

# THE MEDIATING ROLE OF SERVICE RECOVERY ON THE ASSOCIATION BETWEEN SERVICE FAILURE AND CUSTOMER LOYALTY IN AN ONLINE PLATFORM IN THE PHILIPPINES

*O PAPEL MEDIADOR DA RECUPERAÇÃO DE SERVIÇOS NA ASSOCIAÇÃO ENTRE FALHA DE SERVIÇO E FIDELIDADE DO CLIENTE EM UMA PLATAFORMA ONLINE NAS FILIPINAS*

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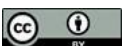
The authors declare that there is no conflict of interest

## Abstract

The study examines the linkages between service failures, service recovery, and customer loyalty in online platforms in the Philippines. Participants were all drawn from Region IV-A. Results of the analysis, using PLS-SEM 4, indicated that service failure had a strong positive direct effect on customer loyalty with a moderate effect, suggesting that customers remain loyal despite service failures due to prior trust or limited alternatives. Service recovery had a positive strong effect on loyalty, indicating its important crucial role in customer retention. On the other hand, the effect of service failure on service recovery was negative and marginally insignificant.  $Q^2$  values for loyalty and service recovery were low, showing limited predictive ability of the model. Theoretically, findings challenge the bases of service literature, which commonly assume recovery as a mediator in the failure-loyalty relationship. Since service recovery does not act as mediators on the associations between service failure and customer loyalty in an online platform in the Philippines, this study suggest that recovery could work more as a moderator. This expands Expectation Disconfirmation Theory and Attribution Theory by pointing out cultural and market-specific features within the context of the Philippines. Practically, results mean that online platforms must focus on proactive measures, personalized service recovery strategies and efforts to keep customers engaged to maintain their loyalty even when service failures occur,

## Resumo

*O estudo examina as ligações entre falhas de serviço, recuperação de serviço e fidelidade do cliente em plataformas online nas Filipinas. Os participantes foram todos provenientes da Região IV-A. Os resultados da análise, utilizando PLS-SEM 4, indicaram que a falha de serviço teve um forte efeito direto positivo na fidelidade do cliente, com um efeito moderado, sugerindo que os clientes permanecem fiéis apesar das falhas de serviço devido à confiança anterior ou a alternativas limitadas. A recuperação de serviço teve um forte efeito positivo na fidelidade, indicando seu importante papel crucial na retenção de clientes. Por outro lado, o efeito da falha de serviço na recuperação de serviço foi negativo e marginalmente insignificante. Os valores de  $Q^2$  para fidelidade e recuperação de serviço foram baixos, demonstrando capacidade preditiva limitada do modelo. Teoricamente, os resultados desafiam as bases da literatura sobre serviços, que comumente assumem a recuperação como mediadora na relação falha-fidelidade. Como a recuperação de serviço não atua como mediadora nas associações entre falha de serviço e fidelidade do cliente em uma plataforma online nas Filipinas, este estudo sugere que a recuperação poderia funcionar mais como moderadora. Isso expande a Teoria da Desconfirmação de Expectativas e a Teoria da Atribuição, apontando características culturais e específicas de mercado no contexto das Filipinas. Na prática, os resultados indicam*



and solutions should be customized to address the distinct features of consumer behavior. Combining both preventative measures and recovery strategies can help organizations build resilience against the negative fallout of service failures.

**Keyword:** *Customer Loyalty. Direct and Indirect Effect. Mediator. Online Platform. Service Failure and Service Recovery.*

*que as plataformas online devem se concentrar em medidas proativas, estratégias personalizadas de recuperação de serviços e esforços para manter os clientes engajados e fidelizados, mesmo quando ocorrem falhas no serviço, e as soluções devem ser personalizadas para atender às características distintas do comportamento do consumidor. A combinação de medidas preventivas e estratégias de recuperação pode ajudar as organizações a desenvolver resiliência contra as consequências negativas das falhas no serviço.*

**Palavras-chave:** *Fidelidade do Cliente. Efeito Direto e Indireto. Mediador. Plataforma Online. Falha no Serviço e Recuperação do Serviço.*

## 1 INTRODUCTION

There are approximately 2.77 billion online shoppers around the world, about 33% of the world's population (SociallyIn, 2025). This figure showed a huge increase from 2.37 billion digital buyers whereby this translated to a 17% increase within five years (Soax, 2025). This rapid growth, however, is still a result of the COVID 19 pandemic, which forced a transition in consumer habits toward online shopping through digital buying that most consumers have continued even without restrictions. Also, Global e-commerce sales had an increase of up to 20.1% of total retail sales in 2024, rising from 19.4% in 2023, and are expected to reach 20.5% in 2025 (Red Stag Fulfillment, 2024). Although the pandemic-driven growth has slowed, the number of online shoppers is still increasing by 60 to 80 million each year, mainly in emerging markets with wider mobile internet access (The Global Statistics, 2024). These trends show that online shopping has become a lasting and mainstream way of buying products worldwide.

In the Philippines, online shopping has become part of day-to-day life in which it is considered as one of the most rapidly booming e-commerce markets in Southeast Asia. Nearly 87 million Filipinos, at the beginning of 2024, were considered as active internet users; over 90% are accessing the net through smartphones to access online platforms (UDF Space, 2024). Shopee and Lazada runs the e-market, contributing to the over 75% of total e-commerce traffic (Trade.gov, 2024; Devicology, 2024). Moreover, according to Rush PH (2023) there are 57% of Filipino consumers shop online weekly, adding to almost US \$24 billion e-commerce revenue for the country by 2025.

However, despite the expansion and increases in digital shopping, several issues and concerns continue to challenge both consumers and service providers. Over 54% of online shoppers cite poor product quality, while delays, inaccurate product descriptions, and online fraud- such as phishing and smishing- further lessen trust in online transactions (Rush PH, 2023). If these failures are not treated well, a very significant decrease of trust and loyalty among customers might easily translate into customer loss and negative word of mouth that will be more powerful in the connected online environment as it is prevalent in the Philippines.

Hence, in this dynamic market, it becomes very important for all businesses concerning online shopping and services to understand how service recovery mechanisms could mediate the relationship between service failures and customer loyalty (Gao et al., 2022; Jiang, 2020). On the contrary, the literature on service management shows that an effective service recovery would mitigate, and sometimes reverse, the adverse effect of service failure on satisfaction (Sari, 2024). This is known as the service recovery paradox, whereby through strategic recovery efforts, one can turn a dissatisfied customer into a loyal supporter. This study addresses this gap by examining how online shopping platforms in the Philippines can turn service failures into opportunities to strengthen customer relationships in a rapidly evolving e-commerce landscape. However, research needs to go into how these factors interact meticulously and shape consumer loyalty, particularly in the context of the Philippines online platforms.

## **2 RESEARCH PROBLEM**

The efficacy of service recovery remains uncertain, despite its recognition as a critical element in consumer retention (Mazhar & Hooi, 2021). In the existing literature, there is a gap regarding the specific effects of service recovery strategies on customer loyalty in the context of online platforms in the Philippines, despite the fact that it provides an in-depth understanding of these strategies. The globalization of markets has changed the values and considerations that customers associate with repurchasing after service recovery, and requiring a reassessment of current service recovery models (Mazhar & Hooi, 2021). Furthermore, the efficacy of different service recovery strategies may also be influenced by cultural complexities and consumer characteristics prevalent in the Philippines, thereby giving importance to the need for localized

understanding of such phenomenon. Prior studies have recognized the importance of evaluating service recovery concepts in relation to the e-service environment. However, there is still a need for further investigation of the consumer forgiveness and empathy perspectives within online purchasing service recovery. Therefore, the objective of this study is to identify the mediating role of service recovery in the relationship between service failure and customer loyalty within the online platform context of the Philippines in order to address this gap.

Specifically, this study sought to answer the following questions:

1. What is the direct effect of service failure on customer loyalty in online platforms in the Philippines?
2. What is the direct effect of service failure on service recovery in online platforms in the Philippines?
3. What is the direct effect of service recovery on customer loyalty in online platforms in the Philippines?
4. How does service recovery mediate the relationship between service failure and customer loyalty in online platforms in the Philippines?

### **3 LITERATURE REVIEW**

Service failure is an almost inevitable aspect of service delivery, occurring when a service does not meet customer expectations or deviates from the promised standards (Michel et al., 2009). These failures usually come in various facets ranging from minor inconveniences to far-reaching disruptions of the customer experience. It has been estimated that costs incurred in service failures run into billions of dollars each year for an organization through customer attrition and negative publicity (Mir et al., 2023). In consideration of the above, firms should therefore give importance on effective management of complaints and service recovery (Adzhigalieva et al., 2022). Service recovery refers to the actions taken by a company in regards to restoring customer satisfaction after a service failure has occurred. This may be in terms of apologizing, explaining, compensating, or carrying out other corrective actions with a view to solving the problem and restoring customer trust. According to Shaw and Craighead (2003), successful service recovery is a factor involved in the retention of customers and their loyalty being maintained or perhaps increased. This can even result in a service recovery

paradox, where customers feel more satisfied after a successful recovery than if no problem had occurred in the first place (Magnini et al., 2007). While a number of studies suggest that proactive recovery positively influences customer loyalty, others speculate that such efforts might indeed have adverse effects on customer satisfaction and perceived value (Jin et al., 2022). This is indicative of the intricate dynamics of service recovery calling for case-by-case adaptability of approaches by organizations in consideration of specific situations and customer segments.

Customer loyalty is the commitment to keep buying or using a preferred product or service repeatedly in the future, even when other factors or promotions might encourage switching (Pamela et al., 2019). These customers are more likely to give repeat purchases, recommend the organization to third parties, and be less likely to exit following one or two service failures. In today's highly competitive world of business, much profit accrues for any business from customer loyalty. This customer loyalty translates significantly into income from their repeat purchases and through positive word-of-mouth. In fact, there have been studies showing that the cost of acquiring new customers is higher than that involved in keeping the already existing customers, and thus customer loyalty schemes are very well-placed in proving to be economical towards sustainable growth. On the other hand, loyalty is not solely transactional; it is also influenced by emotional factors such as trust, commitment, and perceived value (Kamath et al., 2020). Factors such as relationship duration, service reliability, and services attributes are connected to customer loyalty for brick-and-mortar firms (Harris & Goode, 2004). For online retailers, perceived website quality and security have a positive impact on customer loyalty and perceived service quality and customer satisfaction mediate this relationship (Buttle & Burton, 2002).

Interplay of service failure, service recovery, and customer loyalty involves various aspects exploring the complex nexus among these constructs. Severe or repeated service failure is likely to have a very detrimental effect on the loyalty of customers. However, effective service recovery minimizes the negatively affecting consequences of service failure and, in fact, can augment customer loyalty because successful recovery actions demonstrate a company which strives beyond its normal offerings for the sake of the customer. Furthermore, loyal customers tend to be more intensively motivated by the innovations and changes done by the company since they have put a certain level of trust in the brand (Kosasih et al., 2024).

### **3.1 Direct effect of service failure on customer loyalty**

The service failure is an undeniably an antecedent of severe customer loyalty erosion in online retail scenarios. After customers experience service failures characterized by delayed deliveries, damaged goods, or unhelpful customer service, their overall satisfaction is diminished and in turn, loyalty takes a slump (Chou et al., 2020). Service failures in e-commerce contexts creates unfavorable sentiments and decrease intentions of repeat purchases leading to a further reduction in brand loyalty of the consumers (Rashid et al., 2021).

Service failures are an important antecedent that can severely degrade customer loyalty of the costumer (Pereira et al., 2025). The negative impact brought about by service failures makes it paramount to avert service failures under any circumstance and have good service recovery strategies in case undesired service failures do happen (Natalia & Fadhlihalim, 2022). Customer loyalty enables firms to earn profits (Xiong & Zhang, 2018). Building and forming customer loyalty must be a key objective of any profitable company (Nurbasari & Harani, 2018). If customers feel that the service failed to provide what they expected, they would feel unsatisfied, frustrated, and even angry. These negative feelings may result in decrease their faith in the firm and willingness to continue doing business with it (Rane et al., 2023; Setó-Pamies, 2012). In online platforms, the service failure may take the shape of faulty services like website outages, transaction errors, delayed deliveries, or invalid product information (Lin & Sun, 2009). When a customer deems an online shopping portal unreliable or untrustworthy due to service failures, he/she may then look for an alternative option. Frequent minor failures add up to deteriorate customer trust while causing a decline in brand loyalty (Rane et al., 2023).

### **3.2 Direct effect of service failure on service recovery**

Problems in the operational process in online platforms are the main reasons for service failures. Service failure is not just an incident; it activates a complicated series of events that include customer perception, emotional reactions, and behavioral intention (Othman et al., 2013). Understanding this relationship is kind of crucial for online

platforms, which otherwise want to minimize adverse consequences of service failures while building lasting relationships with customers.

Whatever the situation, when a failure occurs, recovery strategies such as refund, replacement, or closure are put in place. Literature related to e-commerce suggests that the magnitude of the failure has a positive correlation with the severity of recovery actions required (Ali et al., 2020). Manu and Sreejesh (2020) found that e-commerce platforms like Shopee and Lazada respond to major issues, such as missing shipments or payment problems, by offering refunds to prevent negative publicity and customer loss.

### **3.3 Direct effect of service recovery on customer loyalty**

Effective service recovery directly and positively impacts customer loyalty. Research indicates that timely and fair recovery actions restore customer satisfaction and enhance loyalty intentions, especially when customers perceive high procedural and interactional justice (Hazee et al., 2017; Prentice et al., 2021). Service recovery can assist in the conversion of dissatisfied consumers into devoted advocates who provide positive word-of-mouth referrals to the organization in order to secure future business. When customers experience an issue and believe that the company is sincere in resolving it, they are more likely to believe that the company is committed to providing exceptional service and values to their business (McCullough et al., 2000). Also, Phan et al. (2020) said that customers' perceptions of fairness can lead to higher satisfaction and loyalty. This effect is more noticeable online, where quick solutions can be shown and given to customers, which increases loyalty to the company and keeps the long-term relationship with the customer (Wang et al., 2025). Successful service recovery enhances repurchase intention and reinforces the service recovery impact that is unique to online approaches (Wei et al., 2022). This is particularly relevant in the Philippines, where the expansion of e-commerce has been influenced by a variety of factors, including the pandemic.

### **3.4 Mediating role of service recovery on the effects of service failure on loyalty**

Service recovery can mediate the negative relationship between service failure and customer loyalty by restoring satisfaction and trust (Chou et al., 2020). Service recovery has been said to play a critical role in bridging the relationship between service

failure and customer loyalty. Hence, this denotes the reduction of negative effects of service failures not just by providing strong recovery procedures but also maintaining long-term customer relationships (Niu & Fan, 2017). Improved service recovery can less likely diminish client loyalty compared to service failures themselves. Furthermore, the promptness and effectiveness of their recovery should also impact the consumers' views on how responsive and dedicated to customer satisfaction the company is (Chang & Wang, 2012). This is associated with the service recovery, wherein the successful service recovery negates the dissatisfaction caused by the failure, and in some cases, it results in customers being more loyal than before having experienced the failure (Hazee et al., 2017). Prentice et al. (2021) found that service recovery is an intermediary for failure's impact on loyalty through reliving emotional and cognitive evaluations, suggesting that well-designed recovery programs can make a failure an opportunity for an increase in loyalty.

### 3.5 Synthesis

All types of service failures at online shopping platforms—from delayed deliveries, damaged items, and erroneous transactions to unhelpful customer service diminishes the customer loyalty. All these experiences lead to dissatisfaction, frustration, and distrust that force customers to seek other, more reliable platforms providing better. Previous researches) have further proven the importance of service failure prevention and effective service recovery since in the long run, drive profitability and sustainability in such a way that loyal customers continually occur

Service failure will cause service recovery, as negative publicity and switching behaviors are prevented by most online platforms. Literature has shown that intensity of recovery interventions such as refunds, exchanges, dispute resolution processes, etc. is dictated by the severity of the failure. Moreover, being timely, fair, and transparent, recovery has been proven to encourage loyalty by restoring satisfaction and reinforcing.

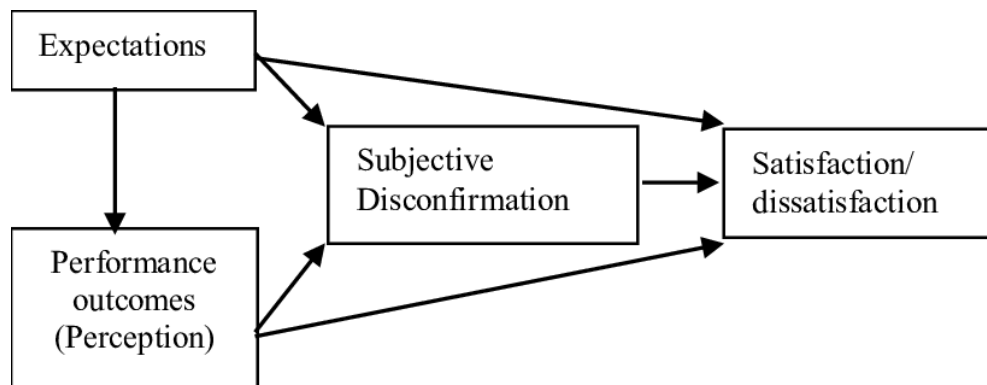
While research findings point to those results, research gaps exist even in the Philippine e-commerce context where cultural differences and inclinations of service recovery from type to type of online enterprise—especially on Shopee and Lazada—could influence handling service recovery for customer loyalty. While international studies showed that service recovery plays a mediating role, few empirical studies in the country

under investigation make such claims. Hence, addressing this gap helps clarify how service recovery can be translated into service failure by serving as a guide to e-commerce platforms in the direction of improved and culturally matched recovery mechanisms

#### **4 THEORETICAL FRAMEWORK**

This study is anchored to Expectation Disconfirmation Theory (EDT) (Figure 1) and Attribution Theory. Expectation disconfirmation theory on service is related to the model proposed by Oliver (1980), which stated that customer evaluation is compared with expectation based on actual performance of the service. Negative disconfirmation occurs when actual service turns out to be less than expected, such as in case of delayed delivery, poor website performance, or failure of the process. Customers experience reduced satisfaction and lower intentions to stay loyal due to inefficient process. However, when effective service recovery strategies, both tangible refunds and replacement or intangible apologies and clear communications, are incorporated, the negative severity can be minimized and sometimes improved when enthusiasm towards the service recovered has increased (Hazeet al., 2017; Oliver, 1980).

Even though Attribution Theory by Heider (1958) and later expanded by Weiner (1985) adds a flavor of understanding to the EDT with respect to attributing blame for service failures by customers, when online shoppers perceive inefficient control over certain system errors or logistical inefficiencies causing such failures with more consumer welfare as an issue, they are most likely to perceive worse and are more inclined to switch. Nevertheless, with an efficient service recovery, those attributions can be reframed into forgiveness and the restoration of trust. The above process of service recovery will significantly build customer loyalty through word of mouth (Prentice et al., 2021). Hence, in this context, with respect to online shopping platforms in the Philippines like Shopee and Lazada, the above-mentioned effort consisting of a tangible and intangible recovery effort should be integrated in order to convert negative service experience into an action for loyalty retention and advocacy among customers.

**Figure 1***Expectation Disconfirmation Theory by Oliver (1980)*

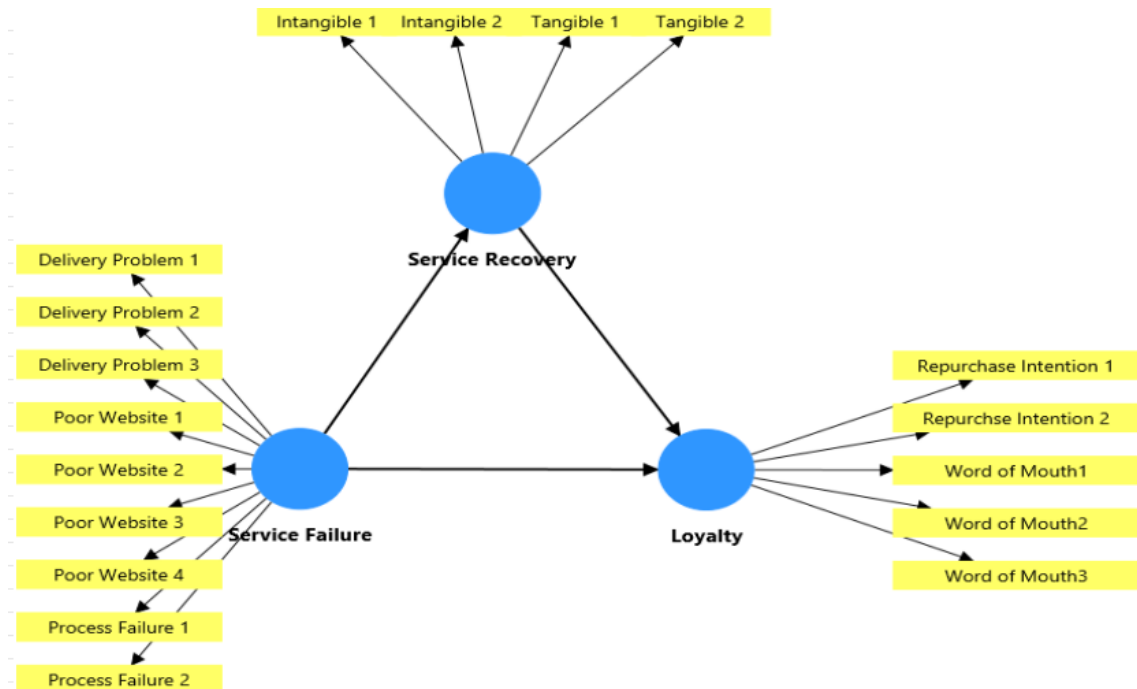
## 5 CONCEPTUAL FRAMEWORK

The conceptual framework (Figure 2) of this study depicts the linking relationships among service failure, service recovery, and customer loyalty in the context of online shopping platforms in the Philippines. Service failures, which are studied from the concepts of delivery problems, website failures, or inefficiencies in processing, are supposed to negatively affect customer loyalty in terms of repurchase intention and positive word-of-mouth. Customer loyalty diminishes due to these failures, and thus they shall think of switching. However, many times service failures, on the other hand, become the basis for companies to start service recovery processes, thus hypothesizing that service failure directly affects service recovery.

Moreover, service recovery embraces both tangible (money, goods) and intangible (apology, timely communication) characteristics and has a direct positive effect on customer loyalty. More importantly, the service recovery is expected to mediate between service failure and loyalty, since effective service recovery could mitigate or even reverse the detrimental consequences of service failure. Hence, this is in line with expectations outlined in the Expectancy Disconfirmation Theory or Attribution Theory, which show how customers perceive fairness and responsiveness, affecting their satisfaction and loyalty. In practical terms, this perspective allows for service failures to diminish loyalties, whereas customer relations in online platforms could be restored and strengthened if proactive remedial efforts were considered.

**Figure 2**

*Conceptual Framework Illustrating the Mediating Role of Service Recovery on the Effect of Service Failure on Loyalty*



**5.1 Hypotheses**

For a concrete understanding of the service failure, service recovery, and customer loyalty dynamics in the context of online shopping platforms in the Philippines, this study proposed some hypotheses grounded in existing literature and theoretical frameworks. The study investigates the effect on customer loyalty of delivery problems, bad website functionality, and process failures considered as forms of service failure, either directly or indirectly through service recovery. Service recovery is viewed as a mediator aimed at mitigating the adverse consequences of service failures. This consideration entails both tangible and intangible dimensions of the customer experience. The subsequent hypotheses predicted connection of these key variables and test their direct and mediation relationships. Hence, it was hypothesized that:

**H<sub>1</sub>:** Service failure negatively affects customer loyalty in online platforms in the Philippines.

**H<sub>2</sub>:** Service failure directly affects service recovery in online platforms in the Philippines.

**H3:** Service recovery positively affects customer loyalty in online platforms in the Philippines.

**H4:** Service recovery mediates the relationship between service failure and customer loyalty in online platforms in the Philippines.

## **6 METHODOLOGY**

### **6.1 Participants of the study**

The target population for this study consists of individual living in the Philippines with experience utilizing online purchasing platforms. A non-probability sample method, namely convenience sampling, was utilized to recruit 400 participants aged 18 to 65 years. Convenience sampling entails the selection of participants who are easily accessible and available for study (Voorhees et al., 2015). Participants were gathered through an online survey disseminated via social media sites. Cochran's method was employed to ascertain an adequate sample size. This is appropriate for determining sample size in studies involving online shoppers, as it is designed for large or unknown populations. Hence, this approach provides a reliable estimate by utilizing a conservative population proportion ( $p = 0.5$ ) to provide an adequate sample size, considering uncertainty and variability in number of online shoppers. This guarantees statistical validity despite the lack of precise population data, making it a viable choice for research with unclear or extensive target demographics, such as online consumers. The total sample size was supported by Kline (2016) who asserted that a sample size of 200 or more is a dependable benchmark for detecting significant effects in Structural Equation Modeling (SEM), depending on model complexity, number of parameters, and estimation methods utilized.

### **6.2 Research instrument**

The research instrument consisted of three parts. The first part of the survey questioned was self-made and pertains to participant's profile in terms of its location, age, sex, and highest educational attainment. The second part of the questionnaire delved into the e-service failures which were encountered by an online shopper. It consisted of 8 questions which were divided into process failure, delivery problems, and poor website

design. This section was adopted and modified based on the typical types of service failures presented by Azemi and Ozuem (2016) in the studies: “Online service failure and recovery strategy. Responses to this section were gauged using a 5 Point-Likert scale where one (1) means never, two (2) equals rarely, three (3) means sometimes, four (4) means often, and five (5) means always. The third part was about service recovery which were further divided into two-the tangible and intangible with the four questions into the category made by the researcher.

The last section of the questionnaire is loyalty. It comprised two parts: the word of mouth and repurchase intention. There are 5 questions in this segment that were adopted and modified from the study by Eid (2011) titled “Determinants of e-commerce customer satisfaction, trust, and loyalty in Saudi Arabia,” and Hidayanto et al (2014) titled “Determinant of customer trust on e-commerce and its impact to purchase and word of mouth intention: A case of Indonesia.” Before the main study was undertaken, a pilot test was carried out with a small group of users of online platforms to assess whether or not the items were clear, understandable, and could be relied on. This data was analyzed to find any ambiguous items, which were then revised or deleted as needed.

### **6.3 Data collection procedure**

Data collection started after the ethical approval from the Institutional Review Board. Participants were recruited through online platforms. The survey questionnaire was administered via Google Forms, ensuring anonymity and confidentiality of responses. A cover letter was included, providing information about the study's purpose, voluntary nature, and data protection measures. Participants were required to provide informed consent before proceeding with the survey. The questionnaire was distributed to respondents using a self-administered survey approach (Suarsa et al., 2022). Data collection took for a period of four weeks and ensured that an adequate sample size and representation of diverse user experiences.

### **6.4 Data analysis**

The role of service recovery in the relationship between service failure and loyalty among consumers of online platforms in the Philippines was analyzed in this study using

Partial Least Squares Structural Equation Modeling (PLS-SEM) through SmartPLS 4. PLS-SEM was determined to be appropriate for predictive and exploratory studies, particularly when complex models involved latent constructs with multiple indicators and mediation analysis (Hair et al., 2019). Besides all these features, the technique is robust against small sample sizes and non-normal distributions, which cater to behavioral studies conducted in e-commerce setups. In this research, service failure, service recovery, and customer loyalty were considered latent variables to assess both direct effects and the indirect (mediating) effect of service recovery.

Additionally, diagnostic tests were carried out to ensure the reliability and validity of the measurement model. Cronbach's alpha, composite reliability (CR), and factor loadings were used to evaluate reliability of the constructs. The observed variables adequately represent the relevant latent constructs when factor loadings exceed 0.70 (Hair et al., 2021). Cronbach's alpha values of 0.70 or higher and composite reliability (CR) values exceeding 0.70 further verified the constructs' internal consistency (Fornell & Larcker, 1981; Hair et al., 2021). Similarly, convergent validity was evaluated using the Average Variance Extracted (AVE) with a threshold of 0.50, meaning that at least half of the variance of the indicators is explained by the latent construct (Fornell & Larcker, 1981).

Discriminant validity was determined to understand the three constructs- service failure, service recovery, and loyalty in a distinctive manner. This study applied the Heterotrait-Monotrait ratio (HTMT), Fornell-Larcker criterion, and cross-loading analysis. The HTMT indicates adequate discriminant validity if values are below 0.85 (conservative) or 0.90 (liberal) (Henseler et al., 2015). The square root of the AVE for each construct must exceed its correlation with other constructs according to the Fornell-Larcker criterion, while the cross-loading test ensures that items load highest on their intended constructs. Also, Discriminant validity reflects the extent to which concepts are unique from one another, implying that appropriate measures of each construct should not be excessively correlated (Bagozzi et al., 1991). These diagnostic procedures ascertained that the measurement model in SmartPLS 4 was statistically sound for a reliable basis in testing the mediating effect of service recovery in the structural model.

In addition, structural and mediation model were also presented to assess predicted relationships between service failure, service recovery, and customer loyalty, and the mediating role that service recovery plays in these relationships. This assessment

further included evaluating collinearity, path coefficients,  $R^2$  (R-squared) and  $Q^2$  (Q-squared), and significance of mediating effects through bootstrapping in regard to evaluating the structural model in SmartPLS 4. The R-squared show the percentages of variance among the endogenous constructs accounted for by the exogenous variables. According to Hair et al. (2021), mostly in social science research, presented that the value of R-squared is described to be strong, moderate, and weak at 0.75, 0.50, and 0.25, respectively. In this study, customer loyalty and service recovery were looked in detail to make a conclusion regarding the explanatory power of the model on predicting loyalty within Philippine online platforms.

## 7 RESULTS AND DISCUSSION

The information provided in this section was derived from the participants who have experienced service failures while purchasing online in the Philippines. The results were analyzed in relation to the proposed hypotheses, underscoring the direct and substantial connections between service recovery, service failure, and customer loyalty. It examines the effects of delivery issues, poor website performance, and process failures on customer loyalty, as well as the mediating role of both tangible and intangible service recovery on these influences. Hence, this section compresses these observations further with literature and implications to clarify consumer behavior concerning e-commerce service issues.

Before presenting the objectives, several diagnostic tests were carried out to guarantee the reliability and validity of the measuring model. Reliability was evaluated by factor loadings (Figure 3), Cronbach's alpha, and composite reliability (CR) (Table 1). Factor loadings exceeding 0.70 imply that the observed variables sufficiently represent their corresponding latent constructs (Hair et al., 2019). The results shows that the Cronbach's alpha values exceeded 0.70, and composite reliability (CR) values also surpassed 0.70, so affirming the internal consistency of the constructs (Fornell & Larcker, 1981; Hair et al., 2021). Convergent validity was assessed by the Average Variance Extracted (AVE), with findings exceeding 0.50, indicating that over half of the variance in the indicators is accounted by the latent construct (Fornell & Larcker, 1981).

In addition, discriminant validity was employed to verify that the three constructs, namely, service failure, service recovery, and loyalty were conceptually distinct. This

study utilized the Fornell-Larcker criterion (Table 2), Heterotrait-Monotrait ratio (HTMT) (Table 3), and cross-loading analysis (Table 4) for this purpose. For HTMT, values were below 0.85 which were an indication of a conservative discriminant validity (Henseler et al., 2015). The Fornell-Larcker criterion also showed that that the square root of the AVE for each construct exceeded its correlation with other constructs (Table 2). The result of the cross-loading test also showed that the items for each construct is higher than the load of other constructs. Discriminant validity is crucial since it reflects the extent to which constructs are different from one another so that the measures of each construct should not be overly correlated (Bagozzi et al., 1991). Therefore, these diagnostic procedures confirmed that the measurement model in SmartPLS 4 was statistically sound, thus guaranteeing a strong basis for testing in the structural model the mediating effect of service recovery.

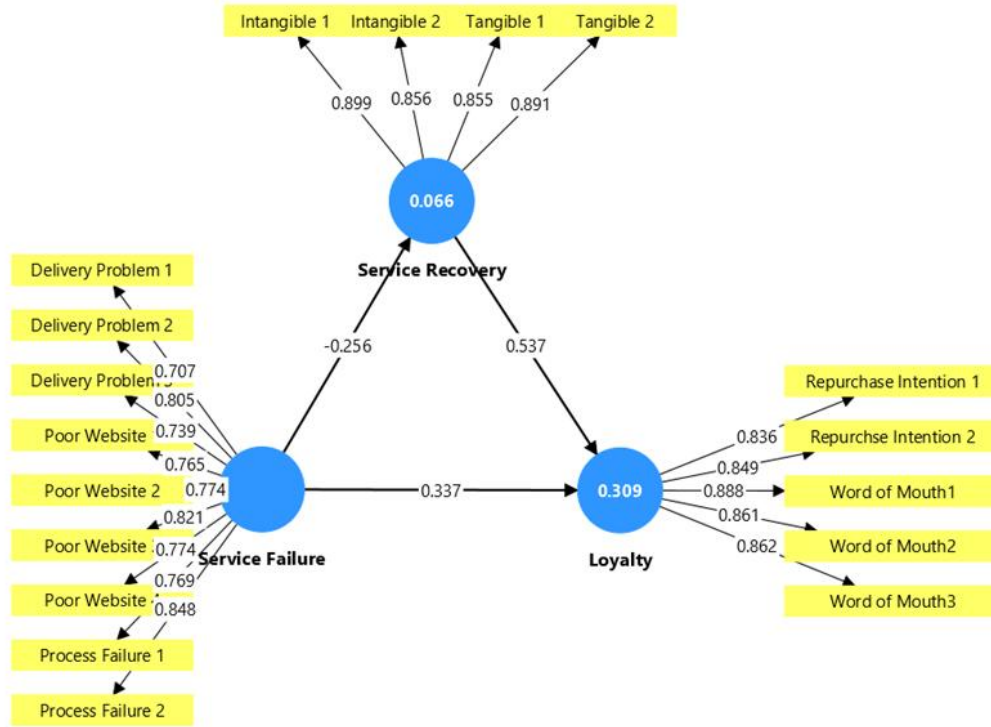
**Table 1**

*Analysis of the Reliability and Validity of the Model (Service Failure-Service Recovery-Loyalty)*

Construct	Item	Loading	Alpha	rho_a	rho_c	AVE
Service Failure			0.921	0.948	0.933	0.607
	DP 1	0.707				
	DP 2	0.805				
	DP 3	0.739				
	PW 1	0.765				
	PW 2	0.774				
	PW 3	0.821				
	PW 4	0.774				
	PF 1	0.769				
PF 2	0.848					
Service Recovery			0.899	0.909	0.929	0.767
	INT 1	0.899				
	INT 2	0.856				
	TAN 1	0.855				
	TAN 2	0.891				
Loyalty			0.912	0.929	0.934	0.764
	WOM 1	0.888				
	WOM 2	0.861				
	WOM 3	0.862				
	RI 1	0.836				
	RI 2	0.849				

**Figure 3**

*Factor loading of the constructs on the effect of service failure on Loyalty with service recovery as mediating variable*



**Table 2**

*Discriminant Validity Using Fornell- Larcker Criterion (Service Failure, Service Recovery, & Loyalty)*

Variables	Loyalty	Service Failure	Service Recovery
Loyalty	<b>0.859</b>		
Service Failure	0.199	<b>0.779</b>	
Service Recovery	0.451	-0.256	<b>0.876</b>

**Table 3**

*Analysis of the Discriminant Validity Using Heterotrait- Monotrait Ratio (HTMT) (Service Failure, Service Recovery, & Loyalty)*

Variables	Service Failure	Service Recovery	Loyalty
Service Failure		0.262	0.21
Service Recovery			0.479
Loyalty			

**Table 4**

*Analysis of the Discriminant Validity Using Cross Loadings) (Service Failure, Service Recovery, & Loyalty)*

Construct	Loyalty	Service Failure	Service Recovery
DP 1	0.01	0.707	-0.224
DP 2	0.097	0.805	-0.182
DP 3	0.123	0.739	-0.106
PW 1	0.132	0.765	-0.115
PW 2	0.179	0.774	-0.167
PW 3	0.104	0.821	-0.262
PW 4	0.257	0.774	-0.03
PF 1	0.211	0.769	-0.275
PF 2	0.212	0.848	-0.279
Repurchase Intention 1	0.836	0.085	0.362
Repurchase Intention 2	0.849	0.187	0.491
Word of Mouth1	0.888	0.276	0.368
Word of Mouth2	0.861	0.097	0.366
Word of Mouth3	0.862	0.174	0.313
Tangible 1	0.282	-0.275	0.855
Tangible 2	0.394	-0.271	0.891
Intangible 1	0.479	-0.194	0.899
Intangible 2	0.399	-0.166	0.856

### **7.1 Direct effect of service failure on customer loyalty in online platforms in the Philippines**

Following the analysis of the reliability and validity of the measurement model, the structural model (Table 5) and the mediating model (Table 6) was evaluated using SmartPLS 4, the study utilized bootstrapping with 5,000 samples to generate path coefficients and t-values. This approach allowed the determination of whether service failure significantly affects customer loyalty and service recovery, whether service recovery directly influences loyalty, and whether service recovery mediates the effect of service failure on customer loyalty. To do this, the following evaluations were employed

in the structural model evaluation which involves collinearity (VIF), path coefficients, coefficient of determination ( $R^2$ ), and predictive relevance ( $Q^2$ ). Collinearity was assessed through Variance Inflation Factor (VIF), in which all the values fell below the recommended threshold of 5.0, indicating that multicollinearity was not found in the results (Hair et al., 2021). The  $R^2$  values were then computed to determine the variance in service recovery and customer loyalty as explained by service failure and service recovery. According to Hair et al. (2019),  $R^2$  values of 0.75, 0.50, and 0.25 can be described as substantial, moderate, and weak, respectively. Finally, predictive relevance ( $Q^2$ ) was assessed using blindfolding procedures, where value greater than 0 indicate that the model has predictive relevance for the endogenous constructs.

**Table 5**

*Analysis of the Structural Model (Direct Effects) Using Bootstrapping (Service Failure, Service Recovery, & Loyalty)*

Variables	Path Coefficient	Standard Deviation	T-statistics	p-value
Service Failure-> Loyalty	0.337	0.066	4.358	0.000
Service Failure -> Service Recovery	-0.256	0.058	1.889	0.059
Service Recovery -> Loyalty	0.537	0.032	7.009	0.000

The results shows that service failure had a considerable direct positive effect on customer loyalty (path coefficient = 0.337; T-Stat = 4.358;  $p = 0.000$ ), thus indicating statistical significance. This effect goes against the traditionally acceptable understanding that service failures are more likely to decrease loyalty (Chou et al., 2020; Rashid et al., 2021; Craighead et al., 2004, & Evanschitzky et al., 2021). Service failures with acceptance as a minor rip-off could be seen, for instance, if customers have low expectations or the platform has other environmental comforts like cheap price or easy features. In the case of the Filipino, the habitual use of platforms such as Shopee and Lazada could endow loyalty that can withstand occasional service lapses.

Such result implies various service failures, such as delayed deliveries, bad navigation, or payment glitches, were experienced, but they do not necessarily induce customers to shift or stop buying online if other satisfaction elements are still intact. According to Nurbasari and Harani (2018), loyalty needs to be continuously encouraged through value-added services and engagement. Hence, online platforms also should stay proactive. For the customers to remain loyal, ensures that encountered service failure

must be addressed with proper recovery or further service innovations to keep their interest. In this respect, the findings challenge businesses that they need to transcend mere functionality to ensure that every customer experience in the long run fosters loyalty.

## **7.2 Direct effect of service failure on service recovery in online platforms in the Philippines**

The direct effect of service failure on service recovery was negative and statistically insignificant, indicated by a path coefficient of -0.256, a t-statistic of 1.889, and a p-value of 0.059. This indicates that encountering service failure does not consistently elicit a robust recovery response from online platforms. Othman et al. (2013) assert that service recovery must be a purposeful and systematic process, rather than a mere response to consumer grievances. The inconsistency in relationships may indicate deficient recovery processes, ambiguous accountability in marketplace models, or poor customer care training among e-commerce entities in the Philippines. A majority of online platforms in the Philippines are intermediaries between buyers and third-party sellers. In instances of service failure, it is often not clear who really should be accountable for recovery, thus causing inconsistency or delay in responses. Some of the online platforms only initiate the recovery process once customers file complaints, thus putting off automatic recovery in the event of a failure. This reactive model can weaken the link between the failure and recovery efforts.

These findings were similar to the study conducted by Lin et al. (2020), who reported that many online businesses seldom react to service problems without customer complaints. As a result, Komunda and Osarenkhoe (2012) argued in their study that some firms considered recovery as an expense, hence, that do not elicit responses. Wirtz and Mattila (2004) also stated that the effectiveness of recovery measures is closely associated with timing, empathy, and procedural fairness. Platforms need to proactively set norms for standard services that will anticipate failure and leave them responsive and not dependent solely on clients' feedback.

### **7.3 Analyze the direct effect of service recovery on customer loyalty in online platforms in the Philippines**

The results showed a strong and significant positive effect of service recovery on customer loyalty, with a path coefficient of 0.537, a t-statistic of 7.009, and a p-value of 0.000. This corroborates previous research by Hazée et al. (2017) and Prentice et al. (2021), which highlighted that efficient recovery strategies- such as prompt resolutions, clear communication, and equitable compensation- can restore trust and may augment loyalty. In the Philippine e-commerce market, characterized by prevalent delivery challenges and system failures, customers prefer to value platforms that address concerns with sincerity and promptness. However, the result from previous studies (de Matos et al., 2007; Magnini et al., 2007).) stated that in cases of severe or repeated failures, even outstanding recovery may fail to restore trust or loyalty.

These findings underscore the fact that service recovery is a strategic factor in fostering loyalty, rather than a reactive process. Customers are likely to continue purchasing and recommending the products when platforms integrate tangible actions (refunds or product replacements) with intangible responses (genuine apologies, clear updates) (Putri 2021). This is also consistent with the service recovery paradox, which emphasize that a well-managed failure can result in greater satisfaction than if it had not occurred at all. Hence, it is imperative that Philippine e-commerce enterprises establish recovery protocols and empower their customer service teams to transform service failures into opportunities for loyalty development.

### **7.4 Mediating role of service recovery on the relationship between service failure and customer loyalty in online platforms in the Philippines**

The indirect effect of -0.138, t-statistic of 1.697, and p-value of 0.090 (Table 6 & Figure 4), indicated that service recovery does not mediate the association between service failure and customer loyalty in the context of online platforms in the Philippines. This means that service recovery efforts might not significantly improve a customer's loyalty or resolve negative effects caused by failures in the service delivery. This is consistent with Liao (2007), who emphasized that recovery do not always equal renewed customer loyalty, especially when the disruption is perceived by the customer as severe

or irreparable. In fact, Tax and Brown (1998) argued that recovery was only considered successful when compensation or restorative action to customers is perceived fair, timely, and proportionate to the inconvenience suffered.

However, such results contradict the findings of several studies that emphasize the importance of service recovery in restoring trust and loyalty after a service failure. For instance, Maxham and Netemeyer (2002) mentioned that effective service recovery can change negative perceptions and even can strengthen loyalty by showing that a company is devoted to meeting the interests of its customers. Smith and Bolton (2002) also argued that well-executed recovery efforts may turn a dissatisfied customer into an advocate, particularly when emotional needs are as much addressed. The difference between these studies and the present investigation may arise from the actual situation cause in e-commerce platforms in the Philippines, which are characterized by a fragmented seller network, inconsistent customer service standards, and absence of a well-established protocol for recovery, hence, not making recovery possible in improving loyalty results. This means that online service recovery can only be real and valid when it is backed by organized, consistent, and customer-oriented recovery schemes.

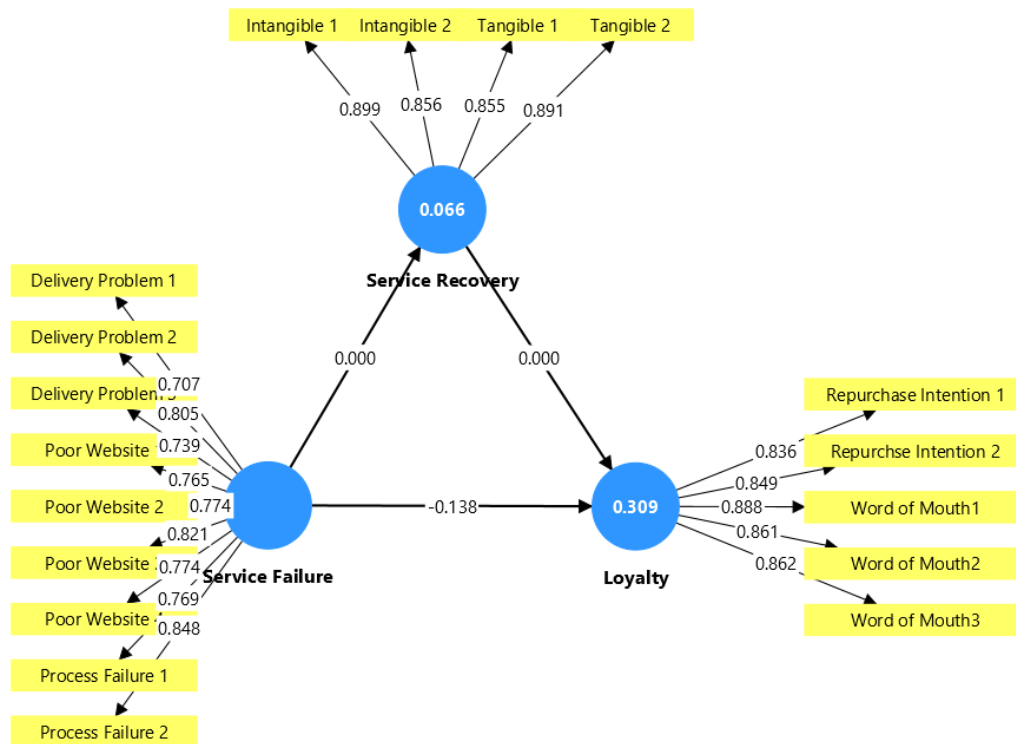
**Table 6**

*Analysis of the Mediation Model Using Bootstrapping (Service Failure, Service Recovery, & Loyalty)*

Variables	Path	Path Coefficient	Standard Deviation	T-statistics	p-value
Service Failure -> Service Recovery -> Loyalty	Indirect Effects	-0.138	0.081	1.697	0.090

**Figure 4**

*Constructs the Mediating Role of Service Recovery on the Association Between Service Failure and Customer Loyalty in an Online Platform in the Philippines*



Moreover, Table 7 revealed that service failure showed a slight effect on both loyalty ( $f^2 = 0.153$ ) and service recovery ( $f^2 = 0.107$ ), this implies that although service failures affect these outcomes, their influence is not predominant. Meanwhile, service recovery significantly affects loyalty ( $f^2 = 0.391$ ), emphasizing that remedial measures after an impairment are far more critical in customer retention than the failure itself. The predictive relevance values ( $Q^2$ ) for loyalty (0.014) and service recovery (0.035) are low, signifying that the model's capacity to forecast future outcomes for these variables is restricted. The  $R^2$  values indicate that the predictors account for 30.9% of the variance in loyalty and merely 6.6% in service recovery, suggesting the presence of additional unmeasured factors affecting these outcomes, including brand reputation, customer expectations, and emotional responses. Also, Collinearity was assessed through Variance Inflation Factor (VIF) (Table 8), in which all the values fell below the recommended threshold of 5.0, indicating that multicollinearity was not found in the results (Hair et al., 2021).

**Table 7**

*Analysis of  $f^2$  and  $R^2$  Using PLS Alogarithm and  $Q^2$  predict Using Blindfolding (Service Failure, Service Recovery, & Loyalty)*

Variables	$f^2$	Effect Size	$R^2$	$Q^2$ predict	Predictive Relevance
Service Failure->Loyalty	0.153	Moderate			
Service Failure -> Service Recovery	0.107	Moderate			
Service Recovery -> Loyalty	0.391	Strong			
Loyalty			0.309	0.014	Low
Service Recovery			0.066	0.035	Low

From an interpretive standpoint, this means that while service recovery is critical for customer loyalty, the overall explanatory and predictive power of the model is modest, especially for service recovery. Confirming findings presented by Maxham and Netemeyer (2002), who stated that effective recovery strategies do exert strong direct effects on loyalty, however, other relational factors like trust and perceived value exert considerable importance. However, the low predictive relevance is similar to the study conducted by Liao (2007), who observed that the success of service recovery is highly contextualized, being contingent on cultural expectations and service norms. In the Philippine e-commerce setting, moderate and low predictive values could be explained by fragmented seller networks, inconsistent customer service policies, and lack of personalization in recovery efforts.

**Table 8**

*Multicollinearity Statistics (VIF) for Indicators (Service Failure, Service Recovery, and Loyalty)*

Indicators	VIF
Delivery Problem 1	2.163
Delivery Problem 2	2.889
Delivery Problem 3	2.417
Intangible 1	2.944
Intangible 2	2.516
Poor Website 1	2.887
Poor Website 2	2.819
Poor Website 3	3.005
Poor Website 4	2.354
Process Failure 1	2.312
Process Failure 2	2.953

Repurchase Intention 1	2.512
Repurchase Intention 2	2.374
Tangible 1	2.795
Tangible 2	3.143
Word of Mouth1	3.149
Word of Mouth2	2.947

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## 9 CONCLUSION, RECOMMENDATION AND LIMITATION

In light of the findings of the present research, the following conclusion, recommendations, limitations and future research directions were given.

### 9.1 Conclusion

The direct effects analysis shows that service failure had a significant and positive direct effect on customer loyalty ( $\beta = 0.337$ ,  $p < 0.001$ ), whereas service recovery has an even stronger and highly significant direct effect ( $\beta = 0.537$ ,  $p < 0.001$ ). Interestingly, the association between service failure and service recovery is negative ( $\beta = -0.256$ ) and only marginally significant ( $p = 0.059$ ), showing that there may not have a universally effective service recovery on all kinds of failure or that there are various diversities exist in the effectiveness and promptness of recovery actions. Service failure had an indirect effect on loyalty through service recovery, which is negative and statistically insignificant ( $\beta = -0.138$ ,  $p = 0.090$ ). This simply means that recovery efforts do not mediate the relationship between failure and loyalty completely and, in some instances, even diminish loyalty through a perception of being inadequate. This depicts that recovery does not guarantee a loyalty driver all the time, especially when the customers' expectations are not met.

These results are theoretically consistent with the Expectation Disconfirmation Theory (EDT), whereby satisfaction and loyalty are based on the expected performance and from realized or actual performance. This might have fitted the scenario wherein such customers remained loyal despite a service failure if the failure was a small one, or their expectations from the platform were very low, which would explain the positive direct association between failure and loyalty. However, with the recovery not really exceeding or even meeting expectations, the mediation effect was negative, consistent with the premise of EDT that unmet expectations during the recovery process will only serve to heighten dissatisfaction. Attribution Theory adds another dimension: it suggests that

customers are likely to consider the origin of the failure and the extent of the company's control over it before making a decision about remaining loyal to the platform. They forgive an occurrence tied to uncontrolled or infrequent failures; otherwise, the perception of careless or preventable recovery will not favor loyalty.

From a practical standpoint, these results suggest that online platforms in the Philippines should not solely depend on a reactive recovery mechanism, but should also devise strategies for failure prevention and expectation management. It is evident that a stringent recovery plan is indeed necessary to implement standardized recovery policies, employ customer service teams that are highly trained, and clear communication protocols to avoid inconsistencies in handling failures. The focus now shifts to proactively monitoring and addressing expectations by accurate product descriptions, realistic delivery timeframes, and quality of service consistency. Hence, combining prevention and exceptional recovery will put the businesses in better alignment with the tenets of EDT and Attribution Theory toward enhancing long-term customer loyalty in highly competitive online niche markets.

## 9.2 Recommendations

Taking into consideration of the analyzed data, the researchers have come up with the following recommendations:

1. Since there is a negative but marginal associations between service failure and service recovery, this implies that companies should try to minimize the occurrence of service failure. This involves better quality control processes, giving realistic time frames for delivery, and putting the right information about a product on their platforms. If a company could lessen the gap between expected and actual service, it would prevent negative disconfirmation in alignment with the EDT principle that fewer service failures result in greater satisfaction and loyalty.
2. The high positive effect of service recovery on loyalty also highlights the need for organizations to establish well-defined and consistent recovery strategies. Policies concerning compensation, refunds, or replacements should be formulated clearly, and their implementation should be consistent and prompt. Recovery should aim to go beyond customer expectations-not just to meet them-in order to create positive disconfirmation and fully restore trust. In this endeavor, training frontline

service teams in empathy, problem-solving, and timely communication will be indispensable.

3. Since loyalty can sustain itself even after a failure if expectations have been properly managed, companies should disclose their service limitations, including possible delays and product availability. Continuous coverage of the customer through updates, reminders, and post-service follow-ups can help deal with customer perceptions. From the standpoint of Attribution Theory, companies should then lay out the reasons behind the service failure, highlighting uncontrollable factors when justified and accepting blame when accountable.
4. With the indirect effect of recovery being negative and insignificant, it is paramount to survey customer perception right after recovery efforts. Administer post-recovery feedback surveys to assess whether recovery actions have positively impacted satisfaction or loyalty. Monitoring should be data-driven for the purpose of improvement and continuous alignment with both EDT and customer attribution patterns.
5. Integrating the principles of EDT and Attribution Theory into the company culture by making customer expectations paramount at every service stage. Also, the company should put together cross-functional teams that smoothly resolve service disruptions with the design of recovery solutions that possess the right balance of empathy and strategy.

### **9.3 Limitations**

This study focused on service failure and service recovery as predictors for customer loyalty. While the outcomes give some insight as to their direct and indirect effects, the analysis did not consider other potential loyalty determinants such as customer satisfaction, trust, perceived value, brand image, and switching costs. Thus, the predictive model might not capture the complexity of the loyalty formation process. Such narrow focus can also lead to an incomplete comprehension of the interface between different dimensions of service quality and customers' loyalty outcomes.

The geographical location is also another limitation of the study, as data were only gathered from respondents within Region IV-A. This narrow sampling frame may significantly limit the generalizability of the findings to other regions of the Philippines

or to an entirely different cultural and market context. Since consumer behavior, consumer expectations, and attribution patterns can vary widely from one region to another, the relationships observed in this study might not hold true in regions affected by different socio-economic conditions or service industry settings.

In addition, the study used data from self-reported responses only, thus, the study findings could have been influenced by recall bias, social desirability biases, and subjective interpretations of service experiences. The cross-sectional design has limited the ability to infer causality between variables. External factors, such as trends in the market, or macroeconomic conditions, were not under consideration but might have acted a significant contributor of loyalty. Finally, the longitudinal changes in loyalty were not studied in this work, leaving open-ended questions concerning the sustainability of service recovery effects over time.

#### **9.4 Future research direction**

Results revealed that there was an insignificant indirect effect of service failure on loyalty through service recovery which future studies might look into on whether service recovery acts as a moderator rather than a mediator. Such method would serve to either strengthen or weaken the direct relationship, depending on the quality and speed of service recovery rather than simply shifting the consequence of a service failure to loyalty through service recovery. Exploring moderation effects would increase understanding of whether high-quality recovery may mitigate detrimental effects of service failures on positive outcomes in loyalty when customer expectations are exceeded.

In addition, future studies would expand the model to include other possible loyalty predictors such as customer satisfaction, trust, perceived justice, commitment to brand, and emotional tie with service providers. Doing research on areas outside Region IV-A will broaden the generalizability of studies. Longitudinal designs would also track changes in loyalty in the different time frames, especially after a series of service encounters or recovery efforts. Finally, qualitative methods should be used, such as interviews or focus groups, since the information gathered would be richer in explaining why service recovery would not act as a mediator in the failure-loyalty relationship, but rather provide a more nuanced understanding of consumer perception and attribution process.

## 10 DEFINITION OF TERMS

This section presents the operational definitions of the significant key terms used in the study.

**Customer loyalty** pertains to customers who continuously used online platforms even after experiencing some failure in service process and delivery. This is measured in terms of re-purchase intention and positive word- of- mouth

**Direct and indirect effects** refer to the connections between and among variables. Direct effect describes the direct influence of one variable on another without the mediation of any third variable.

**Indirect effects** refer to the influence of one variable on another that passes through a mediating variable

**Mediator** explains how or why an independent variable functions on a dependent variable. For example, service recovery has been assessed as a mediator for ascertaining whether it is the mechanism through which service failure relates to customer loyalty.

**Online platform** pertains to a website or digital marketplace that facilitates the online purchase and sale of products and services via the internet, enabling transactions, communications, and services between sellers and buyers in the Philippines.

**Service failure** denotes an error or shortcoming in providing the anticipated standard of service on an online platform, encompassing delivery problems, poor website, and process failure.

**Service recovery** refers to the actions and strategies implemented by online platforms to address and resolve service failures, such as offering refunds, replacements, discounts, or prompt assistance, with the goal of restoring customer satisfaction and maintaining loyalty in this study it was measured in terms of tangible and intangible recoveries.

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### **Authors' Contribution**

Both authors contributed equally to the development of this article.

### **Data availability**

All datasets relevant to this study's findings are fully available within the article.

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