

The Impact of Online Service Recovery Strategies on Perceived Justice and Customer Satisfaction: A Gender-Moderated Analysis

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Abstract. The paper investigates the influence of various service recovery strategies (SRS) on consumer-perceived justice and satisfaction, with gender explored as a potential moderating variable. The study is well-structured and theoretically grounded, drawing on justice and social exchange theories, and employs structural equation modeling with a substantial sample of 510 Vietnamese online consumers. The findings showed that problem solving, follow-up, apology, response speed, explanation, courtesy, and effort significantly influence consumers' perceived justice and contribute to satisfaction with service recovery. Additionally, the findings indicate that problem-solving exerts the most significant influence on perceived justice, and that gender significantly moderates only the relationship between effort and justice. Overall, the research offers valuable contributions both theoretically and managerially.

Keywords: perceived justice, online service recovery strategy, gender, service failure, satisfaction

1. Introduction

Online shopping of tangible and intangible goods and services has become a normalized daily activity (Ariffin et al., 2018). To efficiently capitalize on the growth of the online shopping market, firms must be capable of promptly controlling and resolving service problems. Service failures and consumer complaints are inevitable in all firms. An enterprise's response to service failure can either reinforce consumer loyalty or result in losses (Hazée et al., 2017). Therefore, it consistently emphasizes the significance of the topic of service recovery to maintain good post-recovery consumer relationships (Akinci & Aksoy, 2019; Zhu et al., 2024). Businesses can convert complaints into opportunities for consumer retention and valuable feedback collection. Although listening to consumers' feedback is among the best ways to keep pace with their demands (Cheng et al., 2018), dealing with consumer complaints can be challenging because of the increasing tendency toward consumers' non-complaint behavior (Pera et al., 2019).

Despite previous studies showing a significant relationship between perceived justice and the effectiveness of a service recovery strategy (SRS), there are several issues that remain unclear and require further investigation. Previous literature has primarily focused on consumers' post-behavior (Balaji & Sarkar, 2013) and presented results related to service recovery (Cristafulli & Singh, 2017; Zhu et al., 2024). Research on the impact of SRS on perceived justice in the consumer service industry is scarce (Harun et al., 2018). However, justice is relevant to the interaction between customers and firms throughout the recovery process and to the outcomes of that process (Stokburger-Sauer & Hofmann, 2023; Jung & Seock, 2017). Moreover, many researchers explicitly support the notion that effective SRS enhances perceived justice and maximizes consumer satisfaction (Van Vaerenbergh et al., 2019; Varela et al., 2008). In contrast, Bambauer-Sache and Rabeson (2015) stated that consumers tend to exhibit less tolerance for poor service delivery. Therefore, it is necessary to examine the ways to increase consumer perceived justice in the context of online service recovery. Additionally, the findings of extant research on the effect of various SRS on perceived justice are inconsistent (Mohd-Any et al., 2019).

The literature on justice mainly focuses on the separate effects of distributive, procedural, and interactional justice (Ding & Li, 2016). This study treats perceived justice as a latent variable and defines it as an integration of different sub-dimensions to provide a more succinct and accurate depiction of its interrelated characteristics. Therefore, investigating how consumers perceive justice through a detailed SRS focusing on intangible actions by frontline employees will provide a more comprehensive understanding of the effectiveness of service recovery measures. It is reasonable to consider perceived justice as an essential variable in the current research framework regarding consumer post-failure behavior.

As a collectivist society with high power distance (Hofstede, 2001), Vietnam offers a culturally distinct context where consumers may perceive service interactions and fairness differently from those in Western settings. Additionally, the country is experiencing one of the fastest rates of digital adoption in Southeast Asia, fueling rapid growth in the e-commerce sector. However, like many emerging markets, Vietnam faces challenges such as limited infrastructure, uneven service quality, and a diverse consumer population. These dynamics create a compelling environment to investigate how service recovery strategies operate amid both cultural particularities and resource constraints in a rapidly evolving digital landscape. Since consumers' perceived justice from post-service failure is rooted in cultural values (Dutta et al., 2007), it is essential to investigate consumers' post-failure behavior in an emerging context, such as Vietnam.

Although some scholars have proposed that service recovery is susceptible to marketplace discrimination (Cummings & Seitchik, 2020), few have examined how gender-based differences influence the perception of the service recovery process. Furthermore, research has found that the effectiveness of SRS frameworks relies on certain moderating variables. Studies on service marketing have indicated that gender can influence service evaluations, with service assessments differing based

on the respondent's gender. The findings of Akinci and Aksoy (2019) support these differences in service recovery. Similarly, demographic differences may be important in justice theory and empirical research (Strah et al., 2024). The two genders may be exposed to and perceive different fairness levels throughout the SRS elements. However, previous studies posit that, as the moderating effect of gender may make fair or unfair treatment more noticeable, a clearer empirical and theoretical foundation is necessary to examine how gender influences the boundaries of justice responses (Ruiz-Palomino et al., 2020). Previous studies have explored the role of gender in service recovery, with many researchers examining the contingent effect of gender on the associations between perceived justice and satisfaction or behavioral components (Ding et al., 2016; Harun et al., 2018), primarily within workplace settings (Schulz et al., 2019). Consequently, how gender moderates the relationship between service recovery strategies (SRS) and consumer-perceived justice has been under-examined.

To address these research gaps, this study draws on justice and social exchange theories to explore how SRS affects perceived justice and satisfaction, specifically comparing the effects of various service recovery actions. While women tend to prioritize justice issues and expect higher levels of fairness than men (Ruiz-Palomino et al., 2020), gender-based evaluations of the relationships between SRS and perceived justice remain largely unexplored. Hence, an additional objective was to examine the moderating effect of gender on the relationship between SRS and perceived justice. This study contributes to the mainstream literature on SRS by emphasizing the interaction orientation between frontline employees and consumers (Song et al., 2024).

This study also contributes to the literature by exploring the moderating role of gender in the relationship between SRS and perceived justice. Most studies have typically used gender as a control variable or a moderating factor in the relationships between satisfaction and loyalty or between perceived justice and satisfaction. Thus, recognizing gender-based differences offers a valuable theoretical contribution with significant managerial implications, helping providers better understand and enhance satisfaction following service failure.

2. Literature Review

2.1 Perceived justice

As service recovery research has mainly centered on justice within the framework of social exchange theory, justice theory has become the primary approach to studying service recovery (Jung & Seock, 2017). Said and Nurhayati (2021) define justice as fairness, describing it as the extent to which consumers feel they have engaged in a fair treatment process following service failure (Smith et al., 1999). In service recovery, consumers' perceived justice facilitates effective recovery strategies. Many researchers have considered it a critical variable in consumers' evaluations of the complaint-handling process in businesses (Ali et al., 2023). Carrillo et al. (2019) related a service receiver's concept of justice to the extent to which a firm's effort or response is given appropriately to handle the poor outcomes caused by service failure. Thus, perceived justice indicates the likely effectiveness of SRS. In this study, perceived justice is considered a principal recovery dimension used by complainants to evaluate a firm's recovery efforts.

The related literature suggests the seven components of SRS based on three types of perceived justice. Nevertheless, there is no consensus among scholars regarding the classification of the SRS components because each SRS is argued to partially and simultaneously affect the three dimensions of perceived justice (Gelbrich & Roschk, 2011). Additionally, justice researchers express uncertainty about dividing perceived justice into procedural, distributive, and interactional justice for several reasons (Karatepe & Ekiz, 2004; DeWitt et al., 2008). Although perceived justice is frequently conceptualized as a multidimensional construct comprising three components, this tripartite categorization has been subjected to scrutiny by scholars who contend that individual recovery strategies may concurrently influence all dimensions of justice, thereby interrogating the rigid autonomy of these classifications (Harun et al., 2018). Liao (2007) found that multiple dimensions of

consumer justice perceptions are intercorrelated; Gelbrich and Roschk (2011) also emphasized the significance of halo effects in hindering consumers from effectively differentiating among the various dimensions. Thus, using perceived justice as a unidimensional construct may provide a more succinct and accurate depiction of its interrelated characteristics. Based on previous scholars' findings and suggestions, perceived justice is considered a latent construct within this conceptual framework (Harun et al., 2018; DeWitt et al., 2008).

2.2. Service recovery strategy

2.2.1. Problem-solving

According to justice theory, justice manages economic and social inequality (Said et al., 2021). Therefore, consumers typically expect their gains to match the costs they incur, which they perceive as fairness, with symbolic relevance beyond material properties. According to social exchange theory, focusing on the characteristics of individual-level social exchange, consumers want their complaints to be heard and resolved because they believe that a provider's actions depend on consumers' complaint behavior. Another rule in this theory is based on the belief that people take rational actions to maximize value and require logical responses (Cropanzano & Mitchell, 2005). Thus, after voicing their complaints, dissatisfied consumers expect companies to resolve service failures effectively and achieve justice, instead of providing apologies; this leads to apologies becoming an insufficient SRS (McColl-Kennedy et al., 2003). In this study, problem-solving means identifying and implementing an appropriate solution to resolve an issue, as Kwortnik (2006) described. Employees' problem-solving abilities significantly affect consumer satisfaction and service quality evaluation in the service sector. Simultaneously, some studies have not considered problem-solving as an SRS (Yavas et al., 2004; Karatepe et al., 2004). Additionally, previous studies found a positive correlation between problem-solving and perceived justice in personal complaint-handling service encounters (Harun et al., 2018; Liao, 2007). We include problem-solving as an intangible action in SRS because it significantly predicts consumer-perceived justice.

Regarding gender-based differences, male participants have been found to focus more on tasks and results (Sharma et al., 2012). In contrast to women, men do not prioritize opinions but focus on outcomes, seeking proper redress that benefits them and supports their advancement (McColl-Kennedy et al., 2003; Strah et al., 2024). They also tend to prioritize utilitarian aspects, emphasizing the effectiveness and efficiency of strategies (Diep & Sweeney, 2008; Dittmar et al., 2004). Therefore, male consumers are expected to emphasize resolving service failures more than female consumers, who are expected to emphasize other process-oriented actions. Consequently, male consumers are likely to concentrate on failed tasks and how they can be resolved when faced with service failures. Therefore, we propose the following:

H1. Problem-solving is positively related to perceived justice in online service.

H1a. Problem-solving has a stronger positive effect on perceived justice for male consumers.

Table. 1: Key empirical studies on service recovery strategy and the moderating effect of gender

Study	Study context	Theoretical perspective	Antecedents	Mediator	Moderator	Consequences	Key findings related to our study
Ali et al. (2023)	A survey of 300 respondents	Justice theory Social Exchange theory Cognitive Appraisal theory	Perceived justice	Satisfaction Affection	Gender	Repurchase	Perceived justice, affection, and satisfaction positively affect repurchase intentions. Gender moderates the relationship between perceived justice, customer satisfaction, and repurchase intentions, with the effect being more pronounced among women than men.
Cambra-Fierro et al. (2013)	A survey was conducted with 202 participants	Justice theory	Effort Recovery expectations, Service failure severity Perceived justice	Satisfaction Attitudinal Loyalty	Gender	Behavioral Loyalty	Men are more influenced by perceived effort and its effect on customer satisfaction after recovery than women.
Davidow (2000)	A survey of 319 students in the southern United States	N/A	Timeliness Apology Redness facilitation Credibility Attentiveness	Satisfaction	N/T	WOM Valance Repurchase intention WOM likelihood	Timeliness, redness, and attentiveness positively and significantly affect satisfaction. Apology has a negative influence on repurchase intention.
Ding et al. (2016)	A survey was conducted involving 483 students in Taiwan	Justice theory Equity theory Social exchange theory	Distributional justice Procedural justice Interactional justice	Satisfaction with Recovery Trust	Gender	Extra-role behaviors Repurchase intention	Female customers emphasize procedural and interactional justice more than distributional justice when evaluating their satisfaction.
Harun et al. (2018)	A survey of 869 students regarding at least one service failure in the Southwestern USA	Justice theory	Problem solving Courtesy Explanation Apology Response Speed Perceived Justice	Perceived Justice Loyalty	Gender	Positive Word of Mouth	The finding shows that, compared to men, courtesy has a greater effect on perceived justice in women. By contrast, for men, the effect of explanation on perceived justice is notably larger.

Karatepe et al. (2004).	A survey of 781 respondents from hotel guests in Northern Cyprus	Equity theory	Apology Atonement Promptness Facilitation Explanation Attentiveness Effort	Complaint Satisfaction	N/T	Complaint loyalty	Apology, explanation, and effort are three response options that organizations can use to impact complainant satisfaction and loyalty positively.
Liao (2007)	A survey of 658 for study one and 635 for study two	Theory-based approach Prospect theory Asymmetric disconfirmation and Attribution theory	Making an apology Problem solving Being courteous Providing an explanation Prompt handling	Perceived Justice Satisfaction with Service Recovery	N/T	Repurchase intention	The results suggest that justice can be established in the consumer's mind by effectively implementing service recovery strategies. Thus, practitioners in the service industry can enhance loyalty, thereby influencing the consumer's post-complaint mindset more effectively.
McColl-Kennedy et al. (2003).	An experimental design with 712 respondents	Social exchange theory Social role theory	Concern Voice compensation Outcome	N/T	Service provider gender	Satisfaction Future intentions Employee effort	Women desire to hear their opinions and provide input through service recovery efforts. By contrast, men do not consider having a voice as significant.
Mostafa et al. (2015).	A survey of 437 complainants	Cognition-affect-attitude theory Justice theory	Problem solving Compensation Speed of response Apology Follow-up Courtesy Explanation	Perceived Justice Satisfaction with Recovery	N/T	Corporate Image	The findings indicate that problem-solving is a determinant of distributive justice, while follow-up serves as an element of procedural justice. However, an apology does not significantly affect interactional justice.
This study	Survey of 510 Vietnamese consumers who had experienced at least one service failure	Justice theory Social exchange theory	Problem solving Follow up Response Speed Apology Explanation Courtesy Effort	Perceived Justice	Gender	Satisfaction with Service Recovery	Components of intangible online SRS influence perceived justice, and then explore consumer satisfaction. The study also examines the effect of gender as a moderator on the SRS-perceived justice relationship.

Note: N/A = not applicable; N/T = not tested

2.2.2. Follow-up

According to justice theory, customers assess the fairness of solutions offered during the service recovery (DeWitt et al., 2008). In this context, justice pertains not only to the consumer interaction with the company but also to the consequence of the recovery process (Cambra-Fierro et al., 2013). Follow-up pertains to an organization's actions to confirm that a consumer's problem has been resolved (Johnston & Mehra, 2002). This can be achieved effectively through clear and personalized communication that informs consumers about resolving a problem and ensures their satisfaction. Furthermore, according to the reciprocity tenet of justice theory, an action by one party is believed to lead to a response from another (Said et al., 2021). Thus, staff members are more likely to serve dissatisfied consumers to obtain beneficial consequences. Likewise, even with resolved failures, service providers should follow up on consumer service to ensure consumers' eventual perceptions of SRS.

Although follow-ups have been considered a crucial element in an effective complaint-handling process (Johnston et al., 2002) and may have a more significant impact than response time (Mostafa et al., 2015), limited studies have examined the relationship between follow-up and perceived justice. The moderating role of gender in the relationships between follow-up and perceived justice has been discussed. While men are more goal-oriented, women are more likely to focus on interpersonal relationships (Iacobucci & Ostrom, 1993; Schulz et al., 2019). Further, female consumers tend to be more attuned to details of service experiences, and they require comprehensive information processing (Ding et al., 2016; Ali et al., 2023). According to McColl-Kennedy et al. (2003), female consumers anticipate a higher level of care and concern from both male and female service providers, which involves basic service skills and actions to confirm that a problem has been resolved. Therefore, women tend to appreciate the fairness of SRS after they have opportunities to be involved in thorough interactional communication with employees. Thus, we propose the following:

H2. Follow-up positively relates to perceived justice in online services.

H2a. Follow-up has a stronger positive effect on perceived justice for female consumers.

2.2.3. Response speed

Service employees' quick response to consumer complaints is known as response speed (Liao, 2007). In the service sector, timeliness has emerged as one of the most important determinants of service quality and consumers' post-recovery satisfaction (Crisafulli & Singh, 2017). A quick response should be acknowledged by addressing consumers' problems and maintaining good communication with employees during the service recovery. Furthermore, construal-level theory (Trope & Liberman, 2003) posits that customers view time in abstract terms, rather than as a concrete and limited resource. While several studies indicate that timely responses to service failures effectively restore consumer satisfaction, others show that this does not always result in positive consumer outcomes (Crisafulli et al., 2017; Zhou et al., 2014). The relationship between timeliness in SRS and perceived justice requires further investigation. Additionally, the powerful e-commerce extension has significantly transformed how firms deliver services and engage with consumers, increasing the importance of quick responses in service encounters and raising standards for handling complaints within shorter timeframes.

According to Mostafa et al. (2014), timeliness has a stronger positive relationship with consumer-perceived justice than other service recovery actions. This study builds on previous research (Wirtz & Mattila, 2004; Crisafulli & Singh, 2017) by emphasizing the importance of response speed in SRS. The study extends the existing literature by identifying the effect of response speed on overall perceived justice. Recovery response time can have a combined effect with other SRS, such as service significance, which is regarded as a symbolic resource in social exchange theory (Crisafulli & Singh, 2017). Thus, response time can enhance consumers' perception of fairness.

Furthermore, male consumers tend to evaluate the effectiveness of SRS based on organizational employees' responses to their complaints (Ding et al., 2016). They also prioritize the efficiency and

accuracy of services, which can be demonstrated through actions such as quick responses that promptly connect a company with complainants (Ding et al., 2016). Consequently, male consumers prefer quick responses during the recovery process, and quick responses have a greater impact on their perception of equality. Thus, we propose the following:

H3. Response speed is positively related to perceived justice in online services.

H3a. Response has a stronger positive effect on perceived justice for male consumers.

2.2.4. Apology

According to Smith et al. (1999), compensation in the form of an apology can redistribute social resources such as esteem in an exchange relationship. It can also be viewed as a psychological compensation that helps consumers restore balance or equilibrium (Davidow, 2000). Goodman et al. (1987) posit that an apology from an organization is not an admission of wrongdoing, but a demonstration of taking an issue seriously and giving it attention.

Justice literature emphasizes the significance of offering apologies as part of service recovery, as it helps individuals actively reengage with undesired events (Leary, 2010). However, research findings on the relationship between apology and the three dimensions of perceived justice are inconsistent. Specifically, apologizing positively influences perceived justice (Tax & Brown, 1998; Liao, 2007). In the direction of a unified approach to justice, this study expanded on earlier research by considering apologies and suggesting a positive relationship between an apology and consumers' overall perceived justice.

Additionally, because female consumers tend to regard a firm's service failure more seriously than male consumers do (Huang et al., 2003), Mattila et al. (2003, 2009) indicated that women are more sensitive to shape expressions and the emotional benefits that often accompany an apology from service employees. Women expect organizational representatives to listen to their complaints, and the apology acknowledges the person's effort to listen and respond to show sincerity regarding failure. Thus, female consumers are more perceptive to emotional cues and can recognize different levels of sincerity in an apology. As previously mentioned, we posit the following:

H4. Apology is positively related to perceived justice in online service.

H4a. Apology has a stronger positive effect on perceived justice for female consumers.

2.2.5. Explanation

An explanation refers to a company's acknowledgment of a problem, willingness to take responsibility for the problem, and making a genuine effort to resolve an issue (Yavas et al., 2004). Justice theory proposes the mediating role of perceived fairness in providing explanations (Adams, 1965). Moreover, a systematic review of service recovery shows that consumers perceive justice when employers explain their problems (Mostafa et al., 2015). However, explanations may have the opposite effect if a company makes excuses instead of taking full responsibility for service failure. Along with the concept of social exchange theory, the explanation relates to the thorough interaction between two parties, which evolves until the failure is resolved. Consequently, this contributes to a more positive relationship, improving consumers' justice perception. Hence, the SRS should be able to explain to consumers.

Female consumers focus more on interpersonal or socially oriented relationships (McColl-Kennedy et al., 2003). They will be more sensitive to service recovery fairness if they communicate effectively with complainants. Darley and Smith (1995) discovered that women are more comprehensive information processors, meaning that the more information they receive from providers' explanations, the more likely they are to perceive SRS to be fair and equal. According to Ali et al. (2023) and Ding et al. (2016), female consumers seek sufficient time to express their opinions and concerns regarding acceptable compensation and an explanation from employees regarding their complaints. Thus, we posit the following:

H5. Explanation is positively related to perceived justice in online services.

H5a. Explanation has a stronger positive effect on perceived justice for female consumers

2.2.6. Courtesy

Courtesy involves showing consumers respect and patience and being polite and friendly (Liao, 2007). It is related to a complex set of people's internal processes, rather than procedures. Courtesy focuses on the interactions between employees and consumers; it entails how employees handle complaints excellently and smoothly when interacting with consumers. According to social exchange theory, reciprocity orientation is linked to the tendency to return favorable treatment for good treatment. In addition to the rule of rational actions, exchanges have symbolic relevance, which can benefit others, even at a cost (Cropanzano & Mitchell, 2005). According to the theory of justice, people have the right to enjoy social benefits (Said and Nurhayati, 2021). Therefore, courtesy could be considered a moral responsibility, which helps increase consumers' perceptions of fairness. Although previous studies have not provided conclusive results on the various effects of courtesy, consumers' perceived justice may mediate the relationship between courteous behavior and consumer satisfaction. According to Mostafa et al. (2015), the courtesy-interactional justice relationship facilitates the integration of courtesy into the SRS. Extensive literature has asserted that courtesy positively affects consumer justice perceptions (Harun et al., 2018; Liao, 2007). Thus, courtesy is predominant in recovery strategies that focus on employee behavior. Courtesy is suggested to lead to high levels of perceived justice.

Female consumers prefer service representatives with strong social skills, such as active listening, understanding, attentiveness, empathy, customer-oriented services, and sincerity toward clients (Iacobucci et al., 1993). Sparks and Callan (1997) also found that women are more involved in harmony-oriented communication styles than men during service interactions. Conversely, when service employees fail to convey friendly emotions, female consumers tend to provide more negative evaluations than male consumers (Luong, 2007). In other words, demonstrating emotional understanding and expression is crucial for female consumers, who tend to be warmer and more emotionally engaged than male consumers (Ding et al., 2016; Iacobucci et al., 1993). Therefore, we propose the following hypotheses:

H6. Courtesy is positively related to perceived justice in online service.

H6a. Courtesy has a stronger positive effect on perceived justice for female consumers.

2.2.7. Effort

In equity theory, equity in an exchange occurs when one person's outcome-to-input ratio is perceived as equal to that of another (Walster et al., 1978). According to the literature, effort implies the degree of an individual's exertion in their actions. By contrast, perceived effort pertains to the extent to which others think this effort has been made (Mohr & Bitner, 1995). Based on the principle of justice theory, it is important to manage a situation to overcome inequality (Rawls, 1971). Simultaneously, reciprocity represents the belief that consumers can, in turn, benefit a company by paying for employee efforts. Previous studies identified effort as a crucial determinant of SRS (Velázquez et al., 2015). The recovery efforts undertaken by a service provider after a complaint are essential, especially during service, because they reflect consumer recovery expectations (Mostafa et al., 2014; Karatepe et al., 2004). Hence, effort is an essential variable in predicting consumer-perceived justice in exchanges. However, limited research has focused on the significant effect of effort on perceived justice, and SRS-comprising efforts remain rare (Harun et al., 2018; Liao, 2007).

In previous studies, female clients typically demonstrate fewer demands, making perceived effort more valuable to male customers. In other words, men respond more strongly to greater effort than women (Cambra-Fierro et al., 2013; Mittal & Kamakura, 2001). Moreover, similar to the theory of resource conservation, Cambra-Fierro et al. (2013) indicate that men are more likely to demand more interactions with service providers. Male consumers expect organizations to make substantial, compelling recovery efforts to address service failures. Building on the existing literature, this research framework enhances the study by incorporating the concept of effort. Thus, we propose the following:

H7. Effort is positively related to perceived justice in online service.

H7a. Effort has a stronger positive effect on perceived justice for male consumers.

2.2.8. Satisfaction with service recovery

Recent research confirms that service quality has a significant direct and indirect effect on customer loyalty, mediated by satisfaction and perceived value, even in specialized service sectors such as elderly care (Liu et al., 2025). Satisfaction with service recovery refers to a positive assessment of feelings toward the benefits and drawbacks of corrective measures in response to service failure (Huang, 2011). Importantly, when a company's SRS aligns with the expectations of dissatisfied customers, customer satisfaction levels rise (Maxham & Netemeyer, 2002). As framed by justice theory, consumers' perceptions of fairness in the complaint-handling process affect post-recovery satisfaction (Das et al., 2019). Recent work on consumer satisfaction has predominantly employed justice theory, which is concerned with how user satisfaction is formed. Following a service failure, consumers typically receive an inequitable exchange (Ding et al., 2016). Nevertheless, high-performance service recovery reduces consumer perceptions of inequity (del Río-Lanza et al., 2009). Thus, consumers' perceived justice can predict consumers' post-failure satisfaction.

As positively perceived justice can be used as a friendly approach that creates an impression of good customer care, a higher level of perceived justice concerning a firm's efforts will lead to a better relationship with consumers (Harun et al., 2018). Hence, if service performance fails to meet consumer expectations, handling these problems with effective and efficient recovery strategies is vital to restore consumer satisfaction and increase retention. Based on this view, consumers value a provider's performance through perceived justice (Ding et al., 2016). Consequently, a higher level of perceived justice leads to higher consumer satisfaction. Hence, we propose the following:

H8. Perceived justice toward a service recovery strategy positively influences consumer satisfaction with service recovery.

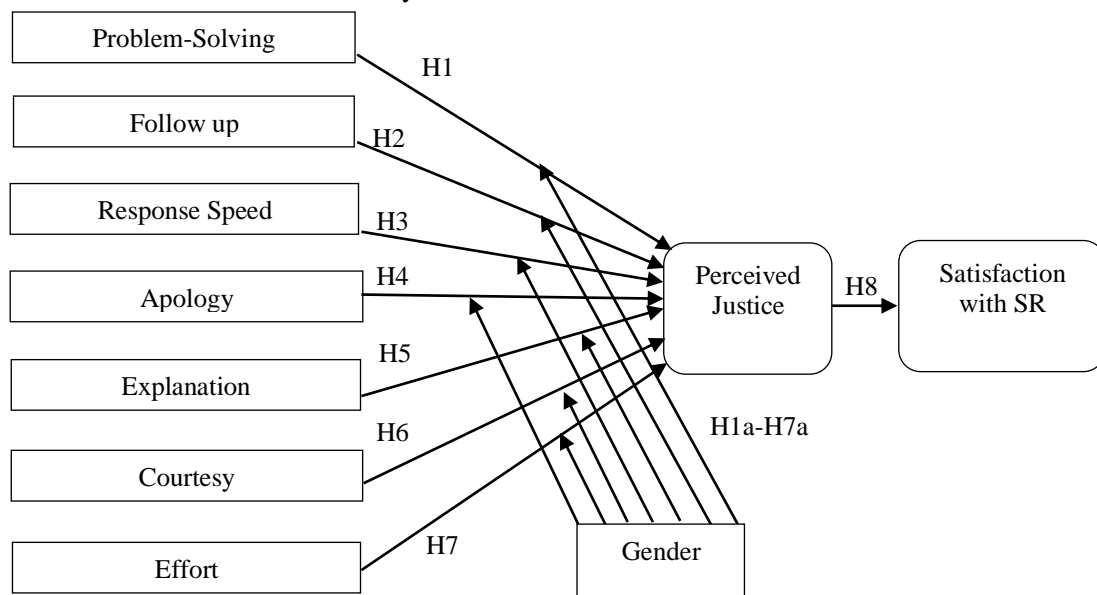


Fig.1: Conceptual framework

3. Methodology

3.1. Data collection and sampling

The research context is the online purchasing behavior of Vietnamese consumers who have experienced service recovery. The sample focuses on emerging adults characterized by a transitional life stage. Young people will undergo swift and recurring psychological and environmental transitions, which may incite a desire to reformulate the strategies businesses employ in response to the

increasingly complex requirements (Collins et al., 2023). Moreover, this demographic is projected to represent the overall consumer base approximately, thereby emerging as a cohort with significant sway over the consumer marketplace (Nielsen, 2018).

Respondents were provided with a survey via several different online forum groups, allowing participants an equal chance to be enrolled on those platforms. The study sample was enlarged to 535 responses, surpassing the minimum sample size. At the start of the survey, we included a mandatory question to confirm whether the respondents had experienced at least one online service failure and had made a formal complaint against the relevant business. This helped us select the target respondents for our study. After excluding questionnaires with incomplete or invalid responses, 510 respondents were included in the final data collection.

A brief demographic overview of the sample is as follows. Among the 510 participants, 53.7% were male and 46.3% were female. An overwhelming majority (96.7%) were 18-30 years old. Approximately 70% had college or bachelor's degrees, followed by graduated school or above (18.0%) and a high school degree (2.0%). Most respondents had at least four years of online shopping experience (68.3%), while 31.8% had three or fewer years of online shopping experience. Approximately 91.8% of the respondents shopped online in recent years, and 92.3% shopped online several times monthly. The sample indicates a relatively high SRS level, with mean values for each dimension remaining as shown below: apology (mean = 3.34, SD = 0.69), courtesy (mean = 3.30, SD = 0.64), effort (mean = 3.48, SD = 0.71), explanation (mean = 3.43, SD = 0.79), follow-up (mean = 3.20, SD = 0.73), problem-solving (mean = 3.48, SD = 0.87), and response speed (mean = 3.27, SD = 0.78).

3.2. Measurement

Considering these research objectives, the authors developed valid content by obtaining the measures generated by relevant research. The questionnaire included 31 items describing eight constructs: problem-solving, follow-up, apology, response speed, courtesy, effort, explanation, and perceived justice. The SRS questions were designed according to Liao's (2007) and Mostafa et al. (2014) recommendations. The effort items were borrowed from Davidow (2000). The items used to measure perceived justice were adapted from Harun et al. (2018). Del Río-Lanza et al. (2009) developed the items for measuring satisfaction.

Table 2: Items and measurement assessment

Construct and scale items	Standardized factor loading	CR	AVE
Apology (<i>Cronbach's α = 0.852</i>)		0.899	0.691
The firm apologized to me for the incident	0.703		
Expressed regret for the mistake that happened	0.865		
Apologized to me for the inconvenience this problem caused	0.868		
Apologized for the difficulties I faced due to the problem	0.876		
Courtesy (<i>Cronbach's α = 0.835</i>)		0.889	0.668
Was friendly towards me	0.837		
Treated me politely	0.823		
Showed me respect	0.821		
Was patient with me	0.787		
Effort (<i>Cronbach's α = 0.942</i>)		0.958	0.851
Devoted all their energy to addressing my complaint	0.942		
Worked at full capacity to resolve my complaint	0.924		
Strived diligently to address the complaint effectively	0.904		
Truly exerted themselves to the utmost to resolve the complaint	0.919		
Explanation (<i>Cronbach's α = 0.943</i>)		0.959	0.855
Explained why the service issue may have occurred	0.920		
Outlined the factors that may have contributed to the problem	0.902		
Clarified what might have gone wrong	0.926		
Provided a compelling explanation for the cause of the issue	0.950		
Follow-Up (<i>Cronbach's α = 0.900</i>)		0.931	0.77

After resolving the issue, the firm reached out to confirm that it was fully resolved	0.899		
After addressing the complaint, the firm followed up to ensure everything was satisfactory	0.860		
The firm requested that I use the service to verify that the issue was completely resolved	0.857		
The firm contacted me to update me on the status of my complaint	0.893		
Problem-Solving (<i>Cronbach's $\alpha = 0.949$</i>)		0.967	0.908
Addressed my concerns effectively	0.955		
Provided solutions to the issue	0.971		
Addressed the problem efficiently	0.931		
Response Speed (<i>Cronbach's $\alpha = 0.917$</i>)		0.941	0.800
Promptly addressed my inquiries	0.900		
Quickly attended to the issue	0.857		
Responded to my complaint quickly	0.903		
Resolved the problem promptly	0.917		
Perceived Justice (<i>Cronbach's $\alpha = 0.939$</i>)		0.956	0.845
I received what I was entitled to.	0.925		
The outcome of my complaint was fair.	0.915		
I am satisfied with the time it took to resolve my complaint.	0.917		
The employees adjusted their complaint handling procedures to meet my needs.	0.921		
Satisfaction with Service Recovery (<i>Cronbach's $\alpha = 0.936$</i>)		0.959	0.887
I am satisfied with how my problem was addressed and resolved.	0.942		
Provided a satisfactory solution to this issue	0.948		
I am pleased with the outcome of my issue resolution.	0.935		

Notes: CR = composite reliability; AVE = average variance extracted

3.3. Common method bias

As the study researchers simultaneously collected data from multiple groups of participants, common method bias was a concern (Podsakoff et al., 2003). Harman's single-factor test was implemented using SPSS 24 software to examine the common method bias, which revealed that only 40.36% (<50%) of the total variance was explained by the first factor. The result indicated that bias was not a concern in this study.

4. Analysis and Results

4.1. Measurement model

This study employed SPSS 24 for descriptive analysis and the partial least squares (PLS) approach to estimate the measurements and SEM. Table 2 presents factor loading, Cronbach's α , CR, and AVE. All α values exceeded the recommended threshold of 0.7, ranging from 0.835 to 0.949. All factor loadings exceeded 0.50, indicating that they meet the required standards. The constructs' CR ranged between 0.889 and 0.967, exceeding the required 0.7 (Hair et al., 2010). Additionally, all AVE values were higher than 0.5, which is acceptable (Nunnally, 1978). Consequently, the convergent validity was acceptable.

Table 3 shows the AVE square roots, correlation among all constructs, and descriptive statistics for discriminant validity. The results showed that the AVE square roots were higher than the correlations among all constructs. These findings indicate acceptable discriminant validity (Fornell & Larcker, 1981).

Table 3: Descriptive and discriminant validity (n = 510)

Variables	AP	CO	EF	EX	FU	PJ	PS	RS	SA
AP. Apology	0.831								
CO. Courtesy	0.465	0.817							
EF. Effort	0.297	0.233	0.922						

EX. Explanation	0.296	0.289	0.605	0.925					
FU. Follow up	0.362	0.373	0.44	0.394	0.878				
PJ. Perceived justice	0.466	0.444	0.664	0.64	0.543	0.919			
PS. Problem solving	0.298	0.268	0.709	0.636	0.435	0.677	0.953		
RS. Response speed	0.269	0.261	0.3	0.251	0.266	0.399	0.243	0.894	
SA. Satisfaction	0.367	0.321	0.634	0.548	0.519	0.652	0.62	0.29	0.942
Mean	3.34	3.3	3.48	3.43	3.2	3.37	3.48	3.27	3.62
Standard Deviation	0.69	0.64	0.71	0.79	0.73	0.74	0.87	0.78	0.74

Note: The figures in bold indicate the square roots of AVE.

4.2. Structural model for hypothesis testing

After analyzing the blindfolding procedure, the results enabled the evaluation of cross-validated redundancy for the Stone–Geisser Q^2 statistic (Chin, 1998). The results revealed that Stone–Geisser’s Q^2 statistic value for the primary construct of perceived justice was greater than zero (Table 4).

Therefore, the model has predictive fitness. The SRMR result was 0.079, lower than the threshold value of 0.08. Our model fits our data well (Hu et al., 1999).

Table 4: Stone-Geisser's Q^2 statistic value

Constructs	SSO	SSE	$Q^2 (=1-SSE/SSO)$
Apology	2040	2040	
Courtesy	2040	2040	
Effort	2040	2040	
Explanation	2040	2040	
Follow Up	2040	2040	
Perceived Justice	2040	903.083	0.557
Problem-Solving	1530	1530	
Response Speed	2040	2040	
Satisfaction with Service Recovery	1530	695.214	0.546

Note: SSE = sum of squared prediction errors; SSO = sum of squared observations

This study tested these hypotheses using bootstrap 5000 samples (Preacher & Hayes, 2008). The research model explains 67.1% of the variance in perceived justice and 62% in satisfaction. As shown in Table 5, the analysis of the effect of the SRS on perceived justice indicated that problem solving had the most significant influence on perceived justice ($\beta = 0.238$, $p < 0.001$). The second influential factor was effort ($\beta = 0.205$, $p < 0.001$), followed by explanation ($\beta = 0.202$, $p < 0.01$), follow up ($\beta = 0.143$, $p < 0.001$), apology ($\beta = 0.130$, $p < 0.01$), courtesy ($\beta = 0.129$, $p < 0.01$), and response speed ($\beta = 0.122$, $p < 0.01$). Hypothesis 8 posits that perceived justice significantly and positively affects satisfaction with service recovery. Table 5 shows $\beta = 0.141$, $p < 0.01$. This finding aligns with our prediction, supporting the study’s hypotheses, from H1 to H8.

Table 5: Structural model results

	Path coefficient	T Statistics	P Values	Supported (s)/not supported (ns)
Problem Solving -> Perceived Justice	0.238	5.476	0.000	s
Follow Up -> Perceived Justice	0.143	3.983	0.000	s
Response Speed -> Perceived Justice	0.122	4.306	0.000	s
Apology -> Perceived Justice	0.130	4.146	0.000	s
Explanation -> Perceived Justice	0.202	5.109	0.000	s
Courtesy -> Perceived Justice	0.129	3.762	0.000	s
Effort -> Perceived Justice	0.205	4.454	0.000	s
Perceived Justice -> Satisfaction with SR	0.141	3.397	0.001	s

4.3. The moderating role of gender as a consumer characteristic

This study investigates the moderating impact of gender on the relationships between SRS dimensions and perceived justice through a model multigroup analysis process (Kim et al., 2025). The study

compares male and female consumers to examine the role of gender in the online SRS context. Table 6 presents the results of a comparative analysis between men and women through a male group of dissatisfied consumers ($n = 274$) and a female group of the same ($n = 236$).

The findings display a positive relationship between effort and perceived justice for the male group ($\beta = 0.330$, $p < 0.001$), while it is not significant for the female group ($\beta = 0.113$, $p > 0.05$) at the 5% significance level ($p < 0.05$). This result aligns with our prediction, thus supporting H7a.

Despite the positive impact of SRS on perceived justice among women and men, the permutation test for both groups produces insignificant results at the 5% significance level. There are positive effects of problem-solving, follow-up, response speed, apology, and explanation of perceived justice for female and male groups of dissatisfied consumers. The model comparison between the two groups did not yield any significant findings. Therefore, H1a, H2a, H3a, H4a, and H5a are rejected. Courtesy significantly positively impacted perceived justice only in the female group. However, the results of the weight comparison did not show a significant difference between women and men. Thus, H6a is rejected.

Table 6: Permutation test based multi-group analysis for gender

Path	Standardized coefficient		Difference	p-value	Results
	Female	Male			
Problem-Solving -> Perceived Justice	0.281***	0.180**	0.101	0.204	Rejected
Follow Up -> Perceived Justice	0.106*	0.176***	-0.070	0.317	Rejected
Response Speed -> Perceived Justice	0.144**	0.081*	0.063	0.280	Rejected
Apology -> Perceived Justice	0.148**	0.100*	0.048	0.451	Rejected
Explanation -> Perceived Justice	0.245***	0.163**	0.082	0.288	Rejected
Courtesy -> Perceived Justice	0.159***	0.095	0.064	0.333	Rejected
Effort -> Perceived Justice	0.113	0.330***	-0.217	0.012	Accepted

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

5. Discussion and Implications

This study contributes to the existing knowledge by constructing a theoretical framework with a relevant grounding base to analyze consumers' post-complaint perception. It provides better insight into the effect of exogenous factors on consumers' post-purchase behavior concerning demographic variables, namely gender. The study found that all SRS dimensions for complaints positively influenced perceived justice. Consistent with previous research, this finding highlights the significance of problem solving, apology, response speed, explanation, and courtesy in SRS (Harun et al., 2018). This finding also reveals that problem-solving is the most significant factor in consumer-perceived justice. This finding corroborates the conclusions of a previous study (Liao, 2007).

Furthermore, explanation was the second-most crucial factor affecting perceived justice. However, other studies had contrary findings. Mostafa et al. (2014) show that explanation does not affect satisfaction. Harun et al. (2018) find a weaker but significant relationship between explanation and perceived justice. Liao (2007) emphasizes that this explanation negatively influences perceived justice. Thus, the results explain that a higher explanation fuels perceived justice behavior. Moreover, this study found that effort and follow-up affected perceived justice, contributing to the extant SRS literature.

This study offers valuable insights into service recovery by investigating the antecedents of consumers' perceived justice across genders. Except for effort, the findings did not support most of the hypothesized gender-based differences in response to SRS. The comparison between male and female consumers reveals that men tend to place greater importance on effort, aligning with the findings of Cambra-Fierro et al. (2013) and Mittal et al. (2001), who noted that male consumers are

more likely to evaluate the fairness of a firm's recovery efforts based on the perceived exertion of effort. In contrast, Ding et al. (2016) reported that female consumers are more sensitive to interactional justice—such as apology, explanation, courtesy, and effort—which must be addressed carefully to restore their satisfaction and trust. Furthermore, the current findings differ from those of Luong (2007), who found that women aged 18 to 24 particularly expect an apology and compensation during service recovery. These discrepancies may suggest that generational or cultural shifts have diminished traditional perceptual differences between male and female consumers.

5.1. Theoretical implications

This study uses justice theory to evaluate the relative impact of different SRS elements in the form of intangible actions on consumer-perceived justice in online settings, which has not been sufficiently investigated (Mohd-Any et al., 2019). The theoretical framework enhances the social exchange theory by offering a research-based foundation for understanding the interactions between consumers and store personnel within the norm of reciprocity (Kim et al., 2025). The direct and positive associations between the SRS dimensions and perceived justice can be understood through individual-level social exchanges, in which consumers expect their issues to be addressed as fair compensation for their losses. This aligns with the suggestion by Balaji and Sarkar (2013) that service recovery attributes play a dominant role in consumer justice perceptions toward any service failure magnitude. Moreover, the central concept of social exchange theory – reciprocity—is inherent in social exchanges (Cropanzano & Mitchell, 2005). Generally, all consumers expect fair treatment from service providers and are more likely to repay organizations through their positive evaluation if they perceive equality in the process.

Furthermore, this study highlights the significance of social networks in elucidating the differences in individuals' roles in the communication process concerning gender. The findings elucidate the underexplored relationships between specific dimensions of SRS and perceived justice. While gender has often been considered as a control or moderating variable in the relationship between satisfaction and loyalty and between perceived justice and satisfaction in most studies (Ding et al., 2016; Harun et al., 2018), one significant gender moderating effect between effort and perceived justice was confirmed to underline that the differing effects of employee effort on perceived justice for male and female consumers are both novel and significant, as they reinforce the importance of SRS (Luong et al., 2021) and demonstrate the gender-contingent effect on perceived efforts (Boo et al., 2013). Conversely, the insignificant moderating role of gender in the association between problem-solving, follow-up, response speed, apology, explanation, courtesy, and consumers' perceptions of fairness seems plausible in the current context. Underpinning theories were developed in the workplace or in a specific context where men were more socially powerful with a higher hierarchical status, leading to a higher demand for justice and security for women.

5.2. Managerial implications

Managing to retain consumers over time is an essential part of a sustainable business. Nurturing existing consumers has a far lower cost than converting to brand-new consumers. Minor enhancements in consumer retention due to service recovery can significantly affect profitability (Edstrom et al., 2022). This helps consolidate the argument of Carrillo et al. (2019) that SRS should always be up-to-date and fully prepared to face eventualities, regardless of business settings. These findings contribute to a detailed strategy by focusing on intangible actions, all of which are managed by frontline employees, to recover consumer-perceived justice. All SRS elements, including problem solving, follow-up, response speed, apology, explanation, courtesy, and effort, significantly impact consumer-perceived justice in the e-retailing context of Vietnam. These findings highlight the importance of staff–consumer interaction and demonstrating genuine interest in problem resolution. Investing in staff selection, training, and motivation can accomplish this by encompassing various intangible actions. A company should strive to delve into the underlying cause of a problem and offer

a definitive solution, ensuring that consumers are well-informed about the company's efforts and receive satisfactory explanations.

However, it is important to acknowledge that implementing these strategies may demand significant resources, which are not equally available to all organizations. For small and medium-sized enterprises, cost-effective staff selection, training, and motivation investments can still support meaningful service recovery efforts. Meanwhile, companies with greater infrastructure and resources should go beyond basic understanding by actively promoting problem-solving initiatives to effectively address and compensate for service failures.

Additionally, gender positively influences the effect of employee effort on perceived justice, with men being more likely to perceive fairness than women when employee effort is presented through SRS. Larger organizations may implement data-driven personalization strategies, while SMEs can consider simple segmentation practices to better meet different consumer groups' expectations. Social media marketing offers organizations a direct and cost-effective channel to engage with customers, respond to complaints, and foster customer loyalty, especially among SMEs (Rahayu et al., 2025). It would be beneficial for service providers to invest in understanding the unique expectations and notions of fairness toward the effort made by male consumers to adapt and cater to their distinct demands. Specifically, because male consumers are more drawn to the cognitive aspects of a service and value the effort put into the service recovery process, firms—regardless of size—should focus on clearly communicating their corrective actions and ensuring that consumers feel informed and reassured throughout the resolution process.

5.3. Limitations and future research

Although this study provides valuable insights, limitations exist in the research design. Firstly, the study sample mainly comprised individuals aged 18–30. This study has limitations regarding the generalizability of the findings to a broader population. Therefore, future research should include participants from a wider range of age groups and backgrounds to enhance the external validity of this study. Secondly, examining gender as a moderating variable in this study is exploratory. While prior literature suggests potential gender effects in service evaluations, our findings indicate that significant moderation was observed only for the relationship between effort and perceived justice. This suggests a need for further theoretical development and empirical validation regarding the role of gender in service recovery contexts. Thirdly, this study did not consider the different price points of products. Therefore, future research should focus on the impact of SRS on perceived justice across different products at varying price levels. Future studies should also address the model's suitability in different cultural contexts and compare the effects of culture across different countries. Fourthly, this study did not control the type or severity of service failures, influencing the effectiveness of different service recovery strategies. Future research should consider including service failure characteristics as control variables or moderators to provide a more nuanced understanding of their effects on perceived justice and customer satisfaction. Additionally, future studies may explore how cultural dimensions—such as power distance or uncertainty avoidance—interact with gender to shape consumers' justice evaluations. Finally, in line with recent methodological recommendations, future research should consider employing additional techniques such as the marker variable method or latent method factor analysis to provide a more robust assessment of common method bias (Podsakoff et al., 2012).

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