

MEASUREMENT OF CUSTOMERS' SATISFACTION AMONG E-COMMERCE USERS TOWARDS THE LOGISTICS SERVICE QUALITY OF COURIER SERVICE IN SABAH

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ABSTRACT

The rapidly increasing popularity of e-commerce especially in Sabah, Malaysia put pressure on logistics services to respond to the increasing customer demands. However, physical factors like geographical location, infrastructure, and service delivery constraints are major barriers that affect customer satisfaction in the region. This study investigates the relevance that exists between logistics service quality and customer satisfaction among e-commerce users in Sabah using SERVQUAL as the research model. The model evaluates five dimensions of service quality: tangibility, reliability, responsiveness, empathy and assurance. Data was gathered using structured questionnaires from 192 respondents. The results indicate that both assurance and empathy have a positive relationship with customer satisfaction implying that trust, professionalism and personalized services contribute positively to the customer experience. On the other hand, tangibility, reliability, and responsiveness displayed a relatively weaker correlation, which posits that the customers' decision-making process in this setting is mainly governed by emotional as well as interpersonal factors. In operational terms, it provides guidelines for logistics providers as to how to start delivering better services: employing and training employees so that the customer develops trust in the carrier; using technology to make the service more transparent; and finally dealing with regional delivery problems.

Keywords: Customer Satisfaction, Logistics Service Quality, SERVQUAL, e-Commerce

INTRODUCTION

Logistics services' quality is one of the important fields of research in the context of the evolution of e-commerce. Online purchasing has increased tremendously in the last couple of years (Maryville University, 2019), and delivery performance was reported to have influenced customer satisfaction, specifically in online purchasing situations (Mohd & Alam, 2010). Logistics service quality, being the extent to which a firm delivers services to meet consumers' requirements (QuestionPro, 2023), is essential in ensuring customer loyalty in the logistics business. The influence of technology in implementing Industry 4.0 (IR 4.0) objectives has changed the purchasing behavior of consumers where they can purchase products anytime and anywhere. Previously in the COVID-19 epidemic, this progress was a notch higher, and e-commerce platforms became the only shopping outlets when physical stores were closed (Ozturk, 2020).

The study shows that efficient logistics has great importance for the overall economy and particularly for customers in the services sector (Meidutė-Kavaliauskienė et al., 2014). There is a general consensus that service quality is a dominant determinant antecedent of customer satisfaction as it relates to customers' expectations and perceptions (Caceres & Paparoidamis, 2007; Marinkovic & Kalinic, 2017). In logistics customer satisfaction is directly related to time delivery services since logistics firms aim to satisfy the needs of e-commerce firms.

PROBLEM STATEMENT

The fast-growing trend of e-commerce has impacted the customers' expectations significantly especially in the Southeast Asia region since logistic providers are experiencing more pressure dealing with the demands in timely, accurate, and reliable deliveries. In areas like Sabah, several factors that originate from the environment accentuate such problems as infrastructural problems, and geographical barriers restrict the supply chain network making the delivery slow and uneven. Nevertheless, new advances in the e-commerce environment present various challenges for those logistical providers who struggle to meet customer needs that determine customer satisfaction and his/her further loyalty.

Among the theories and frameworks that have been applied in the logistic operation to measure service delivery the SERVQUAL model which measures service quality from five perspectives including tangible, reliability, responsiveness, assurance, and empathy. Yet, little empirical attention has been paid to the question of how these dimensions constrain or enhance customer satisfaction in the context of Sabah with its transportation complications. Furthermore, since individual consumers expect firms to deliver customized services, these service quality dimensions' effects on satisfaction for e-commerce consumers in this region are worth exploring.

Consequently, the purpose of this study is to review the SERVQUAL dimensions and customer' satisfaction in the context of the logistics sector in Sabah among e-commerce users. The study aims, therefore, at capturing antecedents that affect log determinants as to offer insights towards enhancing the quality of logistics services and meeting customers' emerging expectations in the contemporary online shopping environment.

RESEARCH OBJECTIVES

This research seeks to provide a comprehensive evaluation of e-commerce users' satisfaction with the service quality of logistics companies in Sabah. The study specifically aims:

- a) To investigate SERVQUAL dimensions that influence customer satisfaction in logistics

This objective aims at assessing the five SERVQUAL dimensions of tangibility, responsiveness, empathy, reliability, and assurance in order to establish their effectiveness towards enhancing customer satisfaction. Knowledge of these factors will also assist in determining which dimensions are most valuable for improving the quality of the logistics services provided to customers.

- b) To analyze the relationship between SERVQUAL elements and customer satisfaction

This objective will seek to find out how the various dimension of SERVQUAL are related to the other and to level of customer satisfaction. It focuses on searching for relationships that might be of benefit for updating the service logistics for companies in logistics.

RESEARCH QUESTION

This study seeks to answer the following questions regarding e-commerce users' satisfaction with the service quality of logistics companies in Sabah:

- a) Which SERVQUAL dimensions significantly impact customer satisfaction in logistics?
- b) What is the strength and nature of the relationship between SERVQUAL dimensions and customer satisfaction in logistics?

LITERATURE REVIEW

E-COMMERCE AND LOGISTICS IN SOUTHEAST ASIA

Southeast Asia is also experiencing increased e-commerce sales, which has triggered a significant shift in consumers' purchasing behaviour, particularly the need for faster, effective, and affordable logistics solutions (Chong et al., 2020). Due to the increasing popularity of online shopping into daily operations activities, customers continue demanding faster and accurate deliveries that create pressure to the logistics providers. Especially area such as Sabah, the challenges of logistics networks, road networks, and accessibility issues make the delivery of goods more problematic (Tan et al., 2019) due to the geographical constraint that has been the major challenge for the service providers companies. These logistical questions are making it critical for the providers to deliver quality services in the context of growing competition in e-commerce platforms.

THE SERVQUAL MODEL

Parasuraman, Zeithaml and Berry (1988) have developed the most popular instrument for measuring service quality, intended as gap between customer expectations and perceived performance, namely SERVQUAL model. Logistics services fall in the service industry hence this model applies five service quality parameters commonly known as: Tangibles, Reliability, Responsiveness, Assurance and Empathy to measure customer satisfaction.

Tangibles refers to the physical evidence of service delivery, such as the appearance of the delivery vehicles, the staff's professional attire, and the condition of the packaging. In the logistics and courier industry, tangibles are important as they convey the professionalism and reliability of the service provider (Parasuraman et al., 1985). The condition of packaging and the professionalism of delivery personnel can influence a customer's perception of the company's overall service quality (Bienstock et al., 2003). In the context of e-commerce logistics, customers may assess tangibles based on the packaging's integrity and whether products are delivered undamaged and as expected.

Reliability is considered the most important dimension of the SERVQUAL model in service industries, including logistics. It refers to the ability of a service provider to consistently perform the promised service accurately and dependably (Parasuraman et al., 1988). For logistics companies, this means delivering goods on time, in the right condition, and meeting the customer's expectations without errors. In regions like Sabah, where logistical challenges include long delivery times and potential geographical constraints, ensuring reliable delivery is crucial for customer satisfaction (Chong et al., 2020).

Responsiveness involves the willingness and ability of the service provider to assist customers and address their needs promptly. In logistics services, responsiveness includes timely communication with customers, such as providing updates on shipment status, addressing inquiries, and resolving any delivery issues quickly (Parasuraman et al., 1985). The more responsive a logistics company is, the more likely it is to satisfy customers, especially in e-commerce, where fast and reliable communication is often a decisive factor for customer retention (Liu et al., 2020).

Assurance refers to the service provider's ability to instill confidence in customers through expertise, courtesy, and the ability to perform the service. For logistics companies, this dimension is about ensuring that customers feel their parcels are in safe hands, that delivery personnel are trained to handle any situation, and that the company can be trusted to meet delivery promises. Assurance is particularly important in e-commerce, where customers may not always interact face-to-face with the service provider but still need to feel secure in the service they are receiving (Zeithaml et al., 2006).

Empathy is the ability of the service provider to understand and care for the individual needs of its customers. In logistics services, empathy can be seen in how the company tailors its services to meet specific customer needs, such as providing personalized delivery options or accommodating customers with special requests (Parasuraman et al., 1985). In the context of e-commerce in Sabah, this could involve offering flexible delivery schedules or addressing regional challenges that might impact delivery times.

SERVQUAL has been applied to various industries such as hospitality and tourism; retailing; health care; and third-party logistics (Ali et al., 2021). For instance, in the logistics department availability and flexibility are prioritized because they have an immediate impact on the delivery precision and speed. In the same way, within the e-commerce industry, the tangibles dimension like packaging quality and track and trace system is essential in defining the perception of the customers (Raza et al., 2020). Nevertheless, the applicability of the SERVQUAL model continues to be challenged for its one-size-fits-all applicability. Kumar, Batista, and Maull (2019) believe that there is a need to tailor the transformation models to industry types and requirements of services.

The SERVQUAL model's relevance to logistics services is especially apparent in regions like Sabah, where logistical challenges such as topographical issues, infrastructure limitations, and geographical distance play a significant role in the service delivery process (Tan et al., 2019). By applying the SERVQUAL model, logistics providers can identify areas where they need to improve in order to meet customer expectations and enhance satisfaction. This can be achieved through a comprehensive assessment of the five dimensions, which would help service providers understand the gaps between customer expectations and actual service performance.

Overall, the SERVQUAL model serves as a useful tool for evaluating service quality in logistics, as it provides a framework to understand the various factors that contribute to customer satisfaction and loyalty. For logistics companies, particularly those serving e-commerce customers in challenging regions like Sabah, applying the SERVQUAL dimensions is essential for improving service delivery, meeting customer expectations, and fostering long-term customer loyalty.

CUSTOMER SATISFACTION IN E-COMMERCE LOGISTICS

E-commerce logistics service quality is essential for customer satisfaction and loyalty. Timely deliveries, ensuring the condition of goods, and the accuracy of deliveries significantly contribute to overall satisfaction. A study by Akil and Urgan (2022) found that these logistics factors, alongside transparency in communication and service quality, create a strong foundation for both satisfaction and customer loyalty in the e-commerce sector. Similarly, Rawal (2013) emphasized the role of advertising and accessibility in enhancing customer satisfaction by improving how easily consumers can interact with retail. Additionally, studies suggest that service expectations, such as packaging integrity, easy access to logistics information, and the efficiency of customer service channels, directly affect the perception of logistics quality and customer satisfaction. Research by Jun, Yang, and Kim (2004) supports this by indicating that access to logistics information and responsive customer support are crucial for a positive customer experience.

The relationship between service quality and customer satisfaction in e-commerce logistics is increasingly important in the global market. Companies that focus on maintaining high logistics standards, clear communication, and responsive support services are more likely to achieve higher customer satisfaction and foster long-term loyalty. These findings underscore the need for e-commerce companies to continuously evaluate and improve their logistics services to stay competitive in a fast-evolving digital economy.

SERVICE QUALITY GAPS IN SABAH'S LOGISTICS SECTOR

Logistics service quality has been a popular area of investigation particularly in metropolitan cities in contrast to a relatively limited number of investigations with respect to regions such as Sabah. Due to strategic location and challenges of access to strategic facilities and services in Sabah, logistics service delivery faces unique challenges that include geographical accessibility in areas that are hard to reach with effective infrastructure (Prabir et al., 2020). As such, steps to fill the service quality gaps will help logistics organisations to increase customer satisfaction and retain competitiveness in the expanding e-commerce industry.

The difficulties expressed include stock issues, timely delivery, and customers' challenges that make them deliver their consignments either late or incomplete. Such issues call for efficient service quality measurement tools, including the SERVQUAL model to analyse problem areas and help e-commerce consumers in the region meet growing expectations.

THE ROLE OF SERVQUAL IN LOGISTICS SERVICE QUALITY

Past research has found that SERVQUAL dimensions have a positive effect on customers' satisfaction in the context of logistics and e-commerce industries. For instance, the study by Sheth and Sharma (2022) focused on the reliability and aspect of responsiveness when defining customer satisfaction. In the same way, Tan et al., (2019) realized and established that in southeast Asia particularly in areas with logistics issues, outcomes were higher in logistics companies who displayed high levels of empathy and assurance on the side of the clients.

The SERVQUAL framework enables companies to measure the gaps between expectations and customers' perception of services provided. Such gaps may suggest that changes are required, for instance training employees to be more understanding, or in the acquisition and development of better and more reliable and responsive equipment. Knowledge of how each of the SERVQUAL dimensions contribute towards customer satisfaction in Sabah environment will assist the logistics firms in aligning their services to address e-commerce customer needs.

THE RELATIONSHIP BETWEEN SERVQUAL ELEMENTS AND CUSTOMER SATISFACTION

a) Tangibility and Customer Satisfaction

Tangibility pertains to the 'tactile' characteristics of the service environment, such as its physical facilities, equipment, and people's appearance. Originally developed as one of the dimensions of SERVQUAL, this variable has long been understood in the ways that it influences customers' perceptions of service quality and levels of their satisfaction. Bitner (1990) has also pointed out that the physical environment and related elements like equipment design and maintenance are major determinants of customers' expectations and their resulting satisfaction. In a study carried out on the hospitality industry by Bigné et al. (2001) it was postulated that the physical characteristics of environments such as cleanness, designs, and general looks of service deliverance areas caused a direct effect on the satisfaction of customers. They established the fact that due to proper maintenance and professional appearance of stores; it is easy for customers to rate services as satisfactory.

According to the study conducted by Bressan et al. (2014) in the sphere of e-commerce, tangibility is important in terms of the website and its exterior and interior design, as well as ease of navigation and the clear organization of product offers. From their study they found that where businesses offer proper and well-designed web interfaces, trust and satisfaction among the customers increases. However, if the physical environment, whether actual or virtual looks untidy or like an office, despite the quality of the service received customers will feel uncomfortable. In addition, Parasuraman et al. (1991) have enriched the topic of SERVQUAL by noting that people are relying on the visible evidence in forming their expectations. They pointed out that although elements such as service reliability are core to satisfaction, tangible aspects are the first that may define the quality of the service on offer.

b) Responsiveness and Customer Satisfaction

Responsiveness may be defined as the readiness and aptitude of service givers to attend to customers and attend to their demands. This SERVQUAL dimension is important especially in sectors where speed of service is a critical determiner of customer satisfaction as in the retail, hospitality and health sectors. As pointed out by Parasuraman et al (1991), responsiveness is one of the dimensions that are most related to the level of satisfaction of customers; that is, it is expected that service providers act promptly, efficiently and with interest providing answers to possible questions or complaints of the customers. According to Ladhari (2009) the study on the influence of Responsiveness in service quality domain highlighted that the aspect affects customer satisfaction provided the customer received a responsive service in the form of timely and effective action.

In the airline context, responsiveness means the ability to meet customers' expectations in areas such as delay, cancellation or in-flight service. According to Lee (2008) service satisfaction was significantly higher in customers who got prompt response and solution from the airline staff in cases of complaints or failure to meet service expectation. In agreement with this finding, Ryu and Jang (2007) noted that customer satisfaction in hotels' environment was a function of speed in addressing guests' needs and wants including the provision of extra services or solving grievances within a short span of time. Gremler and Gwinner (2000) were also able to demonstrate that perceived service responsiveness – having the ability to promptly attend to a customer's needs is another element of the perceived service quality that has a direct impact on customer loyalty within the services sector. Customers are willing to return and make referrals to the business if only they have had good experience with the type of service they receive.

In e-commerce context, responsiveness is an influential input to customers' satisfaction since customers require quick feedback on issues such as order status or product returned. According to Bressan et al., (2014) the speed of response to customer queries and inquiries is highly valued in online communities. Thus, the authors noticed that those who did not receive support or had problems promptly solved would complain, whereas those who received immediate and relevant responses would be more likely to provide positive reactions and repurchase.

c) Empathy and Customer Satisfaction

Empathy in this study refers to the extent to which the service providers show concern for customers. As customer service it entails the ability to embrace the feelings as well as needs of the customers with respect to providing personal services. In a study carried out by Parasuraman et al. (1991), these authors noted that empathy influences the customer satisfaction results directly in so far as the customers are concerned, they get a feeling that the service providers understand them. In many sectors, especially retail and hospitality business, there is evidence that showed that empathy generates positive emotional connection with customers, hence improving their satisfaction. For instance, Zeithaml et al. (1996) research carried out on the restaurant industry revealed that there are aspects of the service delivery that explicitly leads to loyalty and satisfaction; these include memory of customers' preference and special attention.

Berry et al.'s (2002) study also reinforced the earlier studies that empathy played a strategic role of setting the service provider apart in the competitive markets. Haddad et al. (2019) in the banking sector highlighted that when customers felt that employees of the bank empathize with them, the rate of satisfaction was higher. These customers perceived that their needs and concerns were unique hence receiving personalized services, improving service experience of the customers. Empathy also has a major bearing in customer loyalty; research done by Homburg and Stock (2004) in the retail industry they found out that customers tend to make repeat purchases with firms that display empathetic behavior toward them. They also concluded that strategies like remembering previous interaction and other relevant information make a positive contribution to satisfaction and repurchase intention.

Furthermore, empathy's contribution to satisfying customers does not only lie with how service providers physically engage their customers. In a survey that was conducted by Ladhari (2009) in telecom sector, it was found out that if the management of organizations express their understanding to the customers complaints and offers solutions to their complaints, the levels of

customer satisfaction increases provided the inputs provided and the solutions are personalized. From this it can be implied that the concept of empathy has an impact on the quality of service as seen by the customers despite the sector that the service is in.

d) Reliability and Customer Satisfaction

Reliability, which many experts define as the fundamental building block of services marketing relates to the capacity of the service provider to deliver consistent services as and when they are required and meet or surpass the client's expectations. Much research has stressed that reliability plays a significant role in forming customer perceptions. Parasuraman et al. (1988) determined that reliability is usually the primary service quality consumers seek as it conveys reliability of service delivery. This was eased by Carman (1990) who stated that reliability was the only dimension that was highly rated in the banking industry, and the customers were dissatisfied whenever their banking transactions were not done perfectly or on time.

Another study conducted among the customers in the hotel industry established that the reliability factor influenced the overall satisfaction significantly as postulated by Lee and Lee (2009). They pointed out that whenever consumers receive a homogenous service orchestration, like timely flight, consistent hotel room climate, their satisfaction is considerably boosted. Similarly, in the retail sector, through the literature survey study, Zeithaml et al. (1990) have found that the reliability of the service which involves accurate order, and timely delivery was found to be critical in customer retention as well as improvement of customer satisfaction. As a result, in another recent study in the logistics industry, Zhang et al., (2014) also support the same and ensured how factors like reliability, such as delivering goods in time and with good quality, had a positive effect on customer satisfaction especially in the online-shopping segment.

Durability remains a critical factor across industries because it constitutes the set of customer confidence. For instance, Haddad et al. (2019) highlighted that the level of reliability in executing banking services a customer interacts with was an explicit determinant of the perceived satisfaction levels. Banks which over time maintain their standard of service delivery were noted to have improved their customer loyalty and satisfaction hence underlining the central role played by this dimension of SERVQUAL.

e) Assurance and Customer Satisfaction

Assurance can be defined as the service quality dimension which relates to the extent to which service providers can guarantee the safety of customers through communicating their expertise, obliging nature and ability to create a secure environment to customers. The need for assurance is especially felt in industries where the customer is totally dependent on service, Providers of financial services, healing, and teaching. Parasuraman et al. (1988) supported the concept that customers seek assurance through personnel's professional behaviour and product expertise because it helps to allay customer's fears. For example, Haddad et al. (2019) in the banking context revealed that assurance was appreciated in terms of the accuracy of information relayed by the bank employees and helped enhance customer satisfaction.

Ryu and Jang (2007) in their empirical work on hospitality industry analyzed that aspect named assurance was most important for customer satisfaction which includes kind and polite behavior of hotel staff. This revealed that guests who were confident on the type of service expectations due to courtesy and professionalism of the staff were likely to express higher satisfaction levels. Furthermore, the study conducted by Jang et al. (2012) provided support for these outcomes; satisfaction arising from assurance by staff competency delivered a positive effect on repurchase intentions and favourable word of mouth in restaurants. Likewise, in the category of healthcare, two out of the five dimensions of service responsiveness and assurance were identified to have significant impact on satisfaction in patient care because patients who felt assured by competent and trustworthy healthcare providers expressed more positive feelings and self reported well being compared to other patients (Parsa et al., 2005).

METHODOLOGY

The methodology outlines the research design, methods of data collection, and analysis employed to examine the relationship between service quality dimensions and e-commerce user satisfaction with logistics services. This study used the SERVQUAL model to measure the impact of five service quality dimensions (tangibility, reliability, responsiveness, assurance, and empathy) on customer satisfaction.

It supports that the research was undertaken using a quantitative technique as this sought to measure values of interest. The questions were made measurable as the study involved amassing numerical data which could be analyzed statistically. In this study, the quantitative research method was used to measure to which extent a customer is satisfied with the logistics service quality. The method used in the study was quantitative, which led to the use of the deductive research approach; this is because, under the deductive approach, empirical theories on service quality and customer satisfaction tested as they seek to verify propositions formulated from extant theories (Saunders et al., 2016).

A close-ended survey questionnaire was adopted in this study because it was effective for the researcher to obtain the opinions of the student respondents in an organized manner. As mentioned earlier, specific questions also referred to as closed-ended questions are understood to minimize the variability and improve the credibility of the answers provided (Brace, 2018). Data for this study was sourced through survey questionnaires with e-commerce users who had recent experience of logistics in Sabah. Since other research methodologies could have been considered, the use of questionnaires as the major data collection instruments was preferred by this research. Questionnaire was described as a simple tool for collecting and documenting information on certain issues, which means a set of questions, but may also contain clear guidelines for completing the questionnaire, blank spaces for answers, as well as essential organizational data (Gillham, 2008). To the respondents, it was explained the purpose of the questionnaire, consistent with the objectives of the study, and it was clearly pointed out how the outcomes will be used for analysis in the study. The respondents were told about the objective of the study, and the ways and the time that would be used to relay the results back to them. This approach is ethical, and its principles include the respondent's consent and anonymity (Bryman & Bell, 2015).

The population targeted in this study consists of e-commerce users in Sabah who have utilized logistics services. E-commerce users are ideal respondents for assessing logistics service quality, as they regularly engage with courier services for product deliveries. A total sample size of 192 respondents and convenience sampling was employed to select respondents, maximizing accessibility and efficiency in data collection. Data collection was carried out through both online and in-person methods. An online survey was distributed via Microsoft Forms and shared on social media platforms, while paper questionnaires were administered in various locations across Sabah, including Kota Kinabalu, Ranau, and Sandakan. This mixed-method approach enhanced the reach and inclusivity of the study, ensuring a diverse set of responses.

RESEARCH FRAMEWORK

The research framework is adapted from the SERVQUAL model developed by Parasuraman et al. (1988), which assesses service quality across five key dimensions: tangibility, reliability, responsiveness, assurance, and empathy. In this study, these dimensions serve as independent variables, while customer satisfaction acts as the dependent variable. The framework posits that improvements in any of the SERVQUAL dimensions will positively influence customer satisfaction. The framework is applied in the context of logistics services for e-commerce users in Sabah, Malaysia.

The research framework presented in Figure 1 was adapted to study the service quality by using the SERVQUAL model elements. It explained how SERVQUAL dimension will influence and link to the discussion of customers satisfaction. The dependant variable in this study is the level of customers' satisfaction and loyalty; independent variable covers the dimension of SERVQUAL. The main purpose of this study is to examine the SERVQUAL dimension that influences and affects the logistics users' satisfaction.

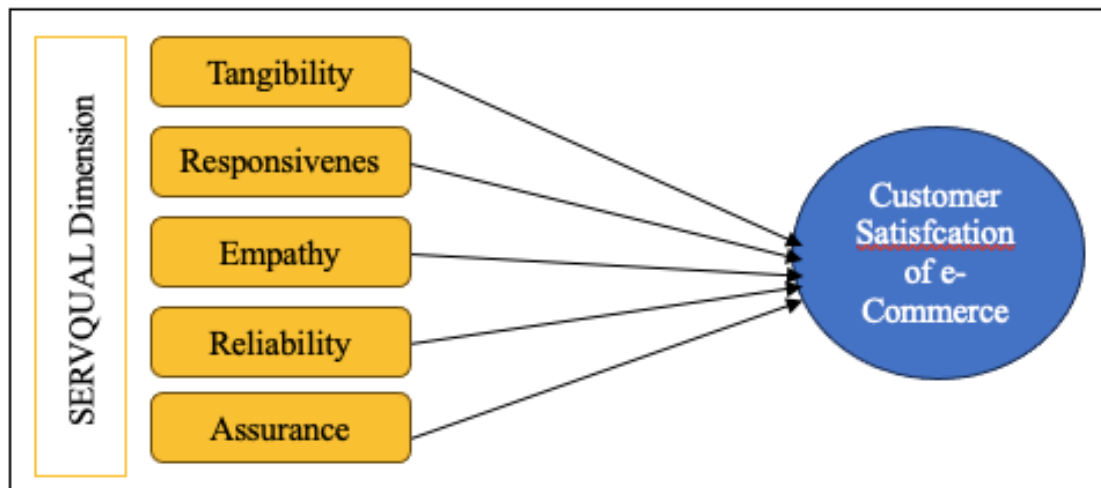


Figure 1: Research Framework

HYPOTHESES DEVELOPMENT

This research proposed that each dimension of SERVQUAL will have a significant and positive correlation with customer satisfaction. For example, the hypotheses of this study are intended to determine how SERVQUAL dimensions affect the level of satisfaction with logistics services among e-commerce consumers. Each hypothesis focused on a specific aspect of service quality, providing a framework to analyse its impact:

H1: Tangibility and Customer Satisfaction

Tangibility relates to the more tangible element of the firm's logistics service offering including physical appearance of employees, condition of delivery vehicles and tracking devices. This hypothesis looks at the relationship between visible and well-maintained resources with customer satisfaction. Research indicates that customers form perceptions of service quality based on tangible elements, especially when interacting with logistics companies, where the physical evidence of service delivery is more apparent (Yuen & Thai, 2015). For instance, well-maintained vehicles and professional staff enhance the company's image and influence customers' satisfaction levels.

H2: Responsiveness and Customer Satisfaction

Responsiveness refers to how effectively the logistics company deals with customer's questions, complaints, or any problem. To test this hypothesis, how timely and effective responses are also found to improve customer satisfaction is examined in this hypothesis. According to previous research made by Al-Weshah et al. (2013), it was justified that there is a correlation between responsiveness and customer satisfaction. In a study conducted by Loo and Asrah (2022) revealed that customers have expressed that logistics company was not being responsive to dealing with the problem faced by the customer which has caused to the dissatisfaction of customers to result in the study.

H3: Empathy and Customer Satisfaction

Empathy partly concerns the individual concern and service offered by the firms in logistics. Empathy is often associated with customer loyalty and satisfaction because customers appreciate personalized service that makes them feel valued (Rust & Zahorik, 1993). According to Ganguli and Roy (2011), their study has proven that there is a significant relationship between empathy and customers satisfaction. For example, when a logistics company adjusts its delivery times to suit the customer's schedule or provides customer-specific solutions for complex deliveries, it demonstrates empathy. Such gestures increase customer satisfaction by making the service more customer centered. Thus, the hypothesis of this research is that awareness of customer's needs and their incorporation can enhance customer satisfaction.

H4: Reliability and Customer Satisfaction

Reliability refers to the capacity of a service provider to provide corresponding services in a dependable manner throughout the agreed time and these services should be accurate. In the studies made by Yousuf (2017) and Famiyeh et al. (2018) emphasized that reliability is the element of service quality that would suggest to a high customer satisfaction when the logistics company is able to offer services precisely and reliably as promised. Thus, a strong positive relationship between reliability and customer satisfaction is expected. This hypothesis tests the idea that reliability and accuracy of service contribute to the ability to gain customer trust and generate customer satisfaction.

H5: Assurance and Customer Satisfaction

Assurance consists of the competence, tone, and integrity of the people participating in logistics. According to Tuan and Linh (2014), assurance significantly affects customer satisfaction, particularly when the logistics company consistently puts the needs of the customer first. It is crucial for the logistics firm to choose competent, competent employees who can also be courteous and make customers feel at ease. If employees interact in a trustworthy manner when helping customers with problems or providing answers to questions, this will increase the customers' confidence and satisfaction towards the logistics company (Chia et al., 2023). The following hypothesis looks at the relationship between professionalism as well as the capacity to build confidence and customer satisfaction.

Hence, the following hypotheses are proposed:

H1: *Tangibility positively influences customer satisfaction.*

H2: *Responsiveness positively influences customer satisfaction.*

H3: *Empathy positively influences customer satisfaction.*

H4: *Reliability positively influences customer satisfaction.*

H5: *Assurance positively influences customer satisfaction.*

RESEARCH APPROACH AND DESIGN

Specifically, the research design used in the study was quantitative in that it aimed at quantifying the variables and using statistical tools to analyse hypotheses. Hence, in order to generate quantitative data, structured questionnaires were administered to the respondents because this assured standardised perception data collection. A cross-sectional research design was used for the study meaning that data were collected once at a given point in time. This approach is commonly used in service quality research to capture and assess perceptions at a specific time without requiring longitudinal data (Saunders et al., 2016).

By utilizing this design, the study aimed to identify any existing correlations between service quality SERVQUAL dimensions and customer satisfaction (Bryman & Bell, 2015). This strategy helps to identify the net relationship of SERVQUAL dimensions at once because it provides the current view of the status. It also allows for consistent results since the structure guarantees the reliability and replicability of the results, which makes this study suitable for this design.

DATA COLLECTION AND INSTRUMENTATION

Data was collected using a structured questionnaire consisting of about four sections. The first section was about demographics, which led to thorough descriptions of respondents as part of their background. This second section highlighted online purchase behaviours and negative experiences faced by the e-commerce users with the courier services, aiming to identify trends in e-commerce activities and observed the past negative experiences. The responses collected in Section three and four relating to SERVQUAL dimensions and customer satisfaction were quantified using a 5- Likert scale. The Likert-scale strategy applied with five Likert items: 1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, 5 – strongly agree. The Likert scale was a method of psychological evaluation, designed to measure satisfaction, value and opinion by showing the degree of agreement or disagreement to a set of items.

Table 1: Number of items for each variable

Section	No of Items
Section 1 – Respondent’s Demographic	6
Section 2 – Respondent’s Online Purchase Information and Negative Experiences with Courier Services	11
Section 3 – Logistics Service Quality by SERVQUAL dimension (Tangibility, Responsiveness, Empathy, Reliability, Assurance)	25
Section 4 – Customers Satisfaction towards the logistics service quality	6

DATA ANALYSIS AND RESULT

The data analysis of the study is derived from the statistical results of questionnaires collected from a sample of e-commerce users in Sabah who have experienced tangible online purchases delivered via courier services. A total of 192 valid questionnaires were utilized in this study

Table 2: Respondents Profile

Demographic Variable	Categories	Frequency	Percent (%)
Gender	Male	49	25.5
	Female	143	74.5
Age Group	18 – 29 years old	163	84.9
	30 – 39 years old	10	5.2
	40 – 49 years old	16	8.3
	50 years old and above	3	1.6
Location (Division)	West Coast (Pantai Barat)	114	59.4
	Kudat	7	3.6
	Sandakan	26	13.5
	Tawau	19	9.9
	Interior (Pedalaman)	26	13.5

From the total respondents of 192, 74.5 percent were female at the frequency of 143 people and 25.5 percent were male at the frequency of 49 people. In the questionnaire, the age of the respondent was grouped into several groups of age. The greatest number recorded in this study was from the age group of 18-29 years old with 163 people (84.9 percent), followed by 40-49 years old with 16 people (8.3 percent) as the second highest, then the age group of 30-39 years old with 10 people (5.2 percent), finally 50 years and above with 3 people (1.6 percent).

Since the questionnaire of this study were distributed around Sabah, the outcome for the respondents subsequently came from different locations. Based on the result obtained, 59.4 percent of the respondents are from the West Coast division with the frequency of 114. Next, followed by both Sandakan division and Interior division with the same number percentage 13.5 percent and the frequency of 26, then Tawau division with 9.9 percent with a frequency of 19, lastly 3.6 percent from Kudat division with frequency of 7.

Table 3: Negative Experience with Logistics Courier Services

Variable	Categories	Frequency (N=192)	Percentage (%)
Logistics courier services issues and problems	Late delivery of parcel(s)	153	79.7
	Lost parcel(s)	31	16.1
	Damage parcel(s)	82	42.7
	Wrong address delivery	23	12.0
	Poor customer service	37	19.3
	Delayed custom clearance	41	21.4
	Parcel(s) marked as delivered but didn’t receive any item	31	16.1
	Not Applied	16	8.3

The data highlights the key issues and challenges faced by e-commerce users regarding logistics courier services. The most prominent issue, reported by 79.7% of respondents, is the late delivery of parcels, indicating a widespread concern with delivery timeliness. Another significant problem is damaged parcels, experienced by 42.7% of respondents and poor customer service was reported by 19.3% of respondents, reflecting dissatisfaction with how courier companies handle complaints, inquiries, or issue resolution.

Lost parcels were reported by 16.1% of respondents, which, while less common, still poses a serious issue in terms of consumer trust, as it represents a failure in the fundamental service of delivering goods. Other concerns include delayed customs clearance (21.4%) and wrong address deliveries (12.0%), both of which create significant inconvenience and frustration for users, especially for international shipments. Parcels marked as delivered but not received were reported by 16.1%, which suggests errors in tracking or possible theft, further eroding confidence in courier services. Out of all the negative experiences faced by the customers caused by the logistics courier services, only 8.3% of the respondents had not experienced any negative outcome in the

duration of their parcel being delivered by the courier services. Overall, the data shows that a variety of logistical and customer service issues are negatively impacting the user experience in e-commerce deliveries.

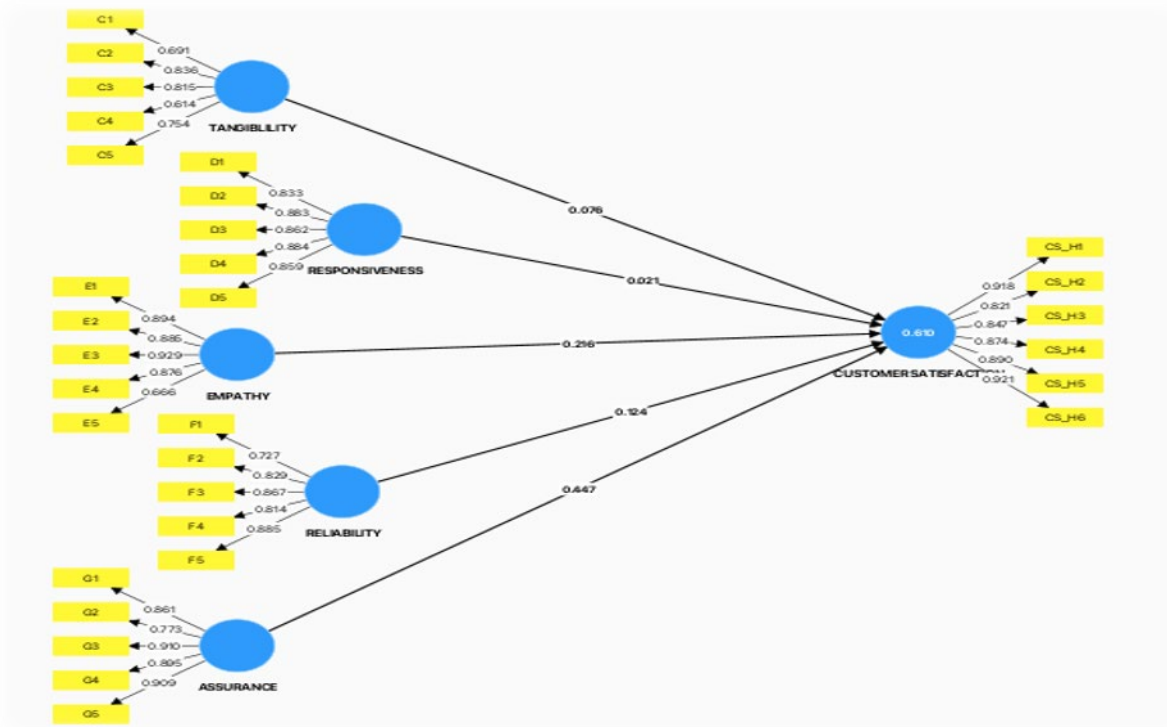


Figure 2: Measurement Model

Table 4: Data Collection Result

Hypothesis	Relationship	Std. Beta	T	P	F ²	Q ²	R ²
H1	Tangibility -> Customer Satisfaction	0.076	1.142	0.254	0.005	0.577	0.610
H2	Responsiveness -> Customer Satisfaction	0.021	0.278	0.781	0.000		
H3	Empathy -> Customer Satisfaction	0.216	2.249	0.025	0.035		
H4	Reliability -> Customer Satisfaction	0.124	1.594	0.111	0.004		
H5	Assurance -> Customer Satisfaction	0.447	4.682	0.000	0.187		

Five structural relationships within this study are direct relationships (H1) tangibility and customer satisfaction, (H2) responsiveness and customer satisfaction, (H3) empathy and customer satisfaction, (H4) reliability and customer satisfaction, and (H5) assurance and customer satisfaction.

The results on the direct relationship are provided in Table 4. The result for the current study partially supports the direct relationship hypotheses on which H3 and H5 based on while the H1, H2, and H4 hypotheses were not supported. The analysis of the direct relationships as presented in Table 4 supports the following hypothesis: (H3) Empathy has a significant relationship with customer satisfaction (B= 0.216, t=2.249, p= 0.025) and (H5) Assurance has a significant relationship with customer satisfaction (B= 0.447, t=4.682, p= 0.000) is supported. Thus, hypotheses H3 and H5 are supported because t-value here is ≥ 1.645 .

In quantitative analysis, this evaluation unveiled the measured significance of the independent variables to customer satisfaction with logistics courier service quality. The effect sizes are as follows: concerning tangibility ($f^2 = 0.005$), responsiveness ($f^2 = 0.000$), empathy ($f^2 = 0.035$), reliability ($f^2 = 0.004$), and assurance ($f^2 = 0.187$). According to Cohen's (1988) thresholds, assurance has a moderate impact, empathy is of a little impact, while tangibility, responsiveness and reliability of little-to-no effect impact.

In this study, the Q² values of the endogenous latent variables were all greater than zero, as presented in Table 4, and hence, it is possible to assert that the structural model does have reasonable predictive relevance. The discovery of the validity and reliability of this model can be used to increase the understanding of the hypothesised relations among the constructs. Thus, the use of cross-validated redundancy is essential as practical and theoretical foundation of the model in terms of its applicability in research to various datasets.

R² varies from 0 up to 1; the higher the R² show the model has a better explanatory variable. Hair et al., (2011) defined R² values indicating that moderate to substantial values are acceptable in social science research; they defined three categories of R², namely, substantial R² of 0.75 or greater, moderate R² of 0.50 to 0.75 and weak R² below 0.50. In the current study, the value of R² was 0.610 for customer satisfaction as evidenced by the results displayed in Table 3. Thus, it shows that the five outside variables can explain 61% of the customer satisfaction with regards to the logistics courier service quality in Sabah with the five variables of tangibility, responsiveness, empathy, reliability and assurance.

DISCUSSION AND FINDINGS

RELATIONSHIP BETWEEN SERVQUAL TANGIBILITY AND CUSTOMER SATISFACTION

Based on the findings in the previous chapter, it is possible to conclude that the hypothesis (H1) between SERVQUAL tangibility and customer satisfaction has a significant negative relationship at 0.076 standard beta. This means that the logistics courier service quality of tangibility has no significant influence on the e-commerce customers' satisfaction. Unlike earlier research, tangibility which entails things that are physically sensed and seen such as facilities, equipment's and neat looking employees was not observed to have any effect on customer satisfaction. Contrary to previous research conducted in other sectors such as hospitality and retailing that focused on physical service attributes like physical facilities, neat and attractive settings enhance customer satisfaction (Bigné et al., 2001; Bitner, 1990). For instance, in the e-commerce environment, it was claimed by Bressan et al. (2014) that comprehensible and easily understandable website layout and compelling and superior quality images do influence customer satisfaction.

However, the application of any of these corporate images in the logistics sector could mean that the coverage of the physical aspect of the service might not necessarily attract clients since physicality in logistics might not be a strong focus as in service industries such as response time or reliability. With reference to this concept, customers may consider aspects such as reliability of the service, for instance, delivery services at the exclusion of the beauty of the service provider's stations. Consequently, the failure to support tangibility could be attributed to the nature of the logistics industry in which operation, speed and reliability are more valued than graft of physical attributes.

Based on this study, customer satisfaction among the e-commerce users in Sabah shows insignificant results related to SERVQUAL tangibility element affecting the customer satisfaction level. It is found that the e-commerce users in Sabah did not highly judge the tangible aspects of logistics courier services quality, such as the professional appearance of delivery staff and the condition of the vehicles, which were seen as indicators of service quality that can affect the customer satisfaction. The customers in Sabah value efficiency and timeliness more where it is found that the dissatisfaction on tangibility in terms of pricing happened when customers from Sabah had to pay almost double the price on deliveries of items from Peninsular Malaysia compared to the states in Peninsular Malaysia due to geographical constraint in Sabah.

However, the service quality that they received is contradicted with the high price that they paid where in the study almost 176 of the e-commerce customers in Sabah agreed that they had gone through negative experiences upon the deliveries made for their items. In conclusion, although tangibility is an important dimension of the SERVQUAL model, its impact on customer satisfaction in logistics services appears to be limited. Research has shown that customers in this industry prioritize operational performance factors over tangible aspects like the appearance of staff or facilities.

RELATIONSHIP BETWEEN SERVQUAL RESPONSIVENESS AND CUSTOMER SATISFACTION

Based on the findings in the previous chapter, it is possible to conclude that the hypothesis (H2) between SERVQUAL responsiveness and customer satisfaction has a significant negative relationship at 0.021 standard beta. This means that the logistics courier service quality of responsiveness has no significant influence on the e-commerce customers' satisfaction. This finding was not supported by the claim that SERVQUAL responsiveness has a positive relationship influencing customer satisfaction.

Likewise, the responsiveness which was characterized by the service providers' preparedness to help the customers when they are in need was not supported in this present research work as a factor that influences customer satisfaction. This discovery is quite contrary to the overall conventional knowledge that has found that responsiveness occupies a central position in increasing levels of customers' satisfaction. Ladhari (2009) and Gremler and Gwinner (2000) pointed out that speed is a crucial factor of customer satisfaction in services industries that include hotels and retail. Similarly, in the airline industry, Lee (2008) concluded that efficient management of complaints including delay and cancellation facilitated high customer satisfaction.

However, in the usage of logistics, though the responsiveness may be relevant when there is something like delivery delay or loss of the consignment, it might not have been very significant for the customers' everyday encounters. This may be because logistics centres are expected to operate with high levels of reliability and customers may not attach high importance to speed of response to non-performance when services are being delivered. The absence of significant support for the responsiveness might mean that other aspects of service delivery matter more to customers in this study than the timeliness of the responses, particularly if the logistics service is efficient and dependable.

When customers perceive that a provider is responsive, they are more likely to be satisfied with the service, even if other factors such as reliability or timeliness, are slightly compromised. In this study, although responsiveness was still appreciated but it did not significantly enhance satisfaction where few of the respondents stated that the responsiveness of the courier services was quick enough but due to the other factors of operational aspects, such as delivery failures due to the unavoidable logistics constraint caused by the external factors of geographic and weather in Sabah has led dissatisfaction among the customers. Hence, this shows that in the logistics sector, the ability of logistics courier services to fulfil customer promises and attend their inquiries on time do plays a much larger role in shaping customer satisfaction.

RELATIONSHIP BETWEEN SERVQUAL EMPATHY AND CUSTOMER SATISFACTION

In this study, it is possible to conclude that the hypothesis (H3) between SERVQUAL empathy and customer satisfaction has a significant relationship at 0.216 standard beta. This means that the logistics courier service quality of empathy has significant influence on the e-commerce customers' satisfaction where the finding was supported by the claim that SERVQUAL empathy has a positive relationship influencing the customer satisfaction.

On the other hand, empathy referring to the ability of the service providers to offer personalized and caring services being an important influence on the customers was established in this study. This result is in line with prior literature that underlines the necessity of empathy to support customer satisfaction and loyalty. Parasuraman et al. (1991) and Berry et al. (2002) supported these views arguing that customers' satisfaction is a function of perceived service quality and especially when the providers seem to address their individual needs. Haddad et al., (2019) conducted a study of the banking industry and had similar results to the current study with empathetic service identified as fulfilling customers thereby increasing satisfaction levels.

In the employment of empathy in the field of logistics operations, it could manifest at a rudimentary level, where a customer may have a complaint, and the customer service officer will understand the company's position, and then address the problem at hand. The essence of adopting an empathetic approach may be particularly important when the customers are met with certain issues such as delays or poor quality of service. Customers may feel more satisfied when their concerns are met with care and attention as opposed to a canned response. This is consistent with the sentiments from Wu and Chen (2014) who noted that customers and service providers in the hospitality industry have special bond which could also be true for logistics.

The e-commerce users in Sabah agreed that the logistics courier service providers were able to entertain their inquiries and help to assist any related matters regarding their item's delivery empathically for example, rescheduling deliveries or specific instructions on the delivery to be made by the logistics courier service providers. Hence, this research shown the demonstration of empathy such as actively listening to customer concerns or accommodating special requests can significantly improves the perception of service quality which increase the level of satisfaction of the customers towards the service quality of the courier service providers where such gestures not only able to fulfil functional needs but also meet emotional.

RELATIONSHIP BETWEEN SERVQUAL RELIABILITY AND CUSTOMER SATISFACTION

From the findings, the study concluded that the hypothesis (H4) has insignificant relationship between SERVQUAL reliability and e-commerce customer satisfaction where the SERVQUAL reliability and e-commerce customer satisfaction shows a negative relationship between variables where the standard beta lays at 0.124 in the result findings.

Another SERVQUAL dimension not supported by this study was reliability that describes the capacity for delivering promised services meaningfully and accurately over time. This observation contrasts with many previous studies that identified reliability as the single most significant factor that positively influences customers' satisfaction (Carman, 1990; Parasuraman et al., 1988). Customers in industries such as banking and healthcare expect services to be delivered as outputs and each inconsistency in service delivery causes dissatisfaction (Haddad et al., 2019; Zeithaml et al., 1990).

If reliability is not supported in this research, it may imply that though it is a significant factor in service quality other factors such as empathy and assurance may have more relevance in the logistics industry. The customers may place more importance on personal concern shown in empathy side or technical expertise and professionalism displayed in assurance than on the service quality consistency since the reliability may be considered a given in the logistics context by many clients.

In highly competitive sectors like e-commerce logistics, reliability is almost universally expected. With multiple companies offering similar levels of service, reliability becomes a norm rather than a competitive advantage. Since all providers meet this basic standard, customers are more likely to focus on other elements of the service experience, such as speed of delivery, customer support, communication, or flexibility. These factors might have a stronger impact on satisfaction, as they are more visible or emotionally engaging to customers.

Based on the findings of this study, the e-commerce customers' responses show that late deliveries and damaged parcels have significantly high numbers, indicating that while reliability is expected, its failure in certain areas leads to a more direct impact on customer dissatisfaction. However, even in cases where reliability issues arise, such as late or damaged parcels, customer satisfaction may not always hinge on the reliability aspect itself. Instead, how the company handles the situation post-issue plays a more critical role in shaping customer satisfaction. Hence, the e-commerce users in Sabah value more on the quick resolution of issues, clear communication regarding the delay, or offering compensation or alternatives can influence customers' perceptions far more than the original reliability of the service.

RELATIONSHIP BETWEEN SERVQUAL ASSURANCE AND CUSTOMER SATISFACTION

Based on the findings, the study concluded that the hypothesis (H5) has a significant relationship between SERVQUAL assurance and e-commerce customer satisfaction. SERVQUAL assurance and e-commerce customer satisfaction shows a positive relationship between variables where the standard beta lays at 0.447 in the result findings. This means that the relationship between assurance and customer satisfaction shows there are confidence and trust established through service which positively correlated.

This finding indicates that the degree to which customers are satisfied with the competence, courtesy and security offered by the service provider was a key determinant in this study and is reflected by assurance. This result supports earlier literature that identified the contribution of assurance in determining the level of customer satisfaction. According to Ryu and Jang (2007) their work on developing the understanding of hospitality industry identified that staff members should be confident and courteous to satisfy customers. Similarly in the field of banking, Haddad et al. (2019) concluded that the degree of perceived competence and perceived trust affected satisfaction.

In the logistics sector, assurance can be brought out by the courtesy of individuals working in the call centers, their expertise in addressing customer concerns or pride in delivering their promises such as on-time delivery and accurate tracking data. The results of this study indicate that customers are more likely to be satisfied when they perceive the service provider as competent

and dependable, which is in line with information gathered by Jang et al. (2012) relative to trust as a sufficient condition that enhances satisfaction in restaurant services.

From the result obtained in the study, customers agreed that the logistics courier service providers' service personnel do actively listen to and address customer issues in terms of delivering the parcels. This shows that the logistics courier companies in Sabah do foster a sense of reliability and trust in delivering the customers' goods which are essential elements in enhancing satisfaction. Based on the result of the findings, the number of responses from the study in Sabah shown that the e-commerce users agreed that the logistics courier services in Sabah can deliver their parcels securely and in full credibility as requested by the customers.

SIGNIFICANCE CONTRIBUTION OF THE STUDY

As for the contributions of this study towards knowledge, this research contributes theoretical and practical evidence in logistics service quality and customer satisfaction in Sabah, Malaysia. Theoretically, the research advances the generalisation of the SERVQUAL model, an internationally acclaimed tool for assessing service quality, by testing its application within the context of the chosen geographical location that is shielded by multiple logistical barriers. In so doing, it confirms the applicability of SERVQUAL dimensions of tangibility, reliability, responsiveness, assurance, and empathy specifically to the logistics sector of an e-commerce dominated market in a developing area.

The results, which stress assurance and empathy as the decisive factors adding to the importance of tangibility, responsiveness, and reliability in pursuit of the perfect service quality model adapted to the industry and regional specificity provide a valuable contribution to the on-going discussion on the subject. This knowledge motivates the further research of alterations to SERVQUAL constructs or of other frameworks appropriate for analysing logistics services in such geographically isolated, and infrastructurally less developed territories.

In terms of practical implication, this study offers concrete suggestions for the logistics providers operating in Sabah. That is why customer trust and empathy would remain crucial components of satisfaction. Based on the study, it is recommended that the staff working for the logistics companies should be given training to better understand how to assure customers as well as the customers should be listened carefully as the negative feedback are often received and the human resource policies should be so developed as if the companies are really concerned with the customers. These strategic insights are relevant to customers' expectations within the region because they overcome the gaps where the delivery of services differ from customers' satisfaction level. Thus, this work has implication for both scholars and industry professionals to potentially enhance the quality of logistics services in difficult contexts with the view to promoting sustainable customer satisfaction.

RECOMMENDATION

To closely achieve the objectives of increasing the level of customer satisfaction as well as the quality of logistic services in Sabah, a few strategic actions are proposed. Firstly, the policies of the logistics companies must be tailored to each client as much as possible. This encompasses meeting customer-specific delivery needs, satisfying other specific customer needs and showing an understanding disposition. Such customized strategies are likely to help raise the overall customer satisfaction since they meet functional as well as emotional needs.

Second, the provision of its personnel training can be regarded as one of the crucial significant factors. It is important for companies to promote and develop interpersonal skills as experts in assurance and empathy that may call for effective interpersonal skills. Training should enable staff to undertake appropriate response to customer inquiries appropriately and effectively, hence creating trust and confidence in the quality of service. Another strategic suggestion is to integrate technology into the work of logistics. Modern technologies, tracking devices and communication equipment should be employed to facilitate customers with updates on parcels' status. This also solves problems of responsiveness as well as improving on the aspect of transparency which helps to minimize the customer frustrations attributed to delays or losses of their property.

Due to these geographical conditions in Sabah, it becomes very essential that solutions providers start to come up with specific regional solutions. Local stakeholder engagement and innovation in delivery techniques like drone or small-scale transportation solutions can help with last-mile delivery challenges. In this way, the infrastructural limitations are altered for the purpose of providing higher availability and dependability of the services. Feedback is the process of receiving output and using it to make improvements hence feedback mechanisms are very important. Developing feedback gathering mechanisms enables even the most competitive logistics firms to understand areas that need improvement in their services. This approach acts proactively to guarantee that the offered service improvements address apparatus shifts in customer demands and preferences.

Finally, more flexibility in the pricing models should be sought by the logistics companies especially concerning fairness with customers considering geographical barriers. In other words, differentiated pricing schemes that take into consideration variations in the service delivery across different geographical locations can help create value perception that in turn results to increase customer commitment. Thus, through the implementation of the outlined recommendations, it is possible to achieve the goal of adopting tangible strategies that may help logistics companies in Sabah to close the identified service quality gaps and enhance customer satisfaction, which is critical for sustaining performance in the context of e-commerce developments.

CONCLUSION

This research has highlighted crucial issues regarding the Interconnection of logistics service quality and customer satisfaction among e-commerce users of Sabah with consideration to the SERVQUAL dimensions. It has been seen that assurance and empathy have a vital impact on customer satisfaction in this case, whereas as compared to this the effects of tangibility, responsiveness, and reliability are not that high. That is why it is highly important for logistics companies to apply the strategies of service quality management with respect to the regional and industry-specific peculiarities.

Practical directions for service improvement are provided in this study as it recognises the challenges of geography in Sabah and the current state of infrastructure. The measures highlighted ranging from personnel education and IT leveraging to price competitiveness can act as a strategic direction for logistics suppliers interested in enhancing the quality-of-service delivery and building customer satisfaction.

In conclusion, this study not only enriches the theoretical knowledge of logistics service quality but can also inject practical recommendations for scholars and practitioners in the context of the increasingly competitive and diversified e-commerce market. Focusing on the needs of the Sabah market, as well as the imperative to increase customer satisfaction and trust, logistics providers can thereby guarantee a long-term, successful development within the constantly growing competitive field.

REFERENCES

- Akıl, S., & Urgan, M. C. (2022). E-commerce logistics service quality: Customer satisfaction and loyalty. *Journal of Electronic Commerce in Organizations*, 20(1), 1-19. <https://doi.org/10.4018/JECO.292473>
- Al-Weshah, G. A., Alnsour, M. S., Al-Hyari, K., Alhammad, F., & Algharabat, R. (2013). Electronic networks and relationship marketing: Qualitative evidence from Jordanian travel agencies. *Journal of Relationship marketing*, 12(4), 261-279.
- Ali, F., Amin, M., & Cobanoglu, C. (2021). An integrated model of service experience, emotions, satisfaction, and price acceptance: An empirical analysis in the hospitality industry. *Journal of Hospitality Marketing & Management*, 30(6), 611-629. <https://doi.org/10.1080/19368623.2021.1898721>
- Berry, L. L., Parasuraman, A., & Zeithaml, V. A. (2002). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12-40. [https://doi.org/10.1016/S0022-4359\(98\)00003-1](https://doi.org/10.1016/S0022-4359(98)00003-1)
- Bienstock, C. C., Mentzer, J. T., & Bird, M. M. (2003). Measuring physical distribution service quality. *Journal of the Academy of Marketing Science*, 31(1), 13-24.
- Bigné, E., Sánchez, I., & Andreu, L. (2001). The impact of environmental stimuli on the perceived service quality of retailing services. *Journal of Retailing and Consumer Services*, 8(3), 131-140. [https://doi.org/10.1016/S0969-6989\(00\)00016-6](https://doi.org/10.1016/S0969-6989(00)00016-6)
- Bitner, M. J. (1990). Evaluating service encounters: The effects of physical surroundings and employee responses. *Journal of Marketing*, 54(2), 69-82. <https://doi.org/10.1177/002224299005400206>
- Brace, I. (2018). *Questionnaire design: How to plan, structure and write survey material for effective market research* (4th ed.). Kogan Page.
- Bressan, T. A., Delalibera, M., & Lima, D. D. (2014). E-commerce: Customer satisfaction and loyalty. *International Journal of Marketing*, 3(1), 1-10. <https://doi.org/10.17722/ijm.v3i1.121>
- Bryman, A., & Bell, E. (2015). *Business research methods* (4th ed.). Oxford University Press.
- Caceres, R., Ch., & Paparoidamis N., G. (2007). Service quality, relationship satisfaction, trust, commitment and business-to-business loyalty. *European Journal of Marketing*, 41 (7/8), 836-867 <http://dx.doi.org/10.1108/03090560710752429>
- Carman, J. M. (1990). Consumer perceptions of service quality: An assessment of the SERVQUAL dimensions. *Journal of Retailing*, 66(1), 33-55.
- Chia, S. L., Tan, C. S., & Tan, W. X. (2023). *Building trust and customer satisfaction in logistics services: The role of employee-customer interaction*. *International Journal of Logistics Management*, 34(1), 65-80. <https://doi.org/10.1108/IJLM-10-2022-0410>
- Chong, A. Y., Lo, C. K., & Weng, C. (2020). The role of logistics service quality in e-commerce: A review and research agenda. *International Journal of Physical Distribution & Logistics Management*, 50(6), 613-634.
- Famiyeh, S., Agyemang, S., & Frempong, A. (2018). *Service quality and customer satisfaction in the logistics industry: An empirical study*. *International Journal of Logistics Systems and Management*, 31(1), 72-88. <https://doi.org/10.1504/IJLSM.2018.10016020>
- Ganguli, S., & Roy, S. K. (2011). Service quality dimensions and customers' behavioral responses: A study in the Indian context. *International Journal of Indian Culture and Business Management*, 4(2), 221-242. <https://doi.org/10.1504/IJICBM.2011.042504>
- Gillham, B. (2008). *Research interviewing: The range of techniques* (2nd ed.). McGraw-Hill Education.
- Gremler, D. D., & Gwinner, K. P. (2000). Customer-employee rapport in service relationships. *Journal of Service Research*, 3(1), 82-104. <https://doi.org/10.1177/109467050031006>
- Haddad, H., Nagy, J., Popp, J., & Oláh, J. (2019). The Service Quality Dimensions that Affect Customer Satisfaction in the Jordanian Banking Sector. *Sustainability*, 11(4), 1113.
- Homburg, C., & Stock, R. M. (2004). The link between salespeople's job satisfaction and customer satisfaction in a business-to-business context: A dyadic analysis. *Journal of the Academy of Marketing Science*, 32(2), 144-158. <https://doi.org/10.1177/0092070303261415>
- Jang, S., Ha, J., & Park, K. (2012). The relationships between emotional intelligence, customer satisfaction, and loyalty in the hotel industry. *International Journal of Hospitality Management*, 31(4), 1135-1143. <https://doi.org/10.1016/j.ijhm.2012.01.008>
- Jun, S., Yang, Z., & Kim, Y. (2004). The impact of service quality and customer satisfaction on customer loyalty in e-commerce. *Electronic Commerce Research and Applications*, 3(3), 174-184.
- Kumar, M., Batista, L., & Maull, R. (2019). Designing organizational systems for supply chain resilience. *International Journal of Production Economics*, 208, 100-117. <https://doi.org/10.1016/j.ijpe.2018.11.023>
- Ladhari, R. (2009). Service quality, emotional satisfaction and behavioral intentions: A test of the SERVQUAL model. *Managing Service Quality: An International Journal*, 19(1), 32-53. <https://doi.org/10.1108/09604520910933032>
- Lee, H. Y. (2008). The role of responsiveness and assurance in the airline industry: Implications for customer satisfaction. *Tourism Management*, 29(4), 796-804. <https://doi.org/10.1016/j.tourman.2007.08.012>
- Lee, H., & Lee, Y. (2009). The effect of service quality on customer satisfaction and customer loyalty: An empirical study of hotel industry. *International Journal of Hospitality Management*, 28(4), 579-587. <https://doi.org/10.1016/j.ijhm.2008.10.008>

- Liu, Z., Huang, S., & Zhang, L. (2020). The role of logistics service quality in building customer loyalty: A study on e-commerce in China. *Journal of Business Research*, 112, 25–36.
- Loo, K., & Mohd Asrah, N. (2022). Survey on Customer Satisfaction Towards Courier Services in Johor. *Enhanced Knowledge in Sciences and Technology*, 2(2), 186–196. <https://doi.org/10.30880/ekst.2022.02.02.020>
- Marinkovic, V., & Kalinic, Z. (2017). Antecedents of customer satisfaction in mobile commerce: Exploring the role of trust, commitment, and perceived risk. *Telematics and Informatics*, 34(1), 322–335.
- Maryville University. (2019). *Future of online shopping: Evolving e-commerce trends*. Retrieved from <https://online.maryville.edu/blog/future-of-online-shopping/>
- Meidutė-Kavaliauskienė, I., Aranskis, A., & Litvinenko, M. (2014). Consumer satisfaction with the quality of logistics services. *Procedia - Social and Behavioral Sciences*, 110, 330–340. <https://doi.org/10.1016/j.sbspro.2013.12.877>
- Mohd, H., & Alam, S. (2010). Delivery performance in the context of e-commerce: The role of logistics service quality. *Journal of Logistics and Supply Chain Management*, 15(3), 120–138.
- Ozturk, A. (2020). The impact of the COVID-19 pandemic on purchasing behavior: A logistics perspective. *International Journal of Supply Chain Management*, 12(3), 345–350.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49(4), 41-50.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12–40. [https://doi.org/10.1016/S0022-4359\(02\)00057-5](https://doi.org/10.1016/S0022-4359(02)00057-5)
- Parsa, H. G., Self, J., & Njite, D. (2005). Service quality and customer satisfaction: An empirical investigation in the restaurant industry. *Journal of Foodservice Business Research*, 8(2), 15-31. https://doi.org/10.1300/J369v08n02_02
- Prabir, M., Mohanty, P. K., & Sahu, P. K. (2020). Analyzing logistics challenges in e-commerce businesses: Evidence from Southeast Asia. *Journal of Business Logistics*, 41(3), 145-162. <https://doi.org/10.1111/jbl.12212>
- QuestionPro. (2023). Retrieved from <https://www.questionpro.com/blog/service-quality/#:~:text=What%20is%20Service%20Quality%3F,quality%20is%20a%20valuable%20art>
- Rawal, S. (2013). The impact of service quality dimensions on customer satisfaction in e-commerce logistics. *Journal of Operations Management*, 34(1)
- Raza, S. A., Umer, A., Qureshi, M. A., & Dahri, A. S. (2020). Internet banking service quality, e-customer satisfaction, and loyalty: The modified e-SERVQUAL model. *The TQM Journal*, 32(6), 1443–1466. <https://doi.org/10.1108/TQM-02-2020-0019>
- Rust, R. T., & Zahorik, A. J. (1993). *Customer satisfaction, customer loyalty, and the customer's service experience: Implications for service firms*. *Journal of Service Marketing*, 7(4), 14-26. <https://doi.org/10.1108/08876049310040038>
- Ryu, K., & Jang, S. S. (2007). The effect of environmental perceptions on behavioral intentions through emotions: The case of upscale restaurants. *Journal of Hospitality & Tourism Research*, 31(1), 56–72. <https://doi.org/10.1177/1096348006295506>
- Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research methods for business students* (7th ed.). Pearson Education.
- Sheth, J. N., & Sharma, A. (2022). E-commerce and logistics: Impact of customer experience on service quality. *Journal of Business Research*, 145, 82-92. <https://doi.org/10.1016/j.jbusres.2022.01.037>
- Tan, K. C., Loke, S. P., & Lee, W. B. (2019). Logistics service quality in the context of e-commerce: A study of Malaysian SMEs. *International Journal of Supply Chain Management*, 8(3), 295-304.
- Tuan, L. T., & Linh, P. H. (2014). *Service quality, customer satisfaction and customer loyalty: A study in the logistics industry in Vietnam*. *International Journal of Business and Management*, 9(7), 118-127. <https://doi.org/10.5539/ijbm.v9n7p118>
- Wu, C. H. J., & Chen, C. C. (2014). *The impact of customer relationships on service quality and customer satisfaction in the hospitality industry*. *International Journal of Contemporary Hospitality Management*, 26(4), 638-653. <https://doi.org/10.1108/IJCHM-01-2013-0013>
- Yousuf, A. (2017). *The role of service quality dimensions in customer satisfaction in the logistics industry*. *International Journal of Logistics Research and Applications*, 20(4), 305-317. <https://doi.org/10.1080/13675567.2017.1312189>
- Yuen, K. F., & Thai, V. V. (2015). Service quality and customer satisfaction in liner shipping. *International Journal of Quality and Service Sciences*, 7(2/3), 170-183. <https://doi.org/10.1108/IJQSS-03-2015-0020>
- Zeithaml, V. A., Parasuraman, A., & Berry, L. L. (1990). *Delivering quality service: Balancing customer perceptions and expectations*. Free Press.
- Zeithaml, V. A., Parasuraman, A., & Berry, L. L. (2006). *Delivering quality service: Balancing customer perceptions and expectations*. Free Press.
- Zhang, M., Guo, H., Hu, M., & Liu, W. (2014). Influence of customer participation on service quality, satisfaction, and loyalty in B2C e-commerce. *Internet Research*, 24(3), 438–459. <https://doi.org/10.1108/IntR-08-2012-0141>