Factors Affecting Customer Satisfaction of Last-Mile Delivery Logistics

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The study aims to determine the factors affecting customer satisfaction in last-mile delivery logistics, focusing on Delivery Riders' Sense of Direction, Timeliness, Politeness, and Parcel Condition. It also covers satisfaction levels across select profiles. A descriptive research design was employed, using a researcher-made online questionnaire. A total of 385 participants were selected through purposive sampling. Data were analyzed using frequency, percentage, mean, and standard deviation. Findings revealed that participants were satisfied with all four factors. Delivery Riders' Sense of Direction received the highest satisfaction rating, followed by Parcel Condition and Politeness, while Timeliness ranked lowest. Based on the results, the study concludes that these factors significantly influence overall customer satisfaction with last-mile delivery. The researchers recommend programs targeting the four key factors to enhance service quality. These initiatives aim to improve customer experience and satisfaction, helping delivery providers build a stronger competitive edge in the rapidly evolving last-mile delivery sector.

Keywords: last-mile delivery, customer satisfaction, delivery riders, sense of direction, timeliness, politeness, parcel condition

INTRODUCTION

Background of Study

Currently, online shopping platforms dominate the world of commerce due to their accessibility and convenience. With a few clicks on computers and mobile phones, customers can now purchase a wide variety of commodities and have these goods delivered directly to them at their doorsteps. The rapid growth of urbanization and e-commerce increased the demand and interest in logistics services in the present, especially door-to-door delivery services (Olsson et al., 2019). This specific type of delivery service is a crucial component in last-mile delivery logistics (Pradeep, 2023). According to Flora (2023), "last-mile delivery" refers to the last step of the delivery process when a parcel is transported from the distribution center to its final location, usually a person's residence.

Last-mile delivery services remain one of the most expensive parts of retail logistics but also have the most visible impact on the customer journey and customer satisfaction (Keenan, 2022), which is a measure of how well a company's products, services, and overall customer experience meet customer expectations (Franklin, 2023). For a company to continue its operations, it must be profitable, thus catching customers' attention and satisfying their expectations should be highly prioritized (Scott Porter, 2020). From the words of Linda Rosencrance (2021), the last mile is a crucial part of logistics because if the last mile does not go well, customer experience suffers, and customers do not see the supply chain process before the last mile - they likely only remember how it got to their hands.

As there is a surge of demand for door-to-door deliveries, issues such as delivery delays and parcel damage have started to arise that may negatively affect customer satisfaction. Last-mile delivery inconsistencies, delays, or misses adversely influence consumer satisfaction, company reputation, and bottom lines (Keshavdas, 2020). Therefore, the researchers identified four factors affecting customer satisfaction in the last-mile delivery process. The following are the delivery rider's sense of direction (Accenture, 2020), timeliness (Sorkun et. al., 2020), delivery rider's politeness (Bahadur et al., 2018), and parcel condition (Lavell, 2020). The research focused on the variables since these are visible and observable indicators, in which customers can measure their level of satisfaction based on their prior experiences. Customer satisfaction is captured through objective approaches using observable quantities that are unaffected by the researchers' perceptions (Willemsen, 2020). Therefore, the four factors play integral roles in evaluating the delivery service providers' performance and determining the level of customer satisfaction.

By determining the factors affecting customer satisfaction in last-mile delivery logistics, the researchers can provide insightful recommendations to logistics companies. Such information can assist businesses in improving their last-mile delivery process, which can lead to higher client satisfaction. As processes are interconnected with results, businesses operating in the logistics industry may improve the conduct and quality of their workforce. Furthermore, understanding customer satisfaction factors in last-mile delivery may help delivery service providers allocate resources and efforts to the most crucial regions, such as the last-mile phase, granting them the utmost efficiency in their operations. Ensuring customers receive goods promptly and satisfactorily is crucial for any business that aims to succeed in a fiercely competitive e-commerce environment. Finally, this research can help enhance the logistics sector by offering a better understanding of how to fulfill consumer demands and expectations throughout the final delivery stage.

Statement of the Problem

This study intended to determine the factor that affects customer satisfaction with last-mile delivery logistics in Bacolod City, Negros Occidental. Specifically, the study sought to answer the following questions:

1. What is the profile of the participants in terms of:
    a. age;
    b. sex; and,
    c. average monthly income?

2. What is the level of customer satisfaction on last-mile delivery factors as to:
   a. delivery rider's sense of direction;
   b. timeliness;
   c. delivery rider's politeness; and,
   d. parcel condition?
3. Is there any significant difference in the level of customer satisfaction when grouped according to:
   a. age;
   b. sex; and,
   c. average monthly income?
4. What programs can be recommended to enhance the last-mile delivery factors?

Hypothesis

Below is the hypothesis of the study.

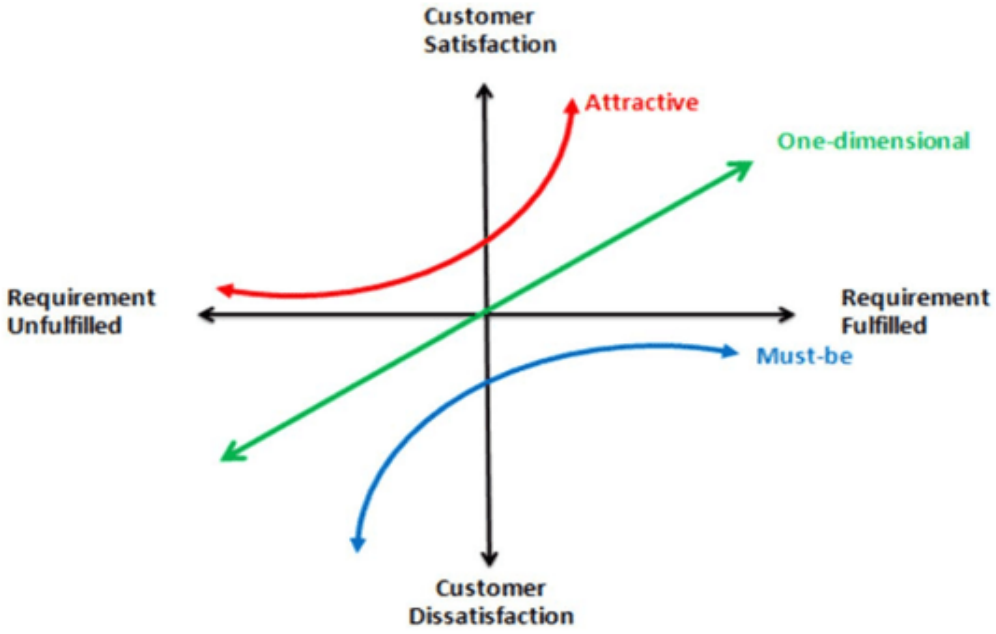
1. There is no significant difference in the level of customer satisfaction when participants are grouped according to their profile.

Theoretical Framework

Kano Model of Customer Satisfaction

The Kano Model of customer satisfaction categorizes the attributes of products by how customers perceive them and how these influence the satisfaction of consumers (Prasad, 2018). This framework was invented by Dr. Noriaki Kano from Japan in 1984 as a tool for developing products and services for businesses. Prasad states that Kano's model classifies product or service attributes into four categories: threshold, performance, excitement, and indifference. Translated into logistics, the attributes of the last-mile delivery service are represented by the delivery rider's sense of direction, timeliness, the delivery rider's politeness, and parcel condition which were tackled in the study as factors that affect customer satisfaction. By utilizing the Kano Model of customer satisfaction, delivery service providers can develop better-educated decisions concerning the last mile and eventually enhance their customers' satisfaction.

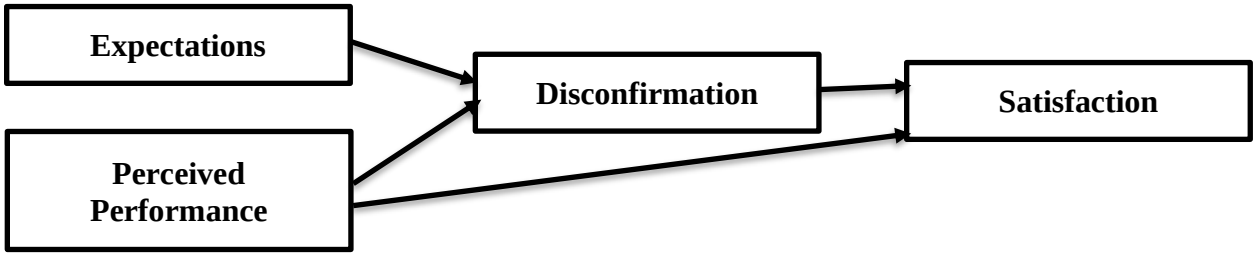
FIGURE 1
THEORETICAL FRAMEWORK OF THE KANO MODEL OF CUSTOMER SATISFACTION



Expectation Disconfirmation Model of Customer Satisfaction

The Expectation Disconfirmation Model's key contribution is to highlight the specific determinants affecting satisfaction to every individual (Zhang et al., 2022). The model developed by Richard Oliver in 1980 aims to shed light on consumer behavior and satisfaction levels with a product or service. According to Zhang, the primary principle of the framework is that customers' satisfaction or discontent is contingent upon the difference between their benchmark and perceived performance. The customer will be satisfied if the experience matches and surpasses expectations. Conversely, the consumer will be unsatisfied if the experience fails to meet expectations. In the context of the study on last-mile delivery logistics, the customer satisfaction determinants are the delivery rider's sense of direction, timeliness, the delivery rider's politeness, and parcel condition. The customers are likely to have established their standards based on their previous delivery experience, enabling them to evaluate their satisfaction with each factor mentioned above.

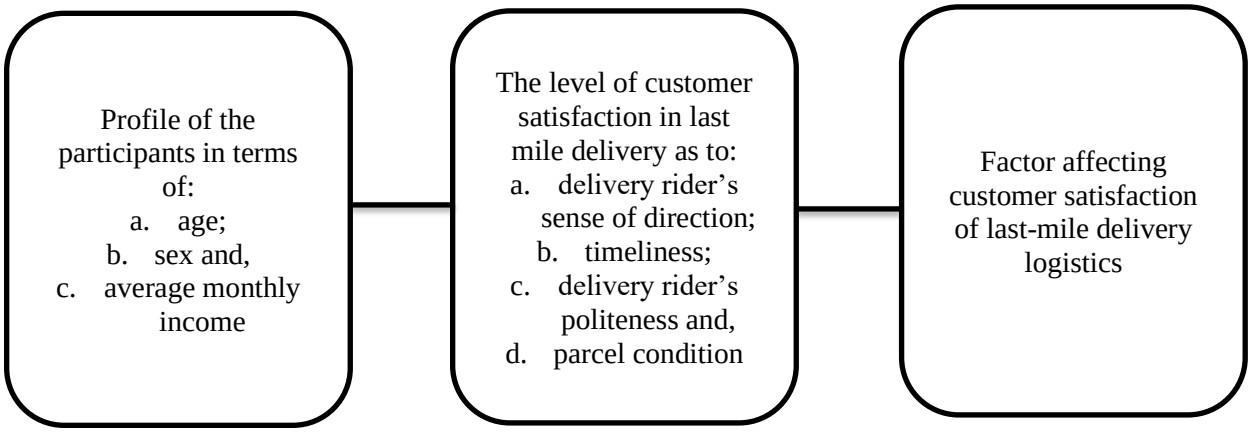
FIGURE 2
THEORETICAL FRAMEWORK OF EXPECTATION DISCONFIRMATION MODEL OF CUSTOMER SATISFACTION



Conceptual Framework

The conceptual framework of this study is designed in the figure presented below to guide the researchers in achieving the study's objectives. Figure 3 includes the various variables involved in the research. The schematic diagram starts by identifying the participants' profile, considering their age, sex, and average monthly income. Subsequently, the researchers sought the level of customer satisfaction regarding the delivery rider's sense of direction, timeliness, politeness, and parcel condition. Lastly, the factor affecting customer satisfaction was determined. It became the basis of the researchers in creating an appropriate program that can help enhance and optimize the last-mile delivery processes of delivery service providers.

FIGURE 3
SCHEMATIC DIAGRAM OF THE CONCEPTUAL FRAMEWORK OF THE STUDY



Scope and Limitations

This study specifically focuses on the factors affecting customer satisfaction with last-mile delivery logistics. The last-mile delivery factors are limited to the following variables: delivery rider's sense of direction, timeliness, politeness, and parcel condition. The study was conducted in Bacolod City, Negros Occidental, Philippines, and focused on customers who are purchasing products online and avail services from delivery service providers. Moreover, the researchers have collected the data for this study using a survey questionnaire. The data-gathering process was conducted within two months, commencing in September 2023 and concluding in October 2023. Furthermore, the participants of this study were only limited to customers who are currently residing in Bacolod City and did not extend to those residents of neighboring cities and provinces in the country.

Significance of Study

The results of this study may be of great benefit to the following:

1. ***Delivery Service Companies.*** Through the findings and recommended program of the study, these companies can make substantial enhancements in their logistics, specifically targeting the four key factors that affect customer satisfaction in the last-mile delivery phase. Moreover, these companies can elevate their performance and gain valuable insights into their customers' perceptions. This enables them to identify and address areas that require improvement, thereby enhancing overall efficiency and customer experience.
2. ***Delivery Riders.*** This study may help delivery riders to become more efficient and effective in fulfilling their duties and responsibilities during the last-mile delivery. These improvements can help them enhance their customer service and provide a positive experience for their customers since they are the ones who directly interact with clients.
3. ***Online Shopping Platforms.*** Through the results of this study, online shopping platforms may be able to enhance their relationship with their customers and sellers and solidify their partnerships with delivery couriers by creating and implementing strategies that can improve the number of engagements and sales in their applications and websites.
4. ***Online Sellers.*** This research may bring awareness to sellers that uncertainties are occurring during last-mile deliveries that may affect customer satisfaction and the overall perception of the products and the business, therefore, they must seek ways to prevent and minimize such problems on both ends.
5. ***Customers.*** The study's findings and recommendations may benefit the customers by enabling them to experience quality services and receive products in excellent condition from delivery companies. In addition, enhancements in the last-mile delivery phase may more likely foster positive interactions between customers and delivery riders, leading to increased satisfaction with the overall delivery experience.
6. ***Researchers.*** The process of gathering and evaluating data can help researchers gain a deeper grasp of topics, such as last-mile delivery and customer satisfaction, while also giving them a chance to exercise critical thinking. Data analysis, project management, and report writing are just a few of the abilities that may be developed through research that are highly applicable and useful in a variety of professional domains.
7. ***Academe.*** This research helps the school contribute to the broader academic community by generating new knowledge and advancing existing knowledge. Moreover, the research can be used by the school as reference material for their students who wish to explore similar topics, such as logistics and customer satisfaction.
8. ***Future Researchers.*** This study may serve as a reference for individuals who opt to tackle similar subject matters relating to logistics and customer satisfaction in their research papers. Moreover, this is a guide for future researchers to formulate other courses of action that can further improve systems in delivery service companies and seek suitable alternatives that can further satisfy the demands of customers.

Definition of Terms

Important terms in this study are defined conceptually and operationally to facilitate better understanding and clarity for the readers.

Customer Satisfaction

Conceptually, it refers to the general principle of customer service. It measures a customer's perception of the quality and utility of a product or service (Rana, 2022). Operationally, it measures how well a logistics company's services meet or exceed customer expectations in terms of how their orders are transported from delivery hubs to their location.

Delivery Providers

Conceptually, it means the Merchant or those independent third-party transportation providers and independent third-party logistics providers under agreement who perform Delivery Services for or on behalf of Users. According to (Alpeche, 2023) a business model known as service delivery transfers services from a provider to a client. It also includes the ongoing communication between the two parties when the consumer is using the service and the provider is providing it. Anything from a task to technology or information could be included in that service. It can be divided into two categories: models that are more industry-specific for technical services, or general references for any service.

Delivery Rider's Politeness

Conceptually, it describes the individual's ability to continuously react favorably or unfavorably to things, people, or events in his surroundings. His experience and interpretation of it influence the driver's actions and opinions (Bahadur et al., 2018). Operationally, it refers to the attitude of the driver when dealing with the customers in terms of actions, tone of voice, and behavior.

Delivery Rider's Sense of Direction

Conceptually, it refers to their ability to navigate neighborhoods and cities and how quickly and accurately they learn about new environments. (Burte & Montello, 2017). Operationally, it refers to the rider's precise navigation of the area there to deliver the customers' parcels.

Last-Mile Delivery

Conceptually, last-mile delivery/logistics is the last stretch of a business-to-consumer (B2C) parcel delivery service. It takes place from the order penetration point to the final consignee's preferred destination point (Lim et al., 2018). Operationally, it is how the logistics companies move goods from a warehouse or transportation hub to their final delivery destination.

Logistics

Conceptually, it refers to a business function that provides goods and services to customers based on their needs (Shaw, 2022). Operationally, it refers to the organized movement of products and materials, as well as their storage and packaging, on coordinating the flow and storage of goods, services, or data between the point of origin and the point of consumption.

Parcel Condition

Conceptually, it refers to the state of the item ordered by the customer (Szocs et al., 2022). Operationally, this refers to the Packages reaching several depots and going through multiple hands until the driver delivers them to their recipients.

Factors

Conceptually, these variables in the study are believed to influence the results (Franc, 2020). Operationally, this refers to the variables: timeliness, delivery rider's sense of direction, parcel condition, and delivery rider's politeness affecting customer satisfaction with last-mile delivery logistics.

Timeliness

Conceptually, on-time delivery timeliness is the time it takes from when a customer orders a product to when the product is delivered to the customer (Hafizha et al. 2019). Operationally, it refers to the proportion of orders delivered on time compared to the total number of orders. It allows riders to assess how promptly and effectively they adhere to each customer's specified delivery schedule.

REVIEW OF RELATED LITERATURE

This section serves as a comprehensive overview and analysis of the existing research and scholarly works relevant to the study. It explores the evolving landscape of e-commerce, emphasizing the importance of last-mile delivery logistics and customer satisfaction. This section examines key factors of customer satisfaction in the context of last-mile delivery logistics, including the delivery rider's sense of direction, timeliness, the delivery rider's politeness, and parcel condition. The literature review aims to identify gaps, inconsistencies, and potential areas for improvement, contributing to the development of a robust theoretical framework and expanding knowledge in the field of last-mile delivery logistics and customer satisfaction.

Last-Mile Delivery Factors

The last leg of the delivery procedure, is considered a crucial phase where the package is carried from the transport hub to the final receiver, known as the "last mile". In last-mile deliveries, customers can choose to have it delivered to their residences, place of business, or any other venue of their preference. Nowadays, retailers are being forced to focus resources on improving their logistics because of the growing number of powerful competitors offering quick services like on-the-day deliveries to maintain their market share (Araujo, 2021). According to Vrhovac (2023), due to the many aspects involved, such as delivery to various addresses, this stage is sometimes regarded as the most challenging, expensive, and inefficient part of the logistics process. As stated in PwC's Global Consumer Insight Survey (2018), last-mile delivery is an essential element of the total customer experience considering online customers significantly value flexible and quick delivery. The success of last-mile delivery is dependent on several variables, such as the delivery rider's sense of direction, timeliness, delivery rider's politeness, and parcel condition that serve as factors in which delivery service providers can use as a basis to provide their customers with seamless and satisfying delivery experience.

Delivery Rider's Sense of Direction

Delivery Rider's Sense of Direction plays a pivotal role in addressing the challenges faced by industries such as shipping, e-commerce, package delivery, last-mile delivery, and hyper-local delivery, particularly about failed deliveries. Accenture's research on "The Sustainable Last Mile" (2020) found that approximately 5 to 10 percent of last-mile deliveries end up unsuccessful, with each delivery incurring an average cost of $5. The cost of failed retail deliveries in the United States and the United Kingdom has been estimated at around $17 and $14, respectively, as Statista (2020) reported. Moreover, the study titled "Unlocking Value with Location Intelligence" (2020) emphasizes the significant impact of delivery couriers' accuracy based on location in the context of last-mile delivery. As businesses strive to provide compelling reasons for customers to return and make repeat purchases, the accuracy and efficiency of the delivery process are paramount. Implementing location intelligence, which entails the application of mapping and geospatial information along with internal customer data, has proven instrumental in enhancing customer experiences and optimizing operational efficiency across various industries. The adoption of location intelligence programs and the ability to measure value from such initiatives have been found to positively correlate with achieving greater overall value (Archacki et al., 2021). Therefore, emphasizing the role of delivery riders' sense of direction in last-mile delivery can contribute to more successful and efficient delivery outcomes, ultimately improving customer satisfaction and reducing costs associated with failed deliveries.

Timeliness

The delivery sector has grown enormously in the recent decade, aided by the Covid-19 pandemic. Consumers were accustomed to the comfort of staying indoors and receiving a home delivery, and that habit has remained and grown. Standard delivery, 24-hour delivery, next-day delivery, and hyper-local delivery for groceries and pharmaceuticals, the alternatives are limitless and cater to every consumer's preference. According to Zhong et al. (2021), the delivery dimensions reveal an intriguing finding: generally, either speed or timeliness is chosen, and they are considered the same construct even if both are chosen. Only one study (Sorkun, Hüseyinoğlu, and Börühan 2020) covers both the delivery speed and timeliness as measuring items. However, they are grouped under the same construction called delivery efficiency.

On the other hand, the important qualities of speed and timeliness define very different concepts. The delivery speed indicates the time elapsed or lead time between receiving and successfully delivering a customer order. In contrast, delivery timeliness relates to the degree of compliance with the scheduled date for delivery. The role of timeliness in last-mile delivery is becoming increasingly important, with the main goal of delivering better service in the form of time-based delivery (Daugherty et al., 2019).

Delivery Rider's Politeness

In the realm of last-mile delivery logistics, traditional planning approaches that consider driver knowledge and behavior are crucial in shaping overall service quality, operational expenses, and customer satisfaction (Dieter et al., 2023). The logistics sector has witnessed significant transformations driven by the expansion of e-commerce and its impact on the market. The COVID-19 pandemic and evolving consumer behaviors have compelled online retailers and couriers worldwide to swiftly adapt to changing conditions. Muangmee et al. (2021) shed light on the factors influencing customer behavior in the context of last-mile delivery. They identified performance expectancy, attitudes, perceived safety, and timeliness as key determinants. Customers attach great importance to hygiene and the condition of parcels upon receipt. Moreover, the attitudes of delivery riders, such as their politeness and friendliness, directly influence customers' intentions to continue using delivery services. These factors collectively contribute to a delivery application's overall service quality and significantly impact customers' likelihood of recommending the service to others. Information quality and perceived usefulness are critical factors shaping consumers' behavioral intentions about last-mile delivery services. The politeness exhibited by delivery riders not only fosters positive customer experiences but also contributes to building trust and loyalty. By prioritizing polite and friendly interactions with customers, delivery riders can enhance overall satisfaction levels and drive customer recommendations, bolstering last-mile delivery logistics' success.

Parcel Condition

In the study conducted by Lavell (2020), it was found that the parcel's condition significantly contributes to customer dissatisfaction. The variable of "Delivery service" encompassing the manner of order delivery and the parcel's condition was identified as a major dissatisfier. Specifically, the study highlighted that customer expressed dissatisfaction when the condition of their parcels was compromised. This suggests that the parcel's condition is a crucial aspect to consider when assessing customer satisfaction in last-mile delivery logistics. Furthermore, Pothiwan and Yuan (2021) emphasized the importance of acceptable parcel conditions as one of the vital aspects of delivery excellence. The market demands timely and accurate delivery along with parcels that are in acceptable conditions upon receiving. The study also revealed that customer complaint reports indicated reliability issues related to delivery accuracy, timeliness, and parcel condition. These findings indicate that the condition of the parcels upon receipt plays a significant role in shaping customer perceptions and can have an impact on the competitive position of the delivery service provider. By considering these studies, it becomes evident that the parcel's condition is an essential factor in last-mile delivery logistics, as it influences customer satisfaction and is an aspect that customers value when assessing the quality of the delivery service.

Customer Satisfaction and Last-Mile Delivery Factors

Hong et al. (2019) defines customer satisfaction as the evaluation of goods or services based on expected quality, and the perceived quality of the products or services. According to Ghoumrassi et al., (2018), customer satisfaction in modern times involves multiple factors, including not only the product's cost and quality but also the relationship between the logistics service level. Customer satisfaction is central to the last-mile delivery logistics that define the service's effectiveness. As more and more people engage in door-to-door deliveries, the delivery service needs to be constantly improved, as evidenced by the total CSAT score of 82.7% in a 2022 Survey on Customer Satisfaction Towards Courier Services in Johor, Malaysia. Therefore, it is recommended that delivery companies use effective management techniques and increase timeliness, customer service, facilities, and parcel handling to improve customer satisfaction in last-mile deliveries (Norhaidah, 2022). As such, last-mile delivery factors like the delivery rider's sense of direction, timeliness, politeness, and parcel condition can be considered when delivery service providers aim to fulfill the needs and expectations of customers.

Delivery Rider's Sense of Direction

According to (Lai et al., 2020), a qualified last-mile delivery service aims to achieve customer loyalty and satisfaction. The quality of delivery and courier services is very important. Customer satisfaction will rise if the logistics service provider increases the quality of courier service. It may be inferred that participants examine the logistics attributes of the supplier, delivery, courier, order information, quality of items, and location when determining their preference for logistic services, Restuputri et al. (2021). The delivery rider's sense of direction is critical to be able to deliver the parcel to the correct location to save time and boost the efficiency of the delivery process. Customers receive access to information about services through location-based services on their mobile phones (Khan et al., 2018), which allows the delivery rider to pinpoint the customer's location for delivery. According to Dai (2021), to tie the measure to specific riders' sense of direction for customer satisfaction, precise information about the vehicle types utilized on certain routes and route-specific or service type-specific weighted averages of the mean distance.

Timeliness

Timeliness is vital, and the accuracy with which purchased products are delivered will greatly enhance customer satisfaction (Hafizha et al., 2019; Sakti & Mahfudz, 2018). According to Nantigiri et al. (2021), the timeliness indicators specified are the delivery of items that have been supplied according to a predetermined schedule: delivery of items by a predetermined schedule and delivery time precision for items to be sent. Furthermore, timely delivery is critical to customer satisfaction and company performance. Trying to keep existing customers is one approach to conquering the competition because attracting new customers is more costly than retaining existing ones. Customers' rising concern for the timeliness of delivery of the products they purchase and low costs puts pressure on the company to constantly enhance the quality of service and prices supplied to promote customer satisfaction among its consumers (Nainggolan et al., 2022). According to Hua et al. (2018), it is evident that the customer paid more attention to the factor, which was the condition of the products during logistics delivery. This is consistent with prior research indicating that delivery service quality, product condition and timeliness, and courier service significantly impact consumer satisfaction. Customers are increasingly seeking dependable delivery as well as the ability to choose the time and location of delivery (Pham et al., 2019). To meet the needs of customers and retain competition, retailers and logistics service providers (courier services) must focus on offering efficient and quality experience in the last-mile delivery process (Sukowski et al., 2022).

Delivery Rider's Politeness

In today's rapidly evolving service industry, companies continuously strive to optimize service time, cost, and quality in response to technological advancements and changing customer shopping behaviors (Shbool et al., 2022). A comprehensive five-year survey conducted in the UK shed light on the crucial factors for online customers and key themes within the last-mile delivery industry. The findings emphasized that customers value being informed and having clear communication and knowledge regarding their

deliveries. Interestingly, customers were willing to accept extended delivery times if they were notified in advance (Bahadur et al., 2018). These insights are particularly relevant to our research study, suggesting that delivery rider's politeness can serve as a factor and a measure influencing customer satisfaction. The politeness exhibited by delivery riders serves as a representation of delivery reliability, encompassing aspects such as accuracy and intactness. By cultivating an atmosphere of politeness, both the delivery driver and the company they represent enhance their reputation. Customers feel valued and appreciated when riders extend friendly greetings, speak courteously, and use respectful language. How a delivery driver conducts themselves directly influences a customer's perspective, emotional connection, loyalty, and likelihood of recommending business to others. By prioritizing politeness, delivery drivers elevate customer satisfaction and contribute to building a positive reputation for the company (Bahadur et al., 2018). The impact of a delivery rider's politeness on customer satisfaction is profound. It establishes a positive emotional connection and fosters a sense of appreciation among customers. Additionally, the perception of a polite and friendly delivery experience directly influences customer loyalty and willingness to recommend the company to others. By emphasizing the significance of politeness in the delivery process, companies can elevate customer satisfaction levels and cultivate a strong reputation in the last-mile delivery logistics industry.

Parcel Condition

In the study conducted by Libo-on (2021), reliability was identified as a key dimension influencing customer satisfaction in courier services. Reliability was measured by the ability to transport goods meticulously, including the condition of the ordered products and the waiting time for delivery. The study highlighted that ordered packages should not be damaged and must be well packaged, while delivery should be prompt and waiting time should be short. These findings suggest that the condition of the parcel plays a crucial role in ensuring customer satisfaction in the context of last-mile delivery. Further supporting the relationship between parcel condition and customer satisfaction, the study conducted by Lavell (2020) emphasized the variable of "Delivery service," which encompasses the manner of order delivery and the condition of the parcel. The study concluded that this variable is a major dissatisfier, with the perceived condition of the parcel playing a significant role in customer satisfaction. In the study, inadequate conditions of parcels or orders were found to be a major source of customer dissatisfaction. By taking into account these studies, it becomes clear that parcel condition might work as a factor of client satisfaction in logistics for last-mile delivery. The condition of the parcel heavily influences customer perceptions and satisfaction levels, especially its packaging and overall state upon delivery. Ensuring that parcels are delivered in good condition and that customer expectations are met, will help increase customer satisfaction in the last-mile delivery process.

Synthesis

The reviewed literature on last-mile delivery factors provided valuable insights into the significant factors that affect customer satisfaction and overall delivery performance. The research emphasized the role of delivery riders' sense of direction, timeliness, delivery rider's politeness, and parcel condition as factors in the last-mile delivery process. While these factors have been recognized for impacting customer satisfaction, there were also notable gaps in the existing literature.

The literature highlighted the delivery rider's sense of direction as a crucial factor in last-mile delivery. Ensuring accurate navigation and timely delivery to the correct location was essential to avoid failed deliveries and associated costs. However, further research was needed to understand the specific strategies and technologies that can improve delivery riders' sense of direction. Exploring the effectiveness of location-based services and advanced mapping technologies could enhance delivery accuracy and efficiency. Timeliness is also a significant factor affecting customer satisfaction, yet there was a lack of comprehensive understanding of how to effectively improve it in last-mile delivery. Further research should delve into this area, including the distinction between delivery speed and delivery timeliness.

Additionally, the politeness of delivery riders was identified as a factor that significantly influenced customer satisfaction and loyalty. Positive and friendly interactions fostered trust and customer

recommendations. However, the literature offered limited insights into strategies or training programs for improving delivery riders' politeness. Future research could focus on effective communication techniques, customer service training, and technologies that facilitate personalized interactions to enhance delivery riders' politeness and their impact on customer satisfaction. Lastly, the condition of parcels upon delivery was another important factor in customer satisfaction. While the significance of parcel conditions is acknowledged, there was a lack of in-depth investigation into strategies and technologies for maintaining parcel quality throughout the delivery process.

METHODS

This section describes the components of the study that relate to research methodology such as research design, participants, research instrument, data gathering procedure, statistical treatment, and ethical considerations.

Research Design

To achieve the purpose of the study, the researchers used the descriptive method of research in this study. Calderon (2006) defined descriptive research as the process of gathering, analyzing, categorizing, and tabulating data about current conditions, practices, processes, trends, and cause-effect relationships and then making adequate and accurate interpretations about such data with or without, or sometimes with minimal, statistical methods. This study's independent variables are the delivery rider's politeness, the delivery rider's sense of direction, parcel condition, and timeliness. This study's dependent variable is the level of customer satisfaction. Research design is a descriptive method since the researchers intend to determine whether the identified factors affect customer satisfaction.

Participants of the Study

The participants of the study are customers of online shopping platforms, and they must have ordered at least three times. Additionally, they must have experienced having their parcels delivered to them in their desired location, such as their residence or office. Moreover, the participants should have personally interacted with delivery riders when receiving their parcels. Furthermore, the participants must be 18 to 59 years old. Online shoppers who are minors were excluded from participating in the study. Finally, only current residents of Bacolod City, Negros Occidental were selected for this study.

This research applied Purposive Sampling. Purposive sampling is a non-probability sampling strategy in which units are chosen because they possess traits that are required in the sample. In other words, in purposive sampling, units are chosen "on purpose." (Nikolopoulo, 2022). Since the study population is unknown, the researchers utilized the Cochran formula to determine the study's Sample Size. The Cochran formula determines the optimum sample size according to the intended level of precision, confidence level, and expected fraction of a population's characteristic. When research studies involve enormous populations, Cochran's formula is seen to be particularly useful (Glenn, n.d). Using the formula, the ideal sample size can be obtained by using a 95% confidence level, at least 5% precision level, and Z values of 1.96. After calculating the given values with the formula, the sample size of this study is 385 participants.

The Research Instrument

The research instrument for this study was a survey questionnaire consisting of two parts. The researchers carefully designed the questionnaire and based on relevant literature related to last-mile delivery.

The first section of the survey was dedicated to acquiring the demographic profile of the participants, encompassing their age, gender, and average monthly income. The researchers established an age bracket ranging from 18 to 59 years, guided by the 2020 Census data released by the Philippine Statistics Authority. This age threshold was aligned with the country's recognized working-age or economically active population, defined as individuals aged 15 to 59 years old (Philippine Statistics Authority, 2020). Additionally, the delineation of the monthly income range is informed by a survey conducted by Statista in

2022, which reported an average monthly salary of forty-five thousand pesos in the Philippines (Statista Research Department, 2022). These demographic parameters were carefully selected to ensure alignment with authoritative sources and provide a comprehensive view of the study's target population.

The second part of the survey assesses the level of customer satisfaction with the identified last-mile delivery factors. These factors include the delivery rider's sense of direction, timeliness, delivery rider's politeness, and parcel condition. The statements under the Delivery Rider's Sense of Direction category were based on the study called, *"Analyzing Delivery Area/Zone Tagging Techniques Within Fulfillment Centres for Last Mile Delivery Orders"* by Younus et al. (2023), which delved into methods, technology, and factors influencing the delivery rider's sense of direction, ultimately aiming to optimize their navigation and enhance the overall last-mile delivery process. Furthermore, the researchers established the questions under the Timeliness category based on research entitled *"Service quality and timeliness: Empirical evidence on the parcel delivery service in Indonesia"* by Ricardianto, et al. (2023), which investigated the factors that influenced the timeliness of delivery riders in Indonesia. Moreover, the delivery rider's politeness part of the questionnaire was based on the study *"Assessment of Grabfood Delivery Rider's Services and its Effect on Customer Satisfaction"* conducted by Enanoria & Maranga (2022). Lastly, the questions about the Parcel Condition category were derived from a study titled *"Booming of Online Shopping in Malaysia: Do Customers Satisfy with Parcel Delivery Service?"* conducted by Siali et al. (2018), which aimed to examine the various factors that influence parcel conditions in Malaysia.

To ensure the validity of the research instrument, the panel of experts reviewed the questionnaire to ensure that it was aligned with the study objectives, following the criteria for evaluating survey questionnaires established by Good and Scates. This form of validity assessment involved three panels of experts who rated the research instrument based on Good and Scates' eight (8) criteria for validation of research instruments. The experts used a rating scale ranging from 1 to 5, requiring a passing score of 4. This rigorous evaluation process aimed to confirm the questionnaire's appropriateness, relevance, and effectiveness in gathering data that accurately addressed the study's objectives.

For the reliability of the research instrument, the questionnaire underwent a validity testing phase. In this phase, the researchers administered the questionnaire to a separate sample of participants in a different city or location than the research locale. This step aimed to assess the generalizability of the instrument and determine if it yields similar results in a different context. The panelists gave the following validity scores of 4.56, 4.30, and 4.00 for our questionnaire. The findings from this testing provided further evidence of the instrument's validity and its applicability across different settings. Additionally, the Cronbach's alpha coefficient was used as a measure. A Cronbach's alpha value of at least 0.70 is acceptable for establishing reliability. This coefficient indicates the internal consistency of the items within each factor, and by analyzing Cronbach's alpha coefficient, the researchers determined whether the items within each factor reliably measure the same underlying construct. The research statistician ran the reliability test and obtained a Cronbach alpha value of 0.975, proving the research instrument is reliable.

Data Gathering Procedure

This demonstrates how the researchers gathered the necessary data for the study in a step-by-step format.

First, the researchers ensured that the instrument was validated and reliable. Then, the researchers provided a recruitment advertisement poster containing preliminary questions to ensure that potential participants were informed about the study and determined whether they were qualified to participate based on the criteria set by the researchers. In addition, the researchers began by sending out online questionnaires to potential E-Commerce customers through Facebook and Messenger, which could be accessed through a Google survey link. The consent form included information about the research bearings and a request for each participant's permission to complete the survey, informing participants that the research was conducted solely for educational purposes and that all data was kept confidential. If they have all the necessary characteristics, they can proceed with answering the rest of the questionnaire. Furthermore, before gathering data, the ethical panel approved the questionnaire and recruitment advertisement. Following the completion of the survey period, the data was saved in an encrypted spreadsheet, ensuring

that it remained inaccessible to unauthorized individuals for the purpose of security. The received data was totaled and documented in the data treatment, allowing the researchers to draw pertinent conclusions and provide recommendations.

Statistical Treatment

The following statistical treatment was applied to the data collected for this research study:

The first objective, which pertains to the demographic profile of the participants, utilized frequency and percentage, which allowed the researchers to analyze and present the profile of the participants in terms of age, sex, and average monthly income. This approach offered a comprehensive snapshot of the diverse traits within the participant sample.

The second objective focused on measuring the level of customer satisfaction in last-mile delivery based on the identified factors: delivery rider's sense of direction, timeliness, delivery rider's politeness, and parcel condition, which employed the statistical treatment of mean and standard deviation. The survey questionnaire utilized a 4-point Likert scale, ranging from 1 to 4, with corresponding mean range and verbal interpretations as shown in the table below:

TABLE 1
LEVEL OF CUSTOMER SATISFACTION SCALE

Numerical Value	Mean Range	Verbal Interpretation
4	3.50 – 4.00	Very Satisfied
3	2.50 – 3.49	Satisfied
2	1.50 – 2.49	Unsatisfied
1	1.00 – 1.49	Very Unsatisfied

Based on, Syarif, A. F. (2019). The Measurement of Customer Satisfaction Index with Method of Importance-Performance and Gap Analysis. Global Review of Islamic Economics and Business (Ed. Online).

The third objective aims to determine the significant factor of customer satisfaction in last-mile delivery among the identified variables. The researchers used mean and standard deviation as the statistical treatment for this objective. The mean scores helped establish which factors of interest, specifically the delivery rider's sense of direction, timeliness, politeness, and parcel condition, are the significant factors influencing customer satisfaction in last-mile delivery logistics.

Regarding the fourth objective, which investigated potential differences in customer satisfaction based on demographic variables, the appropriate statistical treatment was used depending on the nature of the data. The data did not meet the assumptions of parametric tests, therefore, non-parametric alternatives such as Mann-Whitney U test for two groups and Kruskal-Wallis H test for three or more groups were used to evaluate the differences.

Finally, the fifth objective aimed to recommend programs for enhancing the identified significant last-mile delivery factor. This objective did not require specific statistical treatment, as it focused on generating practical recommendations based on the findings and analysis of the previous objectives. The researchers have concluded the data and literature review to propose relevant programs and strategies that can improve the identified factor and enhance overall last-mile delivery performance.

Ethical Considerations

The study completed a research ethics review that the Research Ethics Review College Panel conducted to secure ethics clearance before moving forward with the data collection process. To ensure that the study

is ethical, the researchers have considered ethical factors that included consent, risks, privacy, confidentiality, health, and safety of the participants.

Before the participants answered the survey questionnaire, an informed consent form was given, in which all relevant information, including the goals, advantages, and potential risks associated with the research being done were provided. Mitigating potential risks including discomfort, emotional stress, and breach of privacy and confidentiality, was the utmost priority of the researchers. In line with this, statements on assurance about confidentiality were present in the document. To establish consent, the participants checked the box stating they agreed to participate in the study. The researchers guaranteed the anonymity of the participants in the study. The name of the participant was optional, but the age, sex, and average monthly income were identified as it is part of the research problem. In addition, the names of the participants were removed and substituted with codes to conceal their identities.

With utmost priority for the privacy of the respondents and to maintain the integrity of both the researchers and their participants, confidentiality was implemented first-hand when gathering data. Confidentiality is the idea and practice of keeping information that is sensitively hidden unless the person who has ownership or custody of the data expressly agrees to share it with another party (Krosel et al., 2022). The researchers ensured that all data gathered from the survey questionnaires were solely utilized for research purposes only. Hence, the results of the Google survey forms were only accessed by the researchers alone through a restricted link. No private information provided by the participants during the survey process was undisclosed.

The data-gathering process was done online to protect the health and ensure the participants' safety. The participants have the option to withdraw from the data gathering if they feel any discomfort at any stage of the process. According to Bhandari (2018), anyone who participates is at liberty to discontinue their participation in the study whenever they choose, and they are under no obligation to continue doing so. Furthermore, the participants have the option to skip items that may make them feel uncomfortable or can cause distressing recollections. Thus, voluntary participation was observed throughout the survey process. In addition, the participants were given the choice to receive a copy of their responses through their email address at the end of the survey.

RESULTS AND DISCUSSION

This section comprises the findings as well as the interpretations of the findings of the study, based on the gathered data by the researchers. The analysis and interpretation were supported using relevant statistical tools based on the study's objectives.

Profile of Participants

Table 2 shows the ages of the participants in the study. Based on the results, out of 385 individuals who answered the survey, around 34% of the participants were ages 18-23 and only 7% came from ages 54-59. The results may imply that people who are likely to engage in online shopping are aged 18-23 and those belonging to the 54-59 age bracket may have less engagement in online shopping platforms. The findings can be corroborated with research conducted by Bernardo, et al., (2019), entitled *"Who are the Philippines' Online Shoppers?"*, which revealed that most Filipinos who purchase online range in age from 18 to 31 years old.

Moving on, Table 2 presents the sex of the participants. The survey results show that more than 50% of the participants are females and approximately 47% are males. This may suggest that compared to males, females are more inclined to shop online. The findings show similarities with a study conducted by Prani Sastiono (2019), wherein the results demonstrate notable differences in online shopping frequency between males and females. It was revealed that females exhibit a higher frequency of online shopping compared to males. This disparity can be attributed to females being particularly driven by the practicality and convenience associated with online purchases.

Furthermore, shown in Table 2 is the average monthly income of the participants. As seen in the results below, more than 30% of the participants are earning a monthly income of less than 10,000 pesos, while

only 10% have an average monthly income of 20,001 - 30,000 pesos. The findings indicate that individuals receiving less than 10,000 pesos may have higher engagement in online shopping than those earning from 20,001 to 30,000 pesos. The results support the findings of a research conducted by Mishra (2018), entitled *"Motivator of Online Shopping: The Income Factor"*. The study has shown that individuals belonging to the low-income level spent the most percentage of their money on online purchases than other income levels, implying that there is a nonlinear relationship between income levels and online expenditure. Therefore, it can be deduced that a person's income may not directly determine their online shopping habits.

TABLE 2
PROFILE OF THE PARTICIPANTS

Variable	Category	f	%
Age	18-23	133	34.50
	24-29	60	15.60
	36-41	54	14.00
	30-35	45	11.70
	42-47	36	9.40
	48-53	30	7.80
	54-59	27	7.00
Sex	Female	201	52.20
	Male	184	47.80
Average Monthly Income	Less than 10,000 pesos	132	34.30
	10,001 – 20,000 pesos	51	13.20
	20,001 – 30,000 pesos	39	10.10
	30,001 – 40,000 pesos	55	14.30
	40,001 – 50,000 pesos	51	13.20
	More than 50,001 pesos	57	14.80

Level of Customer Satisfaction of Last-Mile Delivery Factors

Table 3 depicts the Level of Customer Satisfaction of the four last-mile delivery factors. Using the level of customer satisfaction scale, the mean scores reveal that participants of the study are satisfied with all of the factors. Among the four last-mile delivery factors, the Delivery Rider's Sense of Direction has the highest mean (mean = 3.39, sd ± 0.616), followed by Parcel Condition (mean = 3.36, sd ± 0.644), and Delivery Rider's Politeness (mean = 3.36, sd ± 0.634). Timeliness received the lowest means (mean = 3.09, sd ± 0.612) as shown in the results below. The standard deviations of the four factors are homogenous and the values show low variation, demonstrating that the data distribution is closely centered around the means. The findings demonstrate that the delivery rider's sense of direction has the highest level of customer satisfaction. Therefore, this may imply that the delivery rider's sense of direction is more likely to affect customers' satisfaction in last-mile delivery.

In contrast, timeliness has the lowest level of customer satisfaction. This can suggest that there may be a deficiency in terms of the timeliness of delivery riders. The findings display similarities with the results of a study conducted by Hui et al. (2023), which shows that the respondents were satisfied with factors that affect customer satisfaction, especially with the courier service's consistent and accurate delivery of packages to the designated shipping addresses earning the highest level of customer satisfaction.

TABLE 3
LEVEL OF CUSTOMER SATISFACTION ON LAST-MILE DELIVERY FACTORS

Factor	Mean	SD	Interpretation
Delivery Rider's Sense of Direction	3.39	0.616	Satisfied
Parcel Condition	3.36	0.644	Satisfied
Delivery Rider's Politeness	3.36	0.634	Satisfied
Timeliness	3.09	0.612	Satisfied

Level of Customer Satisfaction Scale: Mean Range 3.50 – 4.00 (Very Satisfied), 2.50 – 3.49 (Satisfied), 1.50 – 2.49 (Unsatisfied), 1.00 – 1.49 (Very Unsatisfied).

Delivery Rider's Sense of Direction

As shown in Table 4, all statements under the delivery rider's sense of direction have been interpreted as "Satisfied". Specifically, the statement that earned the highest mean (mean = 3.45, sd ± 0.706) is *"The delivery rider has demonstrated knowledge of the local area."*, succeeded by *"The delivery rider has followed the given instructions for the delivery address"* (mean = 3.43, sd ± 0.778) and *"The delivery rider has accurately navigated to my specified location"* (mean = 3.42, sd ± 0.710). The lowest mean belongs to the statement, *"The delivery rider has easily found my address without any confusion."* (mean = 3.28, sd ± 0.826). The standard deviations of the four statements suggest minimal variability in their values, indicating that the data is less spread out and near the means. The results may imply that delivery riders have sufficient knowledge on the local area where they were assigned to deliver, yet they may be experiencing confusion on locating customers' addresses. This observation aligns with Fadilah et al.'s (2018) findings, where reliability emerged as the second most significant predictor of customer satisfaction in the context of parcel delivery services. In this research, reliability can be construed as the time taken to deliver a parcel and the accuracy in reaching the correct destination. Thus, while the delivery riders display competence in navigating the designated local area, challenges may arise in the precise location of customers' addresses, indicating a need for enhanced address location strategies in the last-mile delivery process.

TABLE 4
DELIVERY RIDER'S SENSE OF DIRECTION

Statements	Mean	SD	Interpretation
The delivery rider has demonstrated knowledge of the local area.	3.45	0.706	Satisfied
The delivery rider has followed the instructions given for the delivery address.	3.43	0.778	Satisfied
The delivery rider has accurately navigated to my specified location.	3.42	0.710	Satisfied
The delivery rider easily found my address without any confusion.	3.28	0.826	Satisfied

Level of Customer Satisfaction Scale: Mean Range 3.50 – 4.00 (Very Satisfied), 2.50 – 3.49 (Satisfied), 1.50 – 2.49 (Unsatisfied), 1.00 – 1.49 (Very Unsatisfied).

Timeliness

Based on the survey results, Table 5 illustrates that the study participants were satisfied with the four statements under Timeliness. The particular statement that got the highest mean is *"The delivery has arrived on the same day I received the text message that my parcel was out for delivery"* (mean = 3.27, sd ± 0.799), following closely behind is the statement *"The delivery has been made within the specified timeframe as*

indicated on the online shopping platform" (mean = 3.08, sd ± 0.802), and *"The delivery has been scheduled at a time convenient for me, taking into consideration my preferences and availability."* (mean = 3.03, sd ± 0.830). The statement that earned the lowest mean is *"The delivery has been prompt, without any significant delays"* (mean = 2.97, sd ± 0.777). The data exhibits a low level of variability, as indicated by the standard deviations. This result may suggest that while participants might have promptly been informed about the delivery status of their packages, they might not have received their orders right away due to delays. The findings show similarities with the results of a study conducted by Ricardianto et al. (2023) entitled Service quality and timeliness: Empirical evidence on the parcel delivery service in Indonesia, in which Timeliness has a positive and significant impact on customer satisfaction.

TABLE 5
TIMELINESS

Statements	Mean	SD	Interpretation
The delivery has arrived on the same day I received the text message that my parcel was out for delivery.	3.27	0.799	Satisfied
The delivery has been made within the specified timeframe as indicated on the online shopping platform.	3.08	0.802	Satisfied
The delivery has been scheduled at a time convenient for me, taking into consideration my preferences and availability.	3.03	0.830	Satisfied
The delivery has been prompt, without any significant delays.	2.97	0.777	Satisfied

Level of Customer Satisfaction Scale: Mean Range 3.50 – 4.00 (Very Satisfied), 2.50 – 3.49 (Satisfied), 1.50 – 2.49 (Unsatisfied), 1.00 – 1.49 (Very Unsatisfied).

Delivery Rider's Politeness

Table 6 illustrates that study participants are satisfied with the statements composing the delivery rider's politeness. The statement that got the highest mean (mean = 3.40, sd ± 0.765) is *"The delivery rider has displayed a friendly and courteous attitude."*, succeeded by *"The delivery rider has maintained a professional manner throughout the delivery process"* (mean = 3.37, sd ± 0.764), and *"The delivery rider has communicated with me respectfully and politely"* (mean = 3.36, sd ± 0.744). The last statement, *"The delivery rider has greeted me politely upon delivery"* has the lowest mean (mean = 3.32, sd ± 0.771). The standard deviations of the four statements are almost equal and the values attest that the data is tightly clustered around the mean, indicating a low variability. The results may imply that delivery riders had shown desirable demeanors to the participants in general, although there may be instances that some did not politely communicate to customers. These results correlate with the findings of Uzir et al. (2021), emphasizing that delivery personnel's behavior, communication ability, and caring attitude may significantly influence recipients' perceptions of the service. The study suggests the importance of delivery personnel showing patience and attentiveness, particularly in addressing delays, which might positively influence customers' perceptions. In the research context, the observed emphasis on delivery rider politeness may underscore its crucial role in shaping overall customer satisfaction. Therefore, fostering and maintaining a consistently polite demeanor among delivery riders should be considered a priority as an integral aspect of last-mile delivery services.

TABLE 6
DELIVERY RIDER'S POLITENESS

Statements	Mean	SD	Interpretation
The delivery rider has displayed a friendly and courteous attitude.	3.40	0.765	Satisfied
The delivery rider has maintained a professional manner throughout the delivery process.	3.37	0.764	Satisfied
The delivery rider has communicated with me respectfully and politely.	3.36	0.744	Satisfied
The delivery rider greeted me politely upon delivery.	3.32	0.771	Satisfied

Level of Customer Satisfaction Scale: Mean Range 3.50 – 4.00 (Very Satisfied), 2.50 – 3.49 (Satisfied), 1.50 – 2.49 (Unsatisfied), 1.00 – 1.49 (Very Unsatisfied).

Parcel Condition

Table 7 shows that the statement that got the highest mean (mean = 3.41, sd ± 0.755) is *"The packaging of the parcel, supplied by the third-party delivery and logistics provider, has effectively safeguarded the contents and ensured their protection during transit."*. The second highest mean belongs to the statement, *"The parcel has arrived in excellent condition, without any damage"* (mean = 3.40, sd ± 0.743). It is followed by *"The contents of the parcel have been received in their original condition, without any signs of damage or tampering upon delivery"* (mean = 3.34, sd ± 0.736). Contrastingly, *"The parcel has been well-packaged and protected during transportation"*, received the lowest mean (mean = 3.30, sd ± 0.809). As observed, the standard deviations show a low level of variation, suggesting that the data is less dispersed and more consistent with the mean. The results may imply that the packaging provided by the logistics company was able to protect the contents of customers' parcels. Yet, there may be a lack of further protection during transportation. The results stated above are supported by the findings of a study titled "Customer Satisfaction on Parcel Delivery Company," conducted by Farzana et al. (2023), which revealed that the parcel condition affects customer satisfaction, and the descriptive analysis indicated that respondents are satisfied with the safety and condition of the parcel.

TABLE 7
PARCEL CONDITION

Statements	Mean	SD	Interpretation
The packaging of the parcel, supplied by the third-party delivery and logistics provider, has effectively safeguarded the contents and ensured their protection during transit.	3.41	0.755	Satisfied
The parcel has arrived in excellent condition, without any damage.	3.40	0.743	Satisfied

Statements	Mean	SD	Interpretation
The contents of the parcel have been received in their original condition, without any signs of damage or tampering upon delivery.	3.34	0.736	Satisfied
The parcel has been well-packaged and protected during transportation	3.30	0.809	Satisfied

Level of Customer Satisfaction Scale: Mean Range 3.50 – 4.00 (Very Satisfied), 2.50 – 3.49 (Satisfied), 1.50 – 2.49 (Unsatisfied), 1.00 – 1.49 (Very Unsatisfied).

Difference in the Level of Customer Satisfaction According to Age

In determining the difference in the level of customer satisfaction of the four last-mile delivery factors when participants are grouped according to age, the Kruskal-Wallis H Test of Difference was used since the parametric assumptions were not met as revealed in the test of normality, Shapiro Wilk ($p < 0.001$). Table 8 indicates that there is a significant difference in the Level of Customer Satisfaction in terms of Timeliness ($p < 0.001$) and Politeness ($p < 0.001$) when the participants are grouped according to Age. Furthermore, the Dwass-Steel-Critchlow-Fligner pairwise comparison test revealed that the following ages showed significant differences in terms of timeliness: 18-23 and 30-35 ($p < 0.001$), 24-29 and 30-35 ($p < 0.001$), 30-35 and 42-47 ($p < 0.001$), 30-35 and 48-53 ($p < 0.001$), 30-35 and 54-59 ($p = 0.005$) (See Appendix 3, Table 3.1). Moreover, the findings also show that the following ages showed significant differences in the level of customer satisfaction in terms of politeness in terms of politeness: 18-23 and 24-29 ($p < 0.001$), 24-29 and 30-35 ($p < 0.001$), 24-29 and 36-41 ($p = 0.002$), 24-39 and 48-53 ($p = 0.013$) (See Appendix 3, Table 3.2). The data suggests that customer satisfaction with timeliness and delivery rider's politeness may differ by age group. The findings can be corroborated by the result of a study conducted by Selwitz (2023), entitled *"Last Mile Delivery: The Impact on Customer Satisfaction and The Future Of Logistics"*. It indicated that the behavior of delivery riders, which included politeness as an element, can significantly affect customer satisfaction. Furthermore, it was discovered that customer satisfaction across all age groups directly correlates with delivery riders' behavior.

TABLE 8
KRUSKAL-WALLIS H TEST OF DIFFERENCE IN THE LEVEL OF CUSTOMER SATISFACTION WHEN THEY ARE GROUPED ACCORDING TO AGE

Factor	H	p
Delivery Rider's Politeness	42.49	<.001
Timeliness	35.99	<.001
Parcel Condition	12.54	0.051
Delivery Rider's Sense of Direction	1.17	0.978

Difference in the Level of Customer Satisfaction According to Sex

Mann-Whitney U Test of Difference was utilized since the parametric assumptions were not fulfilled as shown in the normality test, Shapiro Wilk ($p < 0.001$), in testing the difference in the level of customer satisfaction of last-mile delivery factors when participants are grouped according to sex. Table 9 presents that there is a significant difference in the Level of Customer Satisfaction in terms of Politeness ($p = 0.035$), when the participants are grouped according to Sex. The finding implies that males and females may have varying preferences when it comes to the politeness of delivery riders. The findings above show similarities with the results of a study by Manyanga et al., (2022), entitled *"The Effect of Customer Experience, Customer Satisfaction and Word of Mouth: The Moderating Role of Consumer Demographics"*. Their study

revealed that demographic variables, like gender, indicate that there is a significant difference in how men and women perceive the politeness of delivery service personnel. Furthermore, their results show that there is a relationship between customer satisfaction and how delivery riders engage with customers when participants are grouped according to gender.

TABLE 9
MANN-WHITNEY U TEST OF DIFFERENCE IN THE LEVEL OF CUSTOMER SATISFACTION WHEN THEY ARE GROUPED ACCORDING TO SEX

Factor	U	p
Delivery Rider's Sense of Direction	18423	0.949
Parcel Condition	18422	0.948
Timeliness	17654	0.438
Delivery Rider's Politeness	16254	0.035

Difference in the Level of Customer Satisfaction according to Average Monthly Income

To determine if there are any differences in customer satisfaction levels among the average monthly income brackets with regards to the four last-mile delivery factors, the Kruskal-Wallis H Test of Difference was employed since parametric assumptions were not met, as indicated by the test of normality, specifically the Shapiro-Wilk test ($p < 0.001$). Table 10 shows a significant difference in the Level of Customer Satisfaction in terms of Parcel Condition ($p = 0.037$) and Delivery Rider's Politeness ($p = 0.002$), when the participants are grouped according to average monthly income. Furthermore, the Dwass-Steel-Critchlow-Fligner pairwise comparison test revealed that there is a difference ($p = 0.042$) in the level of customer satisfaction between participants who are receiving 40,001 - 50,000 pesos and less than 10,000 pesos when it comes to Parcel Condition (See Appendix 3, Table 3.6). Regarding Delivery Rider's Politeness, Moreover, there is also a significant difference ($p = 0.021$) between those earning less than 10,000 pesos and 30,001 - 40,000 pesos (See Appendix 3, Table 3.7). These results suggest that the level of customer satisfaction may vary according to average monthly income. The findings contradict the results of research conducted by Daud (2019) on service quality dimensions and their effect on customer satisfaction, which revealed that there are no significant differences in satisfaction across different income brackets.

TABLE 10
KRUSKAL-WALLIS H TEST OF DIFFERENCE IN THE LEVEL OF CUSTOMER SATISFACTION WHEN THEY ARE GROUPED ACCORDING TO AVERAGE MONTHLY INCOME

Factor	H	p
Delivery Rider's Politeness	22.24	0.002
Parcel Condition	14.94	0.037
Delivery Rider's Sense of Direction	9.71	0.205
Timeliness	4.83	0.681

CONCLUSION AND RECOMMENDATION

This section will delve into the conclusions drawn by the researchers based on the findings, aiming to provide insightful generalizations and valuable recommendations.

Conclusion

This study aimed to determine the factors affecting customer satisfaction with last-mile delivery logistics. Specifically, it tackles four factors: Delivery Rider's Sense of Direction, Parcel Condition, Delivery Rider's Politeness, and Timeliness. The level of customer satisfaction for each sector was analyzed, and the findings have highlighted the crucial role of last-mile delivery factors in influencing satisfaction levels. Each factor was found to be of utmost importance in improving customer experience in the last-mile delivery phase.

The participants expressed satisfaction with all four factors, as revealed by the means and level of customer satisfaction scale. Among these factors, the delivery riders' sense of direction had the highest level of customer satisfaction, while timeliness was the lowest. This highlights the value of an accurate sense of direction for delivery riders, as it significantly affects customer satisfaction. Specifically, the findings indicate significant satisfaction regarding the driver's familiarity with the local area. However, there appears to be some confusion regarding locating the exact addresses of customers. This insight reveals that while drivers may generally excel in navigating the local area, there is room for improvement in enhancing accurate navigation and following customer instructions in locating specific delivery addresses. Addressing this factor further elevates overall customer satisfaction in the context of driver navigation and contributes to an enhanced delivery experience.

Consequently, timeliness, having the lowest level of customer satisfaction, indicates that there is a need for improvements in guaranteeing prompt deliveries without significant delays. It highlights the importance of seeking ways to maximize efficiency and lessen potential bottlenecks that may cause delays in performing deliveries. Improving timeliness should be given priority as it affects customer satisfaction. Furthermore, the results revealed that there are differences in the satisfaction levels when participants are grouped according to age, sex, and average monthly income. Hence, it is suitable for last-mile delivery companies to consider the factors and the demographic variables when aiming to improve customer satisfaction.

Recommendation

To optimize customer satisfaction in last-mile delivery logistics, logistics companies should strategically prioritize key factors, including the Delivery Rider's Sense of Direction, Parcel Condition, Politeness, and Timeliness. The Delivery Rider's Sense of Direction emerges as a critical element. The research emphasizes the importance of continuous investment in improving navigation skills among delivery riders. Accurate navigation ensures timely deliveries and reduces the likelihood of errors, contributing significantly to overall customer satisfaction. By prioritizing the refinement of Delivery Riders' Sense of Direction and Timeliness, along with the other identified factors, logistics companies can establish a robust foundation for delivering exceptional customer experiences. This strategic focus is pivotal for enhancing its reputation and maintaining a competitive edge in last-mile delivery's dynamic and fast-paced world. The proposed practical programs, derived directly from the study's results, are designed to address specific factors and elevate customer satisfaction in alignment with the study's findings. The importance of the Delivery Rider's Sense of Direction, as the highest-rated factor, underscores its potential to profoundly impact overall customer satisfaction and guides the strategic implementation of these enhancement programs.

Delivery Rider's Sense of Direction Enhancement Program

The *"Delivery Rider's Sense of Direction Enhancement Program"* aims to address the findings from the study indicating that while customers generally express satisfaction with the delivery rider's sense of direction, there is a potential challenge in locating specific addresses. To address this, the proposed program suggests regular training sessions focused on enhancing delivery riders' familiarity with local areas and optimizing route planning. By providing targeted training, delivery riders can refine their navigational skills and overcome challenges associated with confusion in locating customers' addresses. Additionally, the introduction of navigation tools and technologies is recommended to further assist delivery riders in efficient and accurate navigation. These tools can act as aids, ensuring precise delivery locations. Moreover,

establishing a feedback mechanism where customers can share insights into delivery routes serves as a valuable source of continuous improvement. Also, regular meetings or forums can be organized where delivery riders can share their experiences, exchange tips, and learn from each other's successes and challenges. These methods allow companies to identify specific areas of concern and refine training programs, fostering a more effective and customer-centric last-mile delivery service.

Parcel Condition Improvement Initiative

The *"Parcel Condition Improvement Initiative"* responds to the outcomes revealed in Table 7 of the study. The results indicate a spectrum of satisfaction regarding the condition of parcels during the last-mile delivery process. It suggests that the packaging, as provided by the logistics company, has generally succeeded in safeguarding the contents during transit, but there may be room for improvement in ensuring further protection during the transportation phase.

To mitigate the problem, the suggested initiative recommends enhancing packaging standards through training for personnel responsible for handling parcels. This training should emphasize the importance of careful and secure packaging to minimize the risk of damage during transit. Additionally, introducing real-time monitoring systems is suggested to track and report the condition of parcels throughout the delivery process, allowing for proactive measures if any issues arise. Furthermore, implementing a quality control process at various touch points ensures that parcels are consistently handled with care, improving the condition and protection of parcels during the last-mile delivery journey.

Delivery Rider's Politeness Training Program

The proposed *"Delivery Rider's Politeness Training Program'* addresses the results presented in Table 6, which reveal varying levels of satisfaction among participants regarding the politeness of delivery riders. It indicates that while there was general satisfaction with the politeness displayed, there were instances where participants felt the delivery rider's greeting could have been more polite.

To alleviate this issue, the researchers advocate for developing a comprehensive training program focused on customer service and interpersonal skills tailored for delivery riders. This training ensures that delivery riders consistently exhibit friendly and courteous attitudes, contributing to positive customer experiences. Moreover, implementing a customer feedback system is recommended to assess and reward instances of exemplary politeness and positive interactions. This real-time feedback mechanism allows for continuous improvement and acknowledgment of delivery riders who consistently display desired behaviors. Additionally, fostering a culture of respect and courtesy within the organization through regular communication and recognition programs supports the goal of enhancing delivery riders' politeness.

Timeliness Optimization Strategy

The *"Timeliness Optimization Strategy"* program is intended to tackle the observations shown in Table 5, which show that satisfaction levels with delivery timelines vary. The results show that participants generally experienced timely notifications aligning with the expected delivery day. However, there were instances of delays in the actual delivery of orders.

To remedy this, the *"Timeliness Optimization Strategy"* focuses on establishing a performance monitoring system to track delivery timelines and identify areas for improvement. This real-time monitoring mechanism allows companies to proactively address delays and enhance overall delivery efficiency. Moreover, investment in route optimization software and technology can help streamline delivery routes and reduce delivery times. By leveraging these tools, last-mile delivery logistics companies can enhance the efficiency of their delivery operations, ensuring a more punctual delivery process. Furthermore, implementing incentives and rewards for timely deliveries is proposed to motivate delivery riders and instill a culture of punctuality. These measures collectively contribute to an optimized timeliness strategy, aligning delivery operations more closely with customer expectations and ultimately bolstering customer satisfaction.

In conclusion, the recommendations derived from this study aim to enhance the last-mile delivery logistics experience, acknowledging the critical role it plays in shaping customer satisfaction. The tailored

programs proposed for Delivery Rider's Sense of Direction, Parcel Condition Improvement, Delivery Rider's Politeness, and Timeliness optimization offer targeted strategies to address specific findings revealed in the study. These recommendations draw upon insights obtained from participant responses, ensuring that the proposed interventions align with the identified areas for improvement. Although the study results indicate overall satisfaction, implementing these recommended programs may help logistics companies move from satisfied to very satisfied, focusing on all stakeholders such as delivery riders, customers, online shops, and more. By doing so, last-mile delivery logistics companies can foster a customer-centric culture, elevate service quality, and ultimately contribute to heightened customer satisfaction. These recommendations respond to the unique challenges uncovered in the study and serve as a foundation for continuous improvement and innovation within the dynamic landscape of last-mile delivery logistics.

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APPENDIX 1: INFORMED CONSENT FORM

University of St. La Salle
Yu An Log College of Business and Accountancy
Bacolod City

Dear each participant,

Greetings. This study entitled "**FACTORS AFFECTING CUSTOMER SATISFACTION OF LAST-MILE DELIVERY LOGISTICS**" is aimed at determining valuable insights from individuals like you.

Kindly read the details for the study enumerated below so that you can ask questions, should there be any.

The Researchers

Purpose of the study

This study intends to find out the significant factor among the last-mile delivery factors identified that affect customer satisfaction in Bacolod City, Negros Occidental.

Participant Selection

You have been invited to participate because you are a customer of online shopping platforms and you have ordered at least three times. Additionally, you have experienced having your parcels delivered to you in your desired location, such as your residence or office. Moreover, you have personally interacted with delivery riders when receiving your parcels. Finally, you are a current resident of Bacolod City, Negros Occidental.

Funder/Sponsor

This study is part of the requirements of our Business Research course as students who are currently taking up Bachelor of Science in Business Administration, Major in Operations Management in University of St. La Salle, Bacolod City.

Benefits of the Study

While this research does not give you any direct benefit, your participation in this study will be specifically insightful in determining the significant factor affecting customer satisfaction in last-mile delivery logistics in order for the researchers to provide insightful recommendations to logistics companies in improving their last-mile delivery services.

Duration

Answering both open-ended questions and fixed alternatives in the survey questionnaire through Google Form may take 10 – 15 minutes of your time.

Risks of the Study

You may have to share some personal information that makes you feel uncomfortable. Should this happen, know that you may not have to answer or take part in this survey, especially if you feel that the questions are too personal. Please let us know of any unintended harm so that we can ask for the assistance of an expert in this field.

Confidentiality, Privacy and Anonymity

The anonymity, privacy, confidentiality, and will be ensured in the collection, storage and publication of this research material.

Identifiers about you (such as your email/s, names, FB/Messenger accounts) and the information that you will share are removed from the database during the data processing phase. In addition to this, only the researchers and data encoders who will process the data are given access to the information you have provided. The data generated will be kept secured in paper or electronic form for a period of two years after the completion of the study.

Voluntary Participation

As participation is entirely voluntary on your part, you may or may not take part in this study. Should you decide not to participate, please know that nothing changes in any or all of your student-related evaluations. If you withdraw at any time, you may do so. Should you decide to participate, click on the "Yes" button on the consent certificate following the information sheet.

Who to Contact

If you have any concerns about your rights or treatment as research participants, you may contact the Research Ethics Review Office Director, Mr. Dante Gustilo, through any of the following contact details: d.gustilo@usls.edu.ph, telephone number (034) 435-2595 or local 137;

If you have any questions please contact the researchers and research adviser below:

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CONSENT CERTIFICATE
FACTORS AFFECTING CUSTOMER SATISFACTION OF LAST-MILE DELIVERY LOGISTICS

____ I confirm that the study was fully explained to me; also, I have read and understood the information sheet for the above study and I have had the opportunity to ask questions.

____ I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.

____ I agree to take part in the above study.

_____
Name and Signature of the Participant

_____
Name and Signature of the Impartial Witness

APPENDIX 2 : SURVEY QUESTIONNAIRE

I. Profile of the Participant

Please check the appropriate boxes that best represent your profile. This information will be kept confidential and will only be used for research purposes.

1. **Are you a current resident of Bacolod City, Negros Occidental?**
   ☐ Yes ☐ No
2. **Are you 18 to 59 years old?**
   ☐ Yes ☐ No
3. **Are you a customer of online shopping platforms?**
   ☐ Yes ☐ No
4. **Have you ordered from online shopping platforms at least three times?**
   ☐ Yes ☐ No
5. **Have you experienced having your parcels delivered at your desired location?**
   ☐ Yes ☐ No
6. **Have you personally interacted with delivery riders when receiving your parcels?**
   ☐ Yes ☐ No

Note: If you have checked at least one "No" in the questions above, do not proceed in answering the rest of the questionnaire. If you have checked all "Yes", you may proceed in answering the remaining items of the questionnaire.

7. **Age**

☐ 18 – 23	☐ 36 – 41	☐ 48 – 53
☐ 24 – 29	☐ 42 – 47	☐ 54 – 59
☐ 30 – 35		

8. **What is your approximate Average Monthly Income?**

☐ Less than 10,000 pesos	☐ 30,001 - 40,000 pesos
☐ 10,001 - 20,000 pesos	☐ 40,001 - 50,000 pesos
☐ 20,001 - 30,000 pesos	☐ More than 50,000 pesos

II. Last-Mile Delivery Survey Questions

General Instructions:

This questionnaire consists of statements related to different aspects of the last-mile delivery process. Please read each statement carefully and indicate your level of satisfaction using the provided 4-point Likert scale. Check the response option that best represents your experience of the specific aspect mentioned in each statement. There are no right or wrong answers; we are interested in your honest opinion.

4 - Very Satisfied: If you were highly satisfied with the specified aspect.
3 - Satisfied: If you were satisfied with the specified aspect.
2 - Unsatisfied: If you were not satisfied with the specified aspect.
1 - Very Unsatisfied: If you were highly unsatisfied with the specified aspect.

Statements	**1**	**2**	**3**	**4**
Delivery Rider's Sense of Direction:				
a. The delivery rider has accurately navigated to my specified location.				
b. The delivery rider has followed the given instructions for the delivery address.				
c. The delivery rider has demonstrated knowledge of the local area.				
d. The delivery rider has easily found my address without any confusion.				
Timeliness:				
a. The delivery has been made within the specified timeframe as indicated on the online shopping platform.				
b. The delivery has been prompt, without any significant delays.				
c. The delivery has arrived on the same day I received the text message that my parcel was out for delivery.				
d. The delivery has been scheduled at a time convenient for me, taking into consideration my preferences and availability.				
Delivery Rider's Politeness:				
a. The delivery rider has displayed a friendly and courteous attitude.				
b. The delivery rider has greeted me politely upon delivery.				
c. The delivery rider has maintained a professional manner throughout the delivery process.				
d. The delivery rider has communicated with me in a respectful and polite manner.				
Parcel Condition:				
a. The parcel has arrived in excellent condition, without any damage.				
b. The parcel has been well-packaged and protected during transportation.				
c. The contents of the parcel have been received in their original condition, without any signs of damage or tampering upon delivery.				
d. The packaging of the parcel, supplied by the third-party delivery and logistics provider, has effectively safeguarded the contents and ensured their protection during transit.				

APPENDIX 3: RESULTS

TABLE 3.1
DWASS-STEEL-CRITCHLOW-FLIGNER PAIRWISE COMPARISON IN THE LEVEL OF CUSTOMER SATISFACTION WHEN THEY ARE GROUPED ACCORDING TO AGE IN TERMS OF TIMELINESS

Age		W	p
18 – 23	24 – 29	-0.187	1.000
18 – 23	30 – 35	5.809	<.001
18 – 23	36 – 41	0.668	0.999
18 – 23	42 – 47	-2.948	0.362
18 – 23	48 – 53	-0.550	1.000
18 – 23	54 – 59	-1.256	0.974
24 – 29	30 – 35	6.564	<.001
24 – 29	36 – 41	1.001	0.992
24 – 29	42 – 47	-3.516	0.164
24 – 29	48 – 53	-0.305	1.000
24 – 29	54 – 59	-1.353	0.963
30 – 35	36 – 41	-4.537	0.023
30 – 35	42 – 47	-8.398	<.001
30 – 35	48 – 53	-5.925	<.001
30 – 35	54 – 59	-5.166	0.005
36 – 41	42 – 47	-3.656	0.131
36 – 41	48 – 53	-1.137	0.985
36 – 41	54 – 59	-1.672	0.901
42 – 47	48 – 53	2.541	0.550
42 – 47	54 – 59	0.452	1.000
48 – 53	54 - 59	-0.834	0.997

TABLE 3.2
DWASS-STEEL-CRITCHLOW-FLIGNER PAIRWISE COMPARISON IN THE LEVEL OF CUSTOMER SATISFACTION WHEN THEY ARE GROUPED ACCORDING TO AGE IN TERMS OF POLITENESS

Age		W	p
18 – 23	24 – 29	-8.144	<.001
18 – 23	30 – 35	-2.186	0.717
18 – 23	36 – 41	-1.504	0.939
18 – 23	42 – 47	-3.269	0.238
18 – 23	48 – 53	-2.297	0.667
18 – 23	54 – 59	-2.325	0.654
24 – 29	30 – 35	8.069	<.001
24 – 29	36 – 41	5.522	0.002
24 – 29	42 – 47	3.680	0.125
24 – 29	48 – 53	4.787	0.013
24 – 29	54 – 59	3.523	0.162
30 – 35	36 – 41	0.188	1.000
30 – 35	42 – 47	-2.435	0.602
30 – 35	48 – 53	-1.537	0.932
30 – 35	54 – 59	-1.442	0.950
36 – 41	42 – 47	-1.651	0.907
36 – 41	48 – 53	-0.890	0.996
36 – 41	54 – 59	-1.007	0.992
42 – 47	48 – 53	0.874	0.996
42 – 47	54 – 59	0.373	1.000
48 – 53	54 - 59	-0.318	1.000

TABLE 3.3
GROUP DESCRIPTIVES FOR MANN-WHITNEY U TEST OF DIFFERENCE IN THE LEVEL OF CUSTOMER SATISFACTION WHEN THEY ARE GROUPED ACCORDING TO SEX

	Group	N	Mean	Median	SD
Ave_Sense of Direction	Female	201	3.40	3.50	0.592
	Male	184	3.39	3.50	0.642
Ave_Timeliness	Female	201	3.11	3.00	0.618
	Male	184	3.06	3.00	0.606
Ave_Politeness	Female	201	3.44	3.50	0.583
	Male	184	3.29	3.25	0.678
Ave_Parcel Condition	Female	201	3.37	3.50	0.594
	Male	184	3.35	3.50	0.695

TABLE 3.4
GROUP DESCRIPTIVES FOR ONE WAY ANOVA (KRUSKAL-WALLIS H) TEST OF DIFFERENCE IN THE LEVEL OF CUSTOMER SATISFACTION WHEN THEY ARE GROUPED ACCORDING TO AGE

	Age	N	Mean	SD
Ave_Sense of Direction	18-23	133	3.40	0.649
	24-29	60	3.45	0.453
	30-35	45	3.49	0.357
	36-41	54	3.28	0.821
	42-47	36	3.31	0.661
	48-53	30	3.41	0.531
	54-59	27	3.41	0.666
Ave_Timeliness	18-23	133	3.05	0.675
	24-29	60	3.08	0.514
	30-35	45	3.49	0.322
	36-41	54	3.06	0.763
	42-47	36	2.90	0.345
	48-53	30	3.04	0.496
	54-59	27	2.94	0.677
Ave_Politeness	18-23	133	3.49	0.690
	24-29	60	3.04	0.439
	30-35	45	3.51	0.315
	36-41	54	3.36	0.803
	42-47	36	3.29	0.587
	48-53	30	3.41	0.480
	54-59	27	3.29	0.699
Ave_Parcel Condition	18-23	133	3.39	0.690
	24-29	60	3.55	0.412
	30-35	45	3.41	0.363
	36-41	54	3.26	0.856
	42-47	36	3.12	0.631
	48-53	30	3.36	0.629
	54-59	27	3.25	0.650

TABLE 3.5
GROUP DESCRIPTIVES FOR ONE WAY ANOVA (KRUSKAL-WALLIS H) TEST OF DIFFERENCE IN THE LEVEL OF CUSTOMER SATISFACTION WHEN THEY ARE GROUPED ACCORDING TO AVERAGE MONTHLY INCOME

	Group	N	Mean	SD
Ave_Sense of Direction	Less than 10,000 pesos	132	3.47	0.545
	10,001 - 20,000 pesos	51	3.37	0.645
	20,001 - 30,000 pesos	39	3.43	0.661
	30,001 - 40,000 pesos	55	3.43	0.653
	40,001 - 50,000 pesos	51	3.40	0.650
	More than 50,000 pesos	57	3.24	0.647
Ave_Timeliness	Less than 10,000 pesos	132	3.07	0.617
	10,001 - 20,000 pesos	51	3.16	0.659
	20,001 - 30,000 pesos	39	3.10	0.694
	30,001 - 40,000 pesos	55	3.75	0.514
	40,001 - 50,000 pesos	51	3.09	0.636
	More than 50,000 pesos	57	3.10	0.605
Ave_Politeness	Less than 10,000 pesos	132	3.45	0.631
	10,001 - 20,000 pesos	51	3.37	0.670
	20,001 - 30,000 pesos	39	3.33	0.665
	30,001 - 40,000 pesos	55	3.50	0.600
	40,001 - 50,000 pesos	51	3.22	0.610
	More than 50,000 pesos	57	3.34	0.656
Ave_Parcel Condition	Less than 10,000 pesos	132	3.48	0.597
	10,001 - 20,000 pesos	51	3.41	0.636
	20,001 - 30,000 pesos	39	3.70	0.646
	30,001 - 40,000 pesos	55	3.50	0.657
	40,001 - 50,000 pesos	51	3.12	0.671
	More than 50,000 pesos	57	3.20	0.683

TABLE 3.6
DWASS-STEEL-CRITCHLOW-FLIGNER PAIRWISE COMPARISON IN THE LEVEL OF CUSTOMER SATISFACTION WHEN THEY ARE GROUPED ACCORDING TO AVERAGE MONTHLY INCOME IN TERMS OF PARCEL CONDITION

		W	p
40,001 - 50,000 pesos	Less than 10,000 pesos	4.373	0.042
40,001 - 50,000 pesos	10,001 - 20,000 pesos	3.795	0.128
40,001 - 50,000 pesos	20,001 - 30,000 pesos	3.449	0.223
40,001 - 50,000 pesos	30,001 - 40,000 pesos	3.099	0.357
40,001 - 50,000 pesos	More than 50,000 pesos	1.740	0.923
40,001 - 50,000 pesos	20,001 - 30,000 pesos	3.011	0.396
40,001 - 50,000 pesos	30,001 - 40,000 pesos	1.476	0.968
Less than 10,000 pesos	10,001 - 20,000 pesos	-0.900	0.998
Less than 10,000 pesos	20,001 - 30,000 pesos	-0.249	1.000
Less than 10,000 pesos	30,001 - 40,000 pesos	-0.946	0.998
Less than 10,000 pesos	More than 50,000 pesos	-2.579	0.604
Less than 10,000 pesos	20,001 - 30,000 pesos	0.986	0.997
Less than 10,000 pesos	30,001 - 40,000 pesos	-0.853	0.999
10,001 - 20,000 pesos	20,001 - 30,000 pesos	0.385	1.000
10,001 - 20,000 pesos	30,001 - 40,000 pesos	-0.257	1.000
10,001 - 20,000 pesos	More than 50,000 pesos	-1.788	0.912
10,001 - 20,000 pesos	20,001 - 30,000 pesos	1.394	0.977
10,001 - 20,000 pesos	30,001 - 40,000 pesos	-0.327	1.000
20,001 - 30,000 pesos	30,001 - 40,000 pesos	-0.935	0.998
20,001 - 30,000 pesos	More than 50,000 pesos	-1.894	0.884
20,001 - 30,000 pesos	20,001 - 30,000 pesos	0.758	0.999
20,001 - 30,000 pesos	30,001 - 40,000 pesos	-0.228	1.000
30,001 - 40,000 pesos	More than 50,000 pesos	-1.286	0.985
30,001 - 40,000 pesos	20,001 - 30,000 pesos	1.304	0.984
30,001 - 40,000 pesos	30,001 - 40,000 pesos	-0.330	1.000
More than 50,000 pesos	20,001 - 30,000 pesos	1.930	0.873
More than 50,000 pesos	30,001 - 40,000 pesos	0.711	1.000
20,001 - 30,000 pesos	30,001 - 40,000 pesos	-1.722	0.927

TABLE 3.7
DWASS-STEEL-CRITCHLOW-FLIGNER PAIRWISE COMPARISON IN THE LEVEL OF CUSTOMER SATISFACTION WHEN THEY ARE GROUPED ACCORDING TO AVERAGE MONTHLY INCOME IN TERMS OF DELIVERY RIDER'S POLITENESS

		W	p
40,001 - 50,000 pesos	Less than 10,000 pesos	-3.36644	0.251
40,001 - 50,000 pesos	10,001 - 20,000 pesos	0.39495	1.000
40,001 - 50,000 pesos	20,001 - 30,000 pesos	2.79995	0.496
40,001 - 50,000 pesos	30,001 - 40,000 pesos	2.61788	0.585
40,001 - 50,000 pesos	More than 50,000 pesos	2.12302	0.807
40,001 - 50,000 pesos	20,001 - 30,000 pesos	-3.63199	0.168
40,001 - 50,000 pesos	30,001 - 40,000 pesos	1.37654	0.978
Less than 10,000 pesos	10,001 - 20,000 pesos	2.69013	0.550
Less than 10,000 pesos	20,001 - 30,000 pesos	4.17843	0.062
Less than 10,000 pesos	30,001 - 40,000 pesos	4.68262	0.021
Less than 10,000 pesos	More than 50,000 pesos	4.22762	0.056
Less than 10,000 pesos	20,001 - 30,000 pesos	-0.98487	0.997
Less than 10,000 pesos	30,001 - 40,000 pesos	2.27120	0.747
10,001 - 20,000 pesos	20,001 - 30,000 pesos	1.63941	0.943
10,001 - 20,000 pesos	30,001 - 40,000 pesos	1.41677	0.974
10,001 - 20,000 pesos	More than 50,000 pesos	1.38829	0.977
10,001 - 20,000 pesos	20,001 - 30,000 pesos	-2.62940	0.580
10,001 - 20,000 pesos	30,001 - 40,000 pesos	0.75775	0.999
20,001 - 30,000 pesos	30,001 - 40,000 pesos	-0.72253	1.000
20,001 - 30,000 pesos	More than 50,000 pesos	-0.40097	1.000
20,001 - 30,000 pesos	20,001 - 30,000 pesos	-3.55854	0.188
20,001 - 30,000 pesos	30,001 - 40,000 pesos	-0.33852	1.000
30,001 - 40,000 pesos	More than 50,000 pesos	-0.00933	1.000
30,001 - 40,000 pesos	20,001 - 30,000 pesos	-3.94329	0.098
30,001 - 40,000 pesos	30,001 - 40,000 pesos	0.33051	1.000
More than 50,000 pesos	20,001 - 30,000 pesos	-3.53247	0.196
More than 50,000 pesos	30,001 - 40,000 pesos	0.13207	1.000
20,001 - 30,000 pesos	30,001 - 40,000 pesos	2.89828	0.449

APPENDIX 4: RECRUITMENT ADVERTISEMENT

APPENDIX 5: RELIABILITY TEST RESULTS

Reliability Analysis

Scale Reliability Statistics

	Cronbach's α
scale	0.975

[3]

Item Reliability Statistics

	If item dropped
	Cronbach's α
StatementsDelivery Rider's Sense of Direction: [a. The delivery	0.974
Statements Delivery Rider's Sense of Direction: [b. The delivery rider has followed the given instructions for the delivery address.]	0.974
Statements Delivery Rider's Sense of Direction: [c. The delivery rider has demonstrated knowledge of the local area.]	0.974
Statements Delivery Rider's Sense of Direction: [d. The delivery rider has easily found my address without any confusion.]	0.975
Timeliness: [a. The delivery has been made within the specified timeframe as indicated on the online shopping platform.]	0.974
Timeliness: [b. The delivery has been prompt, without any significant delays.]	0.975
Timeliness: [c. The delivery has arrived on the same day I received the text message that my parcel was out for delivery.]	0.977
Timeliness: [d. The delivery has been scheduled at a time convenient for me, taking into consideration my preferences and availability.]	0.977
Delivery Rider's Politeness: [a. The delivery rider has displayed a friendly and courteous attitude.]	0.973
Delivery Rider's Politeness: [b. The delivery rider has greeted me politely upon delivery.]	0.972
Delivery Rider's Politeness: [c. The delivery rider has maintained a professional manner throughout the delivery process.]	0.972
Delivery Rider's Politeness: [d. The delivery rider has communicated with me in a respectful and polite manner.]	0.972
Parcel Condition: [a. The parcel has arrived in excellent condition, without any damage.]	0.974
Parcel Condition: [b. The parcel has been well-packaged and protected during transportation.]	0.973
Parcel Condition: [c. The contents of the parcel have been received in their original condition, without any signs of damage or tampering upon delivery.]	0.973
Parcel Condition: [d. The packaging of the parcel, supplied by the third-party delivery and logistics provider, has effectively safeguarded the contents and ensured their protection during transit.]	0.973