A COURIER COMPANY'S SERVICE PERFORMANCE & CUSTOMER SATISFACTION

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Abstract

This research examines the conceptual model of logistic service quality in a courier company in Thailand, and the effect on customer satisfaction, The objective is to provide improvement recommendations to the company. Both exploratory research and survey research were conducted. The target population was the company's customers, from the time they place an order until the order is received. Import shipments were studied, and there were 277 respondents to a questionnaire. Multiple and simple linear regressions were used to analyze the data. The researcher found that the proposed conceptual model of logistic service quality has a significant influence on customer satisfaction. This will help the company managers to understand the business performance and level of customer satisfaction, in order to improve the service. This will enhance the company's reputation, help it gain more market share, and help make the company a success.

INTRODUCTION

As the market becomes more global, and competition continues to intensify, the scope and role of the logistics industry has changed rapidly over recent years. Logistics used to play a supportive role to primary departments such as marketing, but now logistics has become a primary function. It includes transportation, warehousing, distribution, inventory management, packing, and customer service. Logistics also contributes to the reduction of costs and has become a vital aspect in achieving competitive advantage. Consequently, firms are realizing that the competition is not exclusively between one firm and other firms but also "supply chain against supply chain" (Christopher & Towill, 2001). Many firms have outsourced their logistics function rather than having to operate in-house operations, because outsourcing is an alternative which allows a company to take advantage of global opportunities, and frees it to concentrate on its core competency. Outsourcinge helps companies to reduce cost and im-

*This is a much reduced version of Ms. Pholsuwanachai's MSc project report

prove service. The Outsourcing Institute once said that outsourcing can reduce costs by 9% and increase capacity and quality by 15% (Elmuti et al., 1998).

Logistics is a growing business. Moreover, the air express industry increasingly makes a significant contribution to economic growth and development in Southeast Asia. The value of USA-ASEAN air trade increased at an average annual rate of 14% over the last decade. This increases the demand for courier services because the industry contributes to the competitiveness of local economies by shortening lead times for ordering products, by better customer service, by providing real-time supply/demand data for more accurate forecasting and planning, and by allowing for more efficient inventory and supply chain management (http://www.us-asean.org/Press_Releases/2000/express_industry_study).

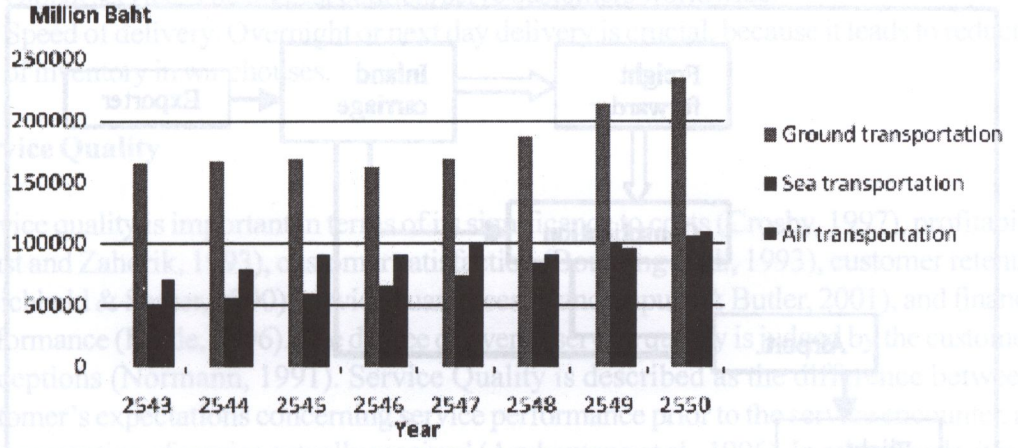
The globalization of markets, an increasing focus on customer needs, and the importance of supply chain management, have brought to the fore the importance of Third Party Logistics providers (3PLs), which include couriers. Consequently, it is necessary for 3PLs to be sensitive about the quality of their service, as the key to sustainable competitive advantage (Shemwell et al., 1998). Muffato & Panizzolo (1995) proposed that customer satisfaction is one of the major competitive components which can improve an organization's image and reputation, reduce customer turnover, increase attention to customer needs, and enhance better business relationships with customers.

Consequently, this study measures the impact of logistics service performance on customer satisfaction in a selected courier company. The company, NNN (a pseudonym), is a big international courier company which was established many years ago in Thailand, but its reputation does not seem to be as much recognized in the market as its major competitors.

NNN Company has an air express service throughout the world, using its network of over 800 depots and 40 planes, and also deals with many seaports. It has nearly 20,000 road vehicles. It collects, sorts, transports, and delivers various types of shipments within a specific time period. In Thailand it provides both domestic and international transportation, and has extended the service to Singapore, Malaysia, Vietnam and China, using road vehicles (which also make the many seaports accessible).

The nine-dimension model of Mentzer et al. (2001) will be applied, for measureing the logistic service quality. This model includes personal contact quality, order release quantities, information quality, ordering procedures, order accuracy, order condition, order quality, timeliness and order discrepancy handling. A questionnaire survey method was designed, the respondents being existing customers of NNN who are involved in the process of placing and receiving an order.

Figure 1: GDP of Transportation



Source: http://vigportal.mot.go.th/portal/site/PortalMOT/stat/index17URL/
Note: the Buddhist year 2550 is the same as 2007.

RELATED LITERATURE

The transportation industry plays a major role in Thailand's economic development. Figure 1 shows that all modes have annual upward trends. Although air transportation has the lowest expenditure, it has an impressive growth rate. Indeed, the expenditure on air transportation was very nearly similar to that of sea transportation in 2005-7.

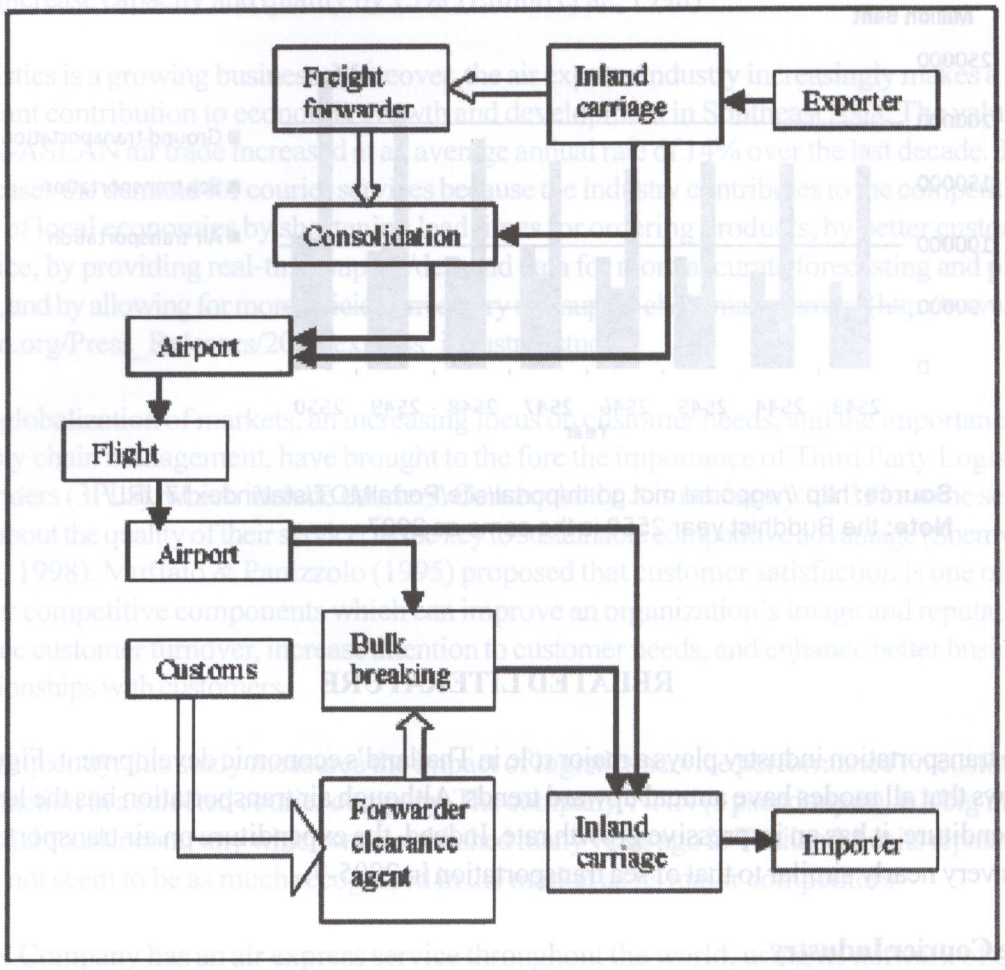
The Courier Industry

A courier service is a business providing transportation across countries. Couriers play an integral part in the success of many businesses by providing the vital link between suppliers and consumers. The items vary from documents to small packages and parcels, including text, magazines, cosmetics, computers, clothes, furniture, lighting, blood, plants, and animals. Courier services enable cost-effective distribution of time-critical goods and documents.

A courier's mission is to deliver on time as promised. The process of air transportation is shown below. (Figure 2)

A courier collects the shipment as requested, transports it to a warehouse, sorts, consolidates, transports shipments to an airport, conducts bulk breaking, handles custom clearance (if any), transports to warehouse, performs sorting, and delivers to the customer. This is known as a door to door service.

Figure 2: Flow of Goods in International Courier Transport



Source: Davies (1985), pp.147.

The four major courier service providers cover 85% of the world's express shipments (USA-Asean Business Council, 2005). The following characteristics differentiate them from traditional delivery services:

1. Door to Door delivery. This provides seamless transfer between various modes of transportation, from pick up until delivery.
2. Close Custodial Control. Advanced information systems are used to enhance security and reduce the risk of loss or damage of shipments in transit.
3. Track and Trace technology. Both shipper and receiver can track the movement of a shipment and confirm delivery.
4. Facilitation of Customs Clearance. Customers are not involved in navigating bureaucratic customs regimes or the required paper work.

5. High level of Reliability. Express delivery companies deliver as promised.
6. Global service. The biggest couriers serve customers worldwide.
7. Speed of delivery. Overnight or next day delivery is crucial, because it leads to reduction of inventory in warehouses.

Service Quality

Service quality is important in terms of its significance to costs (Crosby, 1997), profitability (Rust and Zahorik, 1993), customer satisfaction (Boulding et al., 1993), customer retention (Reichheld & Sasser, 1990), service guarantees (Kandampuly & Butler, 2001), and financial performance (Buttle, 1996). The degree of overall service quality is judged by the customers' perceptions (Normann, 1991). Service Quality is described as the difference between a customer's expectations concerning service performance prior to the service encounter, and their perception of service actually received (Asubonteng et al., 1996). In other words, it is the ability of the organization to meet or exceed customer expectations (Gronroos, 1990).

Several researchers have elicited service quality dimension. In 1985, Zeithaml, Parasuraman, & Berry developed a comprehensive conceptual foundation for understanding and improving service quality after interviewing three groups: retail banking, credit card services, securities brokerage, and product repair and maintenance. Their model, SERVQUAL, had ten dimensions, but these were later reduced to five: tangibles, reliability, responsiveness, assurance, and empathy.

Table 1: The Revised SERVQUAL Dimensions

SERVQUAL	Five Revised Dimensions				
Original Ten Dimensions	Tangibles	Reliability	Responsiveness	Assurance	Empathy
Tangibles	▨				
Reliability		▨			
Responsiveness			▨		
Competence Courtesy Credibility Security				▨	
Access Communication Understanding The Customer					▨

Source: Parasuraman et al. (1990, p25)

In 1992, Cronin & Taylor developed an optional measurement approach, SERVPEF, which focuses only on performance (perception-minus-expectations). The outcome dimension on the SERVPERM study was a five-component structure suggested by Parasuraman et al.. (1990) for their SERQUAL scale. However, Gronroos (1990) developed different dimension from the others. The two-dimensional, technical and functional, structure was introduced.

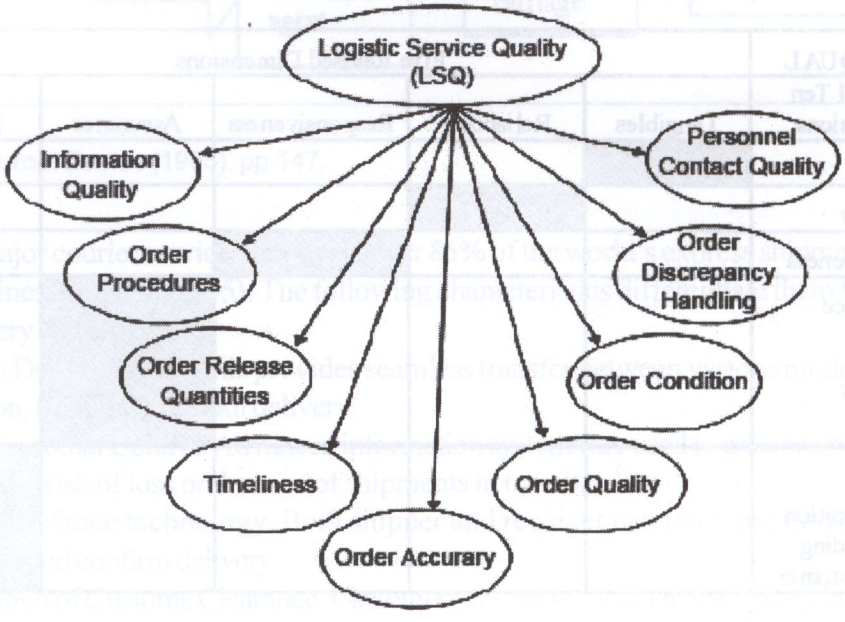
The technical quality also means what the customer receives in the interactions with the service provider to satisfy their basic needs. Another dimension is the functional or process-related dimension. This means how the service provider performs its task and how the customer receives it.

Logistics Service Quality

The quality of logistics service performance is a key factor to enhancinge customer satisfaction. It is the company's ability is to deliver the right amount of the right product at the right place and at the right time in the right condition at the right price with the right information (Coyle, Bardi, & Langley, 1992; Stock & Lambert, 1987).

The work of Mentzer and colleagues in 1999 was concerned with the customer's viewpoint of each logistic service provider. It focused on how the logistics business develops value for clients who perceive logistic service quality in terms of the physical distribution perspective of service in addition to customer service (Rafiq, Mohammad, Jaafar, & Harlinas, 2007). Physi-

Figure 3: Nine Dimensions of Logistic Service Quality



Source: Mentzer et al (1999), p.89

cal distribution service quality (PDSQ) refers to the technical components of logistic service quality. The process of delivery refers to the functional component (Bienstock, Mentzer & Bird (1997).

From the above discussion, the relevant strategy is the logistic service quality model of Mentzer et al., (2001) which consists of nine dimensions as shown in Figure 2.3.

Table 2: Logistic Service Quality Definition

LSQ Dimension	Meaning
Personnel contact quality	Refers to the customer orientation of the supplier's logistics contact people. Specifically, customers care about whether customer service personnel are knowledgeable, empathize with their situation, and can help them resolve their problems.
Order release quantities	Refers to the concept of product availability. The 3PL provider can challenge a customer's requests to ascertain the Need behind their volume requests. Customers should be the most satisfied when they are able to obtain the quantities they desire.
Information quality	Refers to customer's perceptions of the information provided by the supplier regarding products from which customers may choose.
Ordering Procedures	Refers to the efficiency and effectiveness of the procedures followed by the supplier.
Order accuracy	Refers to how closely shipments match customer's orders upon arrival. This includes having the right times in the order, the correct number of items and no substitutions for items ordered.
Order condition	Refers to the lack of damage to orders. If products are damaged, customers can not use them and must engage in correction procedures with suppliers, depending on the source of the damage.
Order quality	Refers to how well products work. This includes how well they conform to product specifications and customers' needs. Whereas order accuracy addresses the complete set of products in the order (i.e., the accuracy of the kinds and quantities of the products in the order), and order condition addresses damage levels of those items due to handling, and order quality addresses the manufacturing of products.
Order discrepancy handling	Refers to how well any discrepancies in orders are addressed after the orders arrive. Refers to whether orders arrive at the customer location.
Timeliness	Refers to the length of time between order placement and receipt. This delivery time can be affected by transportation time, as well as back-order time when products are unavailable.

Source: Mentzer et al (1999), p.90

Service Performance

Based on the service quality of PZB, Cronin and Taylor (1992) argued that service quality should be determined by its performance. Thus, SERVPERF was introduced to measure the customer's perception of service quality. In other words, SERVPERF measures service quality with a performance-based approach. SERVPERF is also known as the perceived quality model. Most recent articles have supported the Cronin & Taylor (1992) performance-based paradigm over PZB's (1985) disconfirmation-based paradigm (Oliver, 1993; Babakus & Boller, 1992; Babakus & Mangold, 1992).

Service performance has been employed by many researchers as the best indicator of satisfaction (Liljander and Strandvik, 1997). Much of the literature on satisfaction focuses on the expectancy-disconfirmation paradigm as a means of identifying the process by which customers evaluate satisfaction. Cronin et al. (1992) mentioned that service quality is an antecedent of consumer satisfaction. As such, service performance should be considered as a construct that can better predict customer satisfaction.

Customer Satisfaction

The attitude a customer has as a result of his or her evaluation of consumption experience with a certain product or service, is expressed as either customer satisfaction or customer dissatisfaction (Wells & Prensky, 1996).

Satisfaction is an overall customer attitude towards a service provider, or an emotional reaction to the difference between what customers anticipate and what they receive (Zineldin, 2000), regarding the fulfillment of some need, goal or desire. Moreover, Oliver, (1980) stated that the level of overall pleasure of customers derived from the ability of the service to fulfill the customer's need. (Muffato & Panizzolo, 1995) proposed that customer satisfaction helps to improve an organization's image and reputation, to reduce customer turnover, to increase attention to customer needs and to make the business relationship with their customers better.

For most products or services, aspects of performance can be objectively assessed. Although these attributes can be objectively measured, customers' assessments may not objectively reflect measured performance. For instance, some service providers can fit client criteria but are unsuitable to the clients' personal taste, which leads to the clients' assessment of the service as being unpleasant.

The Relationship between Service Quality and Customer Satisfaction

Mentzer, Flint, & Hult (2001) stated that, from a logistic perspective, logistic service capabilities can be leveraged to create customer and supplier value through service performance,

increase market share, enable mass customization, create an effective customer response-based system, and also positively affect customer satisfaction and corporate performance. Moreover, the literature supports the relationship between logistic service quality improvements and customer satisfaction improvement (Parasuraman et al., 1998; Dabholkar, 1995; Shemwell et al., 1998; Sureshchandar et al., 2002). In addition to this, logistics service quality has an effect on market share through customer satisfaction and loyalty (Rafiq et al., 2007).

The quality of logistics service performance is a key factor in increasing customer satisfaction (Millen et al., 1999). Oliver, (1980) mentioned that customer satisfaction is able to evaluate and enhance the performance of firms and, industries including national economies as it measures the quality of goods and services as experienced by the customers who consume them.

Mentzer et al.'s LSQ Model

An LSQ framework was formulated by Mentzer et al., (2001). Their model relates nine-dimensional logistic service quality (LSQ) to customer satisfaction. These nine dimensions were categorized into three levels. Personnel contact quality, order release quantities, information quality and ordering procedures were grouped in the first level which provides an impact on the second and the third group of the service attributes. Order accuracy, order condition, and order quality were categorized as the second level attributes that received an impact from the first group and providesd an impact on the third group of service attributes. The third level of service attributes included order discrepancy handling and timeliness. These two service attributes were impacted by the first and second level of service attributes. All three levels of service attributes have both direct and indirect influence on customer satisfaction simultaneously. The details of these relationships are shown graphically in Figure 2.5.

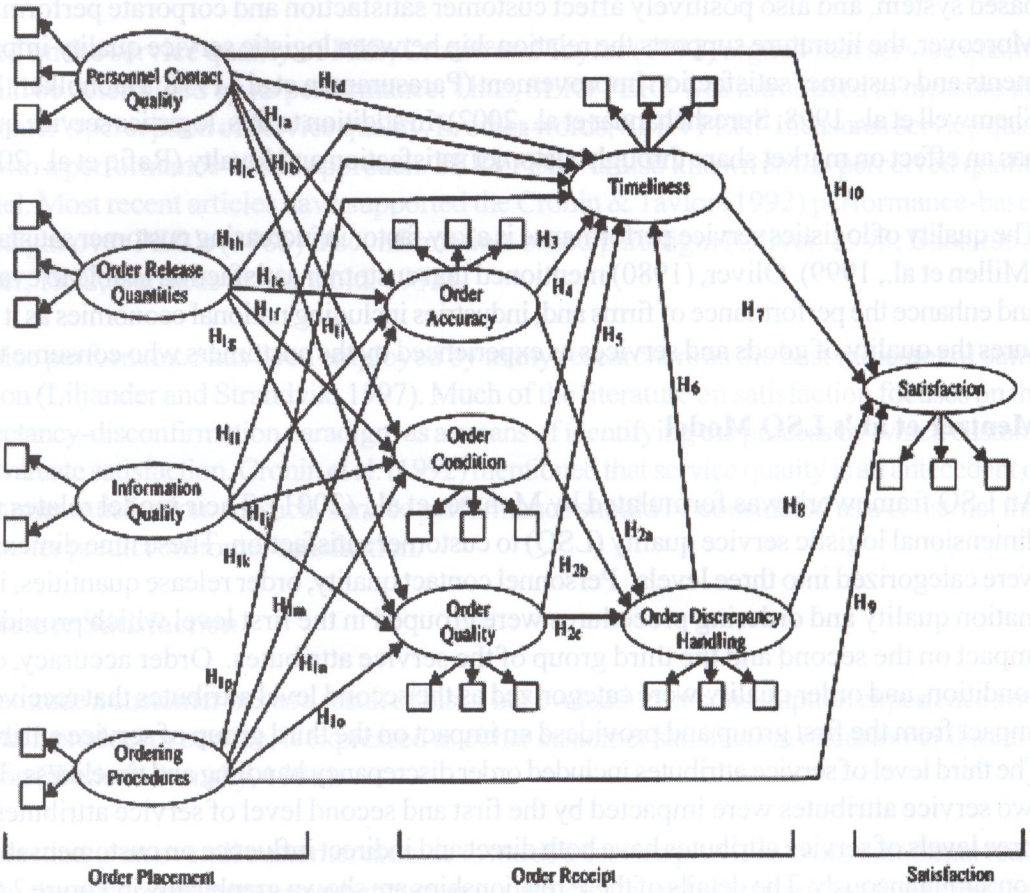
Based on the literature, this research applies the logistic service quality model of Mentzer et al., (2001) to the courier service industry. Logistic service quality is considered as consisting of two levels, namely service attributes and service performance. Quality in service usually occurs during service delivery.

Seven hypotheses were defined to explain the relationship between variables. Six variables were explored for their relationship to service performance:

- personnel contact, order release quantities, information quality, ordering procedure, order condition, and order discrepancy handling.

The findings for these seven hypotheses enabled the final hypothesis to be examined: the relationship between service performance and customer satisfaction.

Figure 4: Mentzer et al.'s Theoretical Framework



Source: Mentzer et al (2001), pp.95

RESEARCH METHODOLOGY

Logistic service quality is an independent variable consisting of nine dimensions that measure customer satisfaction, a dependent variable. Logistics service quality in this study will be categorized into two sections: service attributes and service performance. For service performance order accuracy, order quality and timeliness are the consequence stage.

Research Design

In-depth semi-structured interviews constituted the primary research instrument. This method provides an opportunity to gain insight into the participant's perception and is relevant for addressing sensitive topics that people may be reluctant to discuss in a group setting. Sales managers of the NNN Company were selected as the key informants.

Two of Mentzer's nine dimensions (order condition and timeliness) were adapted to fit the NNN Company. For example, the sub- variable of the timeliness dimension touches on back-orders which is not relevant to the NNN Company. Timeliness is important because this study concentrates on inbound shipments.

Survey data were collected, through a questionnaire, from 277 existing customer companies, The data analysis was categorized into four sections: (1) A descriptive analysis of each respondent's profile; (2) the level of service attributes, service performance and customer satisfaction; (3) reliability; (4) the effects of service attributes and service performance on customer satisfaction. The computer software SPSS was used to interpret data. In the questionnaire was a five-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). There were twenty-seven measurement items of the logistic service provider.

Target Population

There were 894 customers who place orders and receive shipments themselves. Other customers do not qualify as they are only involved only in receiving shipments. The reason for selecting this group is because their high degree of involvement should provide a more accurateto evaluation.

The most common significance level, used to mean that a result is good enough to be believed, is .95. This means that the finding has a 95% chance of being true and a 5% chance of being false (Panneerselvam, 2004).

The sample size number of sample size, suggested by Yamane (1967). The sample size for this study was calculated as follows:

$$n = N / [1+N(e)2]$$

Where

n = Sample size

N = Population of custom NNN's existing customers who are involved in placing orders up until they receive import shipments by themselves.

e = Precision or error limit

Hence

$$n = 894 / [1+894(0.05)2]$$
$$= 277$$

So, the sample size of the study is 277 people, randomly selected from the 894 eligible.

A pre-test was developed to assess the reliability, by distributinge 30 questionnaires to customers. The aim of the pre-test was to measure the questionnaire by screening for any potential problems before distributing the actual survey (Malhotra, 2002).

SPSS was used as a statistic tool for analyzing data and to develop descriptive data analysis and regression analysis. Descriptive data analysis presents respondents' characteristics.

This study used multiple linear regression (MLR) and simple linear regression (SLR) as tools to test hypotheses. Multiple linear regression is a method of analyzing the change (variability) of a dependent variable by using information available on at least two independent variables (Davis, 1993). The model for MLR is

$$Y = a + b_1X_1 + b_2X_2 + \ldots\ldots + b_mX_m$$

where Y' is the dependent variable (service performance) based upon a specific managerially selected X which is independent variable (service attribute).

Simple linear regression is thea method of analyzing the change (variability) of a dependent variable by using information available on an independent variable (Davis, 1993).

$$Y = a + bX$$

where Y is the dependent variable (customer satisfaction) and X is the independent variable (service performance) and a and b are two constants to be estimated.

Multiple linear regression (MLR) and simple linear regression (SLR) were used as tools to test hypotheses by categorizing into two models. In Model 1, multiple linear regression is used. All variables concerning service attributes are included as independent variables, while service performance is used as a dependent variable. Model 2 was tested by simple linear regression.

DISCUSSION OF RESULTS

Level of Service Attributes, Service Performance and Customer Satisfaction

The mean and standard deviation of each variable, including the dimensions of logistic service quality, which can be categorized into service attributes and service performance, and customer satisfaction, were computed.

The output indicate $t = 5.100$, $df = 276$ and p-value < 0.05. The mean of overall customer satisfaction is 3.16 which is above the mid-point. This showed that NNN's customers are satisfied with it.

Cronbach's alpha coefficient analysis was performed to ensure the reliability of the data before testing the hypotheses. The results are satisfactory. All variables in the questionnaire are internally consistent and considered to be reliable since Cronbach's alpha of all variables is over 0.7. Thus, the next stage, analysis can take place.

Effects of Service Attributes and Service Performance on Customer Satisfaction

To test the effects, two regression analyses were performed. The first regression analysis tests the relationship between all six service attributes and service performance. The second regression analysis tests the relationship between service performance and customer satisfaction.

The F-value is 164.424 with a p- value of less than 0.05, which indicates a significant relationship between all six service attributes and service performance. All six independent variables of the service attributes can explain 78.5% of the variance (R Square) in service performance. Thus, there is 21.5% of service performance which cannot be explained by service attributes.

The standardized coefficients' results explain that order condition provides the highest impact ($\beta = .290$) on service performance. Next are personnel contact quality, ordering procedure, order discrepancy handling, information quality, and order release quantities, respectively. It can be implied that order condition influences service performance more than other variables.

Hypothesis 1 described the relationship between personnel contact quality and service performance. The p-value is less than .05 ($.000 < .05$); therefore, the null hypothesis was rejected. This shows that personnel contact quality is significantly related to service performance.

Hypothesis 2 described the relationship between order release quantities and service performance. The p-value is more than .05 ($.235 > .05$); therefore, the null hypothesis was accepted. This means that order release quantities are not significantly related to service performance.

Hypothesis 3 described the relationship between information quality and service performance. The p-value is less than .05 ($.004 < .05$); therefore, the null hypothesis was rejected. This means that information quality is significantly related to service performance.

Hypothesis 4 described the relationship between the ordering procedure and service performance. The p-value is less than .05 ($.000 < .05$); therefore, the null hypothesis was rejected. This means that the ordering procedure is significantly related to service performance.

Hypothesis 5 described the relationship between the order condition and service performance. The p-value is less than .05 ($.000 < .05$); therefore, the null hypothesis was rejected. This means that the order condition is significantly related to service performance.

Hypothesis 6 described the relationship between order discrepancy handling and service performance. The p-value is less than .05 ($.012 < .05$); therefore, the null hypothesis was rejected. This means that order discrepancy handling is significantly related to service performance.

The Effect of Service Performance on Customer Satisfaction

The F-value is 703.014 with a p- value of less than 0.05 which indicates a significant relationship between service performance and customer satisfaction. Service performance can explain 84.8% of the variance (R Square) in customer satisfaction. Thus, there is 15.2% customer satisfaction which cannot be explained by service performance.

Hypothesis 7 described the relationship between service performance and customer satisfaction. The p-value is less than .05 (.000 < .05); therefore, the null hypothesis was rejected. This means that service performance is significantly related to customer satisfaction.

Discussion of the Findings

This study demonstrates the benefit of the nine dimensions of Mentzer's logistics service quality (2001) as a significant measurement of service performance for the logistics business, and thus NNN Company. Based on the primary data analysis, most findings are coherent with the literature. Service attributes as antecedent attributes showed the relationship with service performance, and service performance also confirmedshowed the relationship with customer satisfaction.

The research findings determine the majority characteristics of respondents' service attributes (personnel contact quality, information quality, ordering procedure, order condition and order discrepancy handling) which are related to service performance. The most related to service performance is order condition. Moreover, service performance demonstrated a strong relationship with customer satisfaction.

Following, is a summary of the hypotheses results, which will then be explained.

Table 3: Hypotheses Results

Hypotheses	Results
H1. There is a relationship between personnel contact quality and service performance.	Supported
H2. There is a relationship between order release quantities and service performance.	Not supported
H3. There is a relationship between information quality and service performance.	Supported
H4. There is a relationship between ordering procedure and service performance.	Supported
H5. There is a relationship between the order condition and service performance.	Supported
H6. There is a relationship between order discrepancy handling and service performance.	Supported
H7. There is a relatiionship between service performance and customer satisfaction	Supported

H1: Personnel contact quality has an impact on service performance. Personnel contact is involved at the beginning of the order placement process and facilitates the shipment until the customer receives the shipment.

H2: Order release quantities have no impact on service performance because personnel contact will ensure the shipment confirmation by screening out the impossibilities of the shipment before make a placing order for customers.

H3: Information quality has an impact on service performance because when customers understand each type of NNN's services, they can select the most suitable service type for their needs. On the other hand, if customers choose the wrong service type, their perception of NNN's performance will be lower than they expected.

H4: The Ordering procedure has an impact on service performance because if the process of an placing order is easy to use and reliable, it affects customers' perceptions.

H5: The Order condition has the most impact on service performance because it is the object that a customers wants to have delivered to another destination. If the package is damaged or is not suitable, it directly affects service performance.

H6: Order discrepancy handling has an impact on service performance because correction or early involvement would shorten the lead time of the problem shipment.

H7: Service performance has a significant impact on customer satisfaction because the better the service performance, the greater the customer satisfaction.

CONCLUSION

The main research findings reveals that the conceptual framework adapted from Mentzer et al.'s model yielded results as expected. All main attributes obtained results above the mean, which implies that NNN has an above-average score in service performance and customer satisfaction. However, there are sub-attributes below the mean that need improving to boost customer satisfaction. The regression analyses imply that almost all service attributes have an impact on service performance, but order release quantities have no impact on service performance. This may be because NNN staff, who take care of the customers' order placement process, are responsible for screening out inappropriate shipments before entering into the process. Moreover, service performance also provides a significant impact on customer satisfaction. For example, corrected shipments, corrected quantitiesy, meeting technical requirements shipment, on- time shipments, had an impact onto customer satisfaction.

These findings should be helpful to the company. Discrepancies in service types have happened due to the company basing the service type on the custome's airway bill rather than on the service type shown in the booking system. The company should expand the variety of services it offers in order to serve more groups of customers. Customers have various needs to be fulfilled, but if some customers lack sufficient knowledge of the company's range and choose the wrong service, they may not receive the exact service they really need. Company staff should consider providing more service information to customers in the booking process.

Managers should focus more on the order quality, and should train their operations staff to be more careful of customers' shipments, or purchase equipment to protect shipments from damage during movement from one place to another. Customers rated lead time delivery as below average, and managers should closely monitor the import process. Some shipments required custom clearance, and company staff should be proactive by getting documents prepared before shipments arrive (including the duty payments process).

Finally, limitations. This study measured only one courier company and its customers, and the findings may not be generalized to other companies. Also, this study examined only inbound service. Only logistics service quality was examined in this study, but there could be other service quality dimensions that customers value.

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