect of Loading Unloading on Logistics Customer Satisfaction through Logistics Service Quality

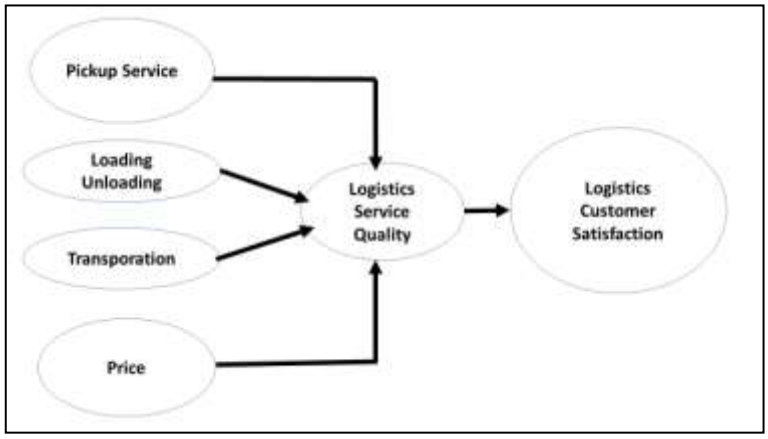
Several studies indicate that Loading Unloading affects Logistics Customer Satisfaction through Logistics Service Quality. Ricardianto et al. (2022), Siregar et al. (2023), Hidayat et al. (2024), and Ningrum (2021) found that high-quality loading and unloading processes improve logistics service quality, which subsequently enhances customer satisfaction.

Thus far, no studies have shown the absence of an effect of Loading Unloading on Logistics Customer Satisfaction through Logistics Service Quality. This provides a strong empirical basis for reexamining this mediating relationship.

Effect of Transportation on Logistics Customer Satisfaction through Logistics Service Quality

Transportation also plays an important role in shaping logistics customer satisfaction through service quality. Studies by Sann and Siripipattaworn (2024), Ningrum (2021), Jiang et al. (2021), Ding (2022), Guan et al. (2025), Hafez et al. (2021), Lin et al. (2023), Lorentsia et al. (2025), and Minh et al. (2024) confirmed that transportation performance affects Logistics Customer Satisfaction through Logistics Service Quality.

To date, no studies have reported that transportation does not affect logistics customer satisfaction through logistics service quality. Therefore, this study has the potential to strengthen empirical evidence regarding the role of Logistics Service Quality as an intervening variable between Transportation and Logistics Customer Satisfaction



Pictur 2.1 Research Model

Method

Type and Research Approach

This study employs a quantitative approach using descriptive and verificative methods. The quantitative approach is applied because the research data consist of numerical scores representing respondents' perceptions of questionnaire statements. These scores are statistically analyzed to obtain objective scientific conclusions.

The descriptive method is used to describe the condition of each research variable based on respondents' perceptions, categorized into strongly disagree, disagree, moderately agree, agree, and strongly agree. The verificative method is used to empirically test causal relationships among variables, including relationships between exogenous and intervening variables, and between intervening and endogenous variables.

Population and Sample

The population is defined as all subjects possessing characteristics relevant to the research objectives and serving as the main data source (Sugiyono, 2023). In this study, the population comprises all UPBJJ Bandung employees involved in managing UT learning material distribution, totaling 189 individuals.

Due to time and resource limitations, a sample was selected to represent the population. The sample size was determined using the Slovin formula with a 5 percent margin of error (Sugiyono, 2023), resulting in 128 respondents.

Data Collection Techniques

Data were collected using several complementary techniques:

1. **Interviews**, conducted with UPBJJ Bandung staff to obtain in-depth information on logistics service implementation.
2. **Questionnaires**, distributed to 128 UPBJJ Bandung employees as the primary data source.
3. **Observation**, involving direct observation of transportation arrivals, loading and unloading activities at UT Jakarta and KCU Tangerang, and distribution processes at UPBJJ Bandung.
4. **Literature Review**, using books, scientific journals, and relevant reports as theoretical foundations.
5. **Documentation**, involving analysis of official documents and archives such as KCU Tangerang performance reports and customer complaint records.

Data Quality Testing

Prior to further analysis, data quality was tested to ensure suitability for SEM-PLS analysis. Data quality testing included validity and reliability tests.

Validity Test

Validity testing assesses the extent to which questionnaire items measure the intended constructs. An indicator is considered valid if its outer loading value exceeds 0.70 and is suitable for structural model analysis using SmartPLS 3 (Hasnita, 2021).

Reliability Test

Reliability testing ensures response consistency. A construct is considered reliable if it has Cronbach's Alpha, rho_A, and Composite Reliability values greater than 0.70, and an Average Variance Extracted (AVE) value above 0.50 (Hasnita, 2021).

Data Analysis Techniques

Data analysis employed descriptive and verificative methods. Descriptive analysis describes variable conditions based on respondents' mean perception scores, categorized as very poor, poor, moderately good, good, or very good. Variables categorized as very poor, poor, or moderately good are deemed worthy of further analysis.

Verificative analysis tests research hypotheses, including:

1. Effect of Pick Up Service on Logistics Service Quality.
2. Effect of Loading Unloading on Logistics Service Quality.
3. Effect of Transportation on Logistics Service Quality.
4. Effect of Logistics Service Quality on Logistics Customer Satisfaction.

5. Effect of Pick Up Service on Logistics Customer Satisfaction through Logistics Service Quality.
6. Effect of Loading Unloading on Logistics Customer Satisfaction through Logistics Service Quality.
7. Effect of Transportation on Logistics Customer Satisfaction through Logistics Service Quality.

All analyses were conducted using SEM-PLS with SmartPLS 3 software.

Research Model

The research model illustrates structural relationships among exogenous, intervening, and endogenous variables. Pick Up Service, Loading Unloading, and Transportation act as exogenous variables influencing Logistics Service Quality as an intervening variable, which subsequently affects Logistics Customer Satisfaction as the endogenous variable. The model also tests indirect effects through Logistics Service Quality.

Research Hypotheses

The hypotheses formulated are:

- **H1:** Pick Up Service has a positive and significant effect on Logistics Service Quality.
- **H2:** Loading Unloading has a positive and significant effect on Logistics Service Quality.
- **H3:** Transportation has a positive and significant effect on Logistics Service Quality.
- **H4:** Logistics Service Quality has a positive and significant effect on Logistics Customer Satisfaction.
- **H5:** Pick Up Service has a positive and significant effect on Logistics Customer Satisfaction through Logistics Service Quality.
- **H6:** Loading Unloading has a positive and significant effect on Logistics Customer Satisfaction through Logistics Service Quality.
- **H7:** Transportation has a positive and significant effect on Logistics Customer Satisfaction through Logistics Service Quality.

Variable Operationalization

Variable operationalization explains the conceptual definitions of research variables and translates them into empirically measurable dimensions and indicators (Sugiyono, 2023). Each indicator presented in the Variable Operationalization Table serves as the basis for questionnaire development. The table includes variable definitions with author names and publication years, dimensions, indicators, and indicator symbols. The complete operationalization is presented in **Table 3.2**.

Tabel 3. 1.The Variable Operationalization

No	Variable	Dimension	Indicator	Indicator Symbol
1	Pick Up Service refers to collecting goods from the origin location by the logistics service provider . (Paksoy & Turan, 2021).	1. Availaility and Accesability	Available at all times	Pus1
			easily request a pick up from KCU Tange rang	Pus2

No	Variable	Dimension	Indicator	Indicator Symbol
		2. Timelines	Truck fleets arrive at UT Jakarta on time	Pus3
			Truck fleets depart from UT Jakarta to KCU Tangerang on time	Pus4
		3. Reliablity and Accuracy	The collected lern ing materials are intact (not dama ged).	Pus5
			The quantity of collected learning materials is accurate	Pus6
			The collected learning materials are correctly designated for UPBJJ Bandung	Pus7
2	Loading and unloading refer to logistics activities in which *loading* is the process of placing goods into a transportation vehicle, while *unloading* is the process of removing goods from the means of transport to the destination location (Paksoy & Turan, 2021).	1. Operational Efficiency	On-Time Loading	Lul 1
			Prompt Correction of Teaching Material Package Quantity Data	Lul 2
		2. Security and Safety	No Teaching Mate rials Damaged During Transfer to the Truck	Lul 3
			No Damage to the Packaging/Cardboard of Teaching Mate rials	Lul 4
			Shipment Quantity Data Recorded in the Manifest	Lul 5
		3. Digital Technology Capacity	Data Entry Perform ed in Real Time	Lul 6

			Monitoring of teaching material packages is carried out in real time	Lul 7
No	Variable	Dimension	Indicator	Indicator Symbol
3	**Transportation** is a logistics subsystem that encompasses the planning, modeling, management of networks, and the operation of goods movement between locations (multi-modal), including cost analysis, routing, security, and the policies required to ensure efficient flow of goods within the supply chain (M. D. Sarder, 2022)	1. Truck Capacity	Truck capacity matches the order requirements	T1
			The truck roof and walls are in good condition and not leaking	T2
			The truck is in roadworthy condition	T3
		2. Flexibility	Able to easily accommodate route change requests to UPBJJ Bandung	T4
			Able to easily accommodate requests for changes in truck capacity	T5
			Able to easily accommodate requests for changes in pickup schedules at UT Jakarta	T6
			The route to UPBJJ Bandung is efficient	T7
4	Logistics Service Quality refers to the overall characteristics and	1. On Time Arrival	On-time arrival at UPBJJ Bandung	LSQ1
			On-time arrival at Salut	LSQ2

	activities of logistics services designed to meet and exceed customer needs and Expectations (Christopher, 2022).		On-time arrival at Pokjar	LSQ3
		2. Accuracy and Integrity of Goods	Teaching materials are intact	LSQ4
No	Variable	Dimension	Indicator	Indicator Symbol
			The quantity of teaching material packages is accurate	LSQ5
			Teaching material packages are intended only for UPBJJ Bandung, not for other UPBJJ	LSQ6
		3. Responsiveness	The Track and Trace application is provided in real time	LSQ7
			UT complaints are responded to promptly	LSQ8
			KCU Tangerang provides solutions that meet the expectations of UT Jakarta	LSQ9
5	Logistics customer satisfaction fundamentally reflects customers' evaluations of the conformity between perceived logistics service performance and prior expectations. When service performance meets expectations, customers feel	1. Satisfied with Contact Person Service	Satisfied with the competence of the Contact Person at PT Pos Indonesia	LCS1
			Satisfied with the Contact Person's promptness in handling complaints	LCS2

	satisfied (Claes Forner ,2020)			
		2. Satisfied with Information Quality	Satisfied with the accuracy of the information provided	LCS3
			Satisfied with information presented in real time through the application	LCS4
No	Variable	Dimension	Indicator	Indicator Symbol
			Satisfied with detailed information about UPBJJ Bandung teaching material shipment	LCS5
		3. Satisfied with the Condition of Teaching Material Packages	Satisfied with the number of teaching material packages matching the manifest	LCS6
			Satisfied with the condition of teaching materials being undamaged	LCS7
		4. Satisfied with Timeliness	Satisfied with the truck's on-time arrival at UT Jakarta	LCS8
			Satisfied with the truck's on-time arrival at UPBJJ Bandung	LCS9
			Satisfied with the truck's on-time arrival at Salut in UPBJJ Bandung's working area	LCS10
			Satisfied with the truck's on-time arrival at Pokjar in UPBJJ Bandung's	LCS11

			working area	

Result and Discussion

Based on the literature review and the information presented in the introduction, several key problems can be identified as the foundation of this research.

First, there is a problem in X1 (Pick Up Service). The background data show that the largest number of complaints relates to delays in picking up teaching material parcels at Universitas Terbuka, amounting to 1,976 complaints (29.19%) out of a total of 6,769 complaints in 2025. This indicates issues in timeliness and fleet availability dimensions of the pickup process.

Second, there is a problem in X2 (Loading Unloading). Table 1.1 indicates that complaints regarding delays in loading and unloading reached 1,183 complaints (17.48%). This reflects inefficiencies in operational processes and potential weaknesses in accuracy and handling procedures during cargo transfer.

Third, there is a problem in X3 (Transportation). Complaints about delays in vehicle arrival at KCU Tangerang from UT reached 930 complaints (13.74%), while delays in vehicle arrival from East Jakarta to Bandung reached 897 complaints (13.25%). These data demonstrate issues related to truck capacity, scheduling reliability, and transportation flexibility.

Fourth, there is a problem in X4 (Price). Table 1.2 shows that the shipping tariff for the first 10 kilograms from Pamulang to Bandung set by PT Pos Indonesia is IDR 120,000, which is higher than several competitors. A relatively higher price may negatively influence customers' perceptions of price–quality fit if the service performance does not meet expectations.

The problems identified in variables X1, X2, X3, and X4 are reflected in Y (Logistics Service Quality). The total of 6,769 complaints indicates that logistics service quality is at a low to moderate level, particularly in the dimensions of timeliness, reliability, and operational effectiveness.

Furthermore, problems in variable Y have implications for Z (Logistics Customer Satisfaction). The significant number of complaints from UPBJJ Bandung, service units, and study groups indicates that customer satisfaction with logistics services has not yet reached an optimal level.

The literature review explains that:

- Arabelen (2021) states that X1 (Pick Up Service) influences Y (Logistics Service Quality).
- Phong Nha Nguyen & Kim (2024) state that X2 (Loading Unloading) influences Y (Logistics Service Quality).
- Lin et al. (2023) state that X3 (Transportation) influences Y (Logistics Service Quality).
- Do, Quynh Huong et al. (2023) state that X4 (Price) influences Y (Logistics Service Quality).
- Rane (2023) states that Y (Logistics Service Quality) influences Z (Logistics Customer Satisfaction).

Therefore, based on the empirical evidence presented in the background and supported by prior research findings, it can be concluded that operational problems in Pick Up Service, Loading Unloading, Transportation, and Price are expected to influence Logistics Service Quality, which subsequently affects Logistics Customer Satisfaction in the distribution of teaching materials of Universitas Terbuka by PT Pos Indonesia KCU Tangerang.

Conclusion

Based on the findings presented in this study, it can be concluded that there are significant problems in **X1 (Pick Up Service), X2 (Loading Unloading), X3 (Transportation), and X4 (Price)**. These operational and pricing issues indicate weaknesses in timeliness, operational efficiency, transportation reliability, and price–quality fit within the logistics distribution process.

Furthermore, these problems contribute to deficiencies in **Y (Logistics Service Quality)**, particularly in the dimensions of timeliness, accuracy, and responsiveness. The high number of customer complaints reflects that the quality of logistics services has not yet reached optimal performance standards. As a consequence, the weaknesses in Logistics Service Quality affect **Z (Logistics Customer Satisfaction)**. Customer dissatisfaction is evidenced by the large volume of complaints and indicates that customer expectations have not been fully met.

In summary, there are problems in X1, X2, X3, X4, as well as in Y and Z, which require managerial attention and systematic improvement efforts.

Recommendation

Based on the conclusion above, it is recommended that further research be conducted with the following proposed title: **"The Influence of Pick Up Service, Loading Unloading, Transportation, and Price on Logistics Service Quality and Its Implications for Logistics Customer Satisfaction in a Logistics Company."**

Future research is expected to empirically examine the causal relationships among X1, X2, X3, and X4 toward Y, as well as the implications of Y on Z, using appropriate quantitative methods such as SEM or PLS analysis. Such research would provide deeper insights for logistics companies in improving service quality and achieving higher customer satisfaction levels.

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