The Influence of Service Failure, Service Recovery, and Customer Forgiveness on Customer Loyalty: A Case Study of the Omnichannel Marketing Restaurants in the Lower Northern Provincial Cluster 1 of Thailand

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Abstract

This research investigates the direct and indirect influences of service failure, service recovery, and customer forgiveness on customer loyalty in omnichannel marketing restaurants within the Lower Northern Provincial Cluster 1 of Thailand. The study employs a quantitative approach, utilizing data from 731 customers and analyzed through Structural Equation Modeling (SEM). The findings reveal that service failure directly impacts customer loyalty and service recovery, while service recovery, in turn, positively affects both customer loyalty and forgiveness. Furthermore, customer forgiveness has a significant direct influence on customer loyalty. Notably, service recovery and customer forgiveness function as mediators in this relationship, highlighting the complex dynamics at play. The hypothesized model demonstrates a good fit, with key indices including Chi-square = 233.449 and RMSEA = 0.032.

This study contributes to theoretical understanding by elucidating the causal relationships among the variables involved. Additionally, it offers practical insights for restaurant management, emphasizing the importance of effective service recovery strategies in an evolving technological landscape. By focusing on these aspects, restaurants can enhance customer loyalty, ultimately supporting sustainable business growth.

Keywords: 1) Service Failure 2) Service Recovery 3) Customer Forgiveness 4) Customer Loyalty 5) Omnichannel Marketing Restaurant

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Introduction

Nowadays, businesses that previously relied solely on brick-and-mortar sales have begun to incorporate online channels, allowing them to operate using both offline (brick-and-mortar) and online (digital) platforms in a hybrid manner known as "click and mortar." This business model has attracted increasing interest for multi-channel product and service offerings (Wang, et. al 2018, pp. 144-156) and provides customer service both online and in-store (Wollenburg, et al., 2018, pp. 415-438). Such a business model has created a competitive advantage, utilizing multi-channel marketing strategies while integrating various platforms, resulting in lower costs, increased customer trust, improved service quality, continuous information provision to customers, and broader market expansion (Venkatesan, Kumar and Ravishanker, 2007, pp. 114-132; Ailawadi and Farris, 2017, pp. 120-135). This integration presents opportunities for brick-and-mortar businesses to access online markets, thereby enhancing their competitive capabilities (Campo and Breugelmans, 2015, pp. 63-78).

The challenges of omni-channel marketing strategies, as identified by Rosenmayer, et al. (2018, pp.269-285), involve risks related to logistics management and increasingly complex operational models, which can lead to problems and limitations for businesses that market through both offline and online channels (click and mortar). Common service failures may arise in eight key areas: service quality in-store, delivery errors, store communication issues, product and service quality, online service quality, app order complications, payment problems, and concerns related to security and privacy. Service failures typically occur when the service provided does not meet customer expectations or results in dissatisfaction (Harrison-Walker, 2019, pp. 285-302). They may stem from long wait times, impolite staff, or staff unresponsiveness (Elvandari, Sukartiko, Nugrahini, 2018, pp. 1-7), leading to imbalances in the provider-customer relationship (Tsarenko and Rooslani Tojib, 2011, pp. 381-392). Despite their inevitability in service delivery, providers strive to minimize risks of service failures and prioritize addressing them (Azemi, et al., 2019, pp. 420-431). The negative impacts of service failures are apparent, affecting customers' financial operations, satisfaction, word-of-mouth, intentions to switch providers, and complaints (Akamavi, et al., 2015, pp. 528-545). Moreover, Kaur and Kang (2016, pp.78-85) pointed out that losing a single customer can cost a business five times more to replace. Therefore, retaining existing customers is critically important. Harrison-Walker (2019, pp. 285-302) states that effective service recovery is essential for survival in a competitive market, while Dorsey, Ashley and Oliver (2016, pp. 67-77) indicated that successful service recovery could enhance brand loyalty, with effective recovery increasing loyalty by 33% for minor dissatisfaction and up to 44% for significant issues. Furthermore, dissatisfied customers are reported to share negative experiences 86% of the time and refrain from returning 52% of the time.

The current study indicates that most existing literature and research still prioritize

service quality, while research related to service failures, although gaining some attention, remains limited. Specifically, there are three gaps in research: First, the lower northern region of Thailand exhibits unique cultural and demographic characteristics that significantly influence consumer behavior, service expectations, and recovery processes. As this region embraces emerging omnichannel marketing strategies, largely driven by government support for tourism and increasing technology use among travelers, local businesses must adapt to enhance customer satisfaction and loyalty effectively. Understanding the impact of these marketing strategies on service quality and customer loyalty is essential for restaurants and service providers in this region. Furthermore, analyzing the specific service dynamics of the lower northern region can provide valuable insights that inform public policy and bolster economic development initiatives, ultimately strengthening the local service sector, which is crucial to the region's economic vitality. Second, in terms of theory and variable relationships, there are not many studies that apply expectation confirmation theory to explain the relationship model between service failures, service recovery, and customer forgiveness regarding customer loyalty, particularly in the connection between service failures and customer loyalty, where service recovery or customer forgiveness acts as a mediating variable. Thrid, regarding business operations, as society changes with advancements in digital tools, entrepreneurs have adapted their marketing strategies to omnichannel marketing, yet there remains a lack of studies focusing on restaurants using this approach, despite it becoming a growing trend among many restaurants today. Lastly, in terms of geography and demographics, there is insufficient research that utilizes demographic groups in Thailand, and there appears to be no current studies focusing on the specific populations and areas within Lower Northern Region 1 of Thailand.

The objectives of this research are twofold. First, the study aims to examine both the direct and indirect influences of service failures, service recovery, and customer forgiveness on customer loyalty in restaurants employing omnichannel marketing strategies in the Lower Northern Region 1 of Thailand. Second, the research seeks to propose a model that illustrates the relationship between service failures, service recovery, and customer forgiveness, and how these factors affect customer loyalty in the same context of omnichannel marketing in the specified region of Thailand.

Literature Review

Theoretical background

Expectation Confirmation Theory (ECT) examines customer satisfaction behavior after a purchase, initially proposed by Richard L. Oliver in 1980 (Oliver, 1980, pp. 460-469). The theory posits that consumers develop expectations before buying a product or service, which they then compare to their actual satisfaction post-purchase. Satisfaction is influenced by whether the outcome meets or exceeds their expectations; if a service or product aligns with their anticipations, they will be satisfied, while discrepancies lead to dissatisfaction. Given the

inherent uncertainties in service delivery, such as in restaurants, service failures are unavoidable (Ha and Jang, 2009, pp.319-327), resulting in decreased customer satisfaction and potential damage to loyalty. Complaints stemming from service failures carry significant weight, often outweighing positive feedback (Hornik, et al., 2015, pp.273-280), thereby harming a restaurant's reputation. To address customer complaints, businesses engage in service recovery, which involves actions taken to rectify service failures. Effective service recovery not only restores a restaurant's reputation but also enhances customer satisfaction and fosters long-term relationships (Fornell and Wernerfelt, 1987, pp.337-346). Many restaurants view service recovery as an opportunity to rebuild customer loyalty; however, poor recovery can lead to losing current customers and negatively impacting business reputation (Istanbulluoglu, 2017, pp.72-82). Understanding customer responses to service failures and the recovery process is critical, as ECT clarifies how customers react to recovery efforts based on their pre-existing expectations, and that successful recovery can enhance satisfaction if it meets those expectations (Zhu, et al., 2013, pp.15-29). Conversely, if recovery fails to meet expectations, it can cause further customer dissatisfaction. Thus, identifying customer expectations is key to successful recovery, as highlighted in the literature (Bell and Ridge, 1992, pp.58-63; Bell & Zemke, 1987, pp.32-35), which emphasizes the importance of aligning recovery efforts with these expectations. Overall, the theory illustrates that customer satisfaction hinges on whether their post-purchase evaluations align with their prior expectations, thus influencing forgiveness and customer loyalty.

Conceptual framework and hypothesis development

Based on the research objective, the conceptual framework and hypotheses are developed to examine both the direct and indirect influences of service failures, service recovery, and customer forgiveness on customer loyalty in restaurants employing omnichannel marketing strategies

1.The relationship between service failure and customer loyalty

The relationship between service failures and customer loyalty has been extensively studied, with Elbaz, et al. (2022. pp.1-17) and Harrison-Walker (2019, pp.285-302) finding that service errors negatively impact behavioral loyalty. For instance, mistakes in service delivery and payment issues can undermine customer loyalty. Nikbin, et al. (2012, pp.232-254) identified that delays in product and service delivery lead to customer dissatisfaction and negative attitudes, which can foster negative word-of-mouth. Miscommunication, such as unclear delivery addresses or failure to meet product specifications, can create detrimental attitudes among customers. This raises the question of whether service failures have a negative direct influence on customer loyalty in the Thai service context, particularly in hospitality sectors such as restaurants and beverage providers, which are increasingly transforming their original services through technological enhancements. Furthermore, online service quality issues, such as untrained staff's inadequate responses

to online order concerns, also contribute to negative customer attitudes, making them less likely to recommend the service. Similarly, Lin, Wang, & Wu (2011, pp.628-650) noted that miscommunication from restaurants, including unclear pricing, adversely affects customers' attitudinal loyalty. Based on these literature reviews, the first hypothesis was developed as follows: **Hypothesis 1:** Service failures have a negative direct influence on customer loyalty.

2. The relationship between service failure and service recovery

Chahal and Devi (2014, pp.67-85) found that service failures significantly impact service recovery; for instance, issues like incorrect deliveries or delayed service quality necessitate providers to mitigate customer dissatisfaction through effective recovery strategies, such as issuing apologies and providing clarifications, to encourage repeat purchases and build customer loyalty. Similarly, Akarsu, et al. (2023, pp.186-217) noted that critical service failures originating from delivery mistakes compel businesses to implement recovery strategies to maintain customer satisfaction, which includes promptly apologizing to customers and explaining the issues encountered. Additionally, Kim and Jang (2016, pp.1676-1701) highlighted that service failures arising from personnel or service system errors require operators to establish special channels for receiving customer feedback regarding these failures. This research provides a framework to illustrate the relationships and hypotheses concerning service failures and recovery efforts. Following these literature reviews, the next hypothesis is proposed:

Hypothesis 2: Service failures have a direct influence on service recovery.

3.The relationship between service failure and customer forgiveness

Worthington and Scherer (2004, pp.385-405) found that customer forgiveness tends to reduce the likelihood of negative reactions to service failures, replacing feelings of stress with emotions that favor maintaining the relationship rather than damaging it. However, customer forgiveness can be severely hindered if the severity of the service failure is high. The intensity of service failures can significantly impact customer forgiveness and can transform prior customer satisfaction into dissatisfaction. Additionally, the severity of service failures can lead to unforgiveness and frustration among customers. Laili, Sumiati and Sudjatno (2022, pp.23-29) also established that service failures have a significant influence on customer forgiveness, indicating that the two variables are inversely related—meaning that as the severity of service failures increases, the likelihood of customer forgiveness decreases. Consequently, service failures have a negative relationship with customer forgiveness. As discussed regarding these issues, the following hypothesis is presented: Hypothesis 3: Service failures have a direct influence on customer forgiveness.

4. The relationship between service recovery and customer loyalty

Chou (2015, pp. 119-125) found that service recovery significantly influences attitudinal loyalty; for instance, when service failures occur and a sincere apology, along with an explanation, is provided, customers are likely

to exhibit attitudinal loyalty by sharing positive word-of-mouth and recommending the service to friends. Additionally, the study indicated that service recovery also affects behavioral loyalty; effective recovery strategies, such as apologizing for employee mistakes, encourage customers to return and choose the business as their first option. Based on these findings, the researcher can formulate relevant research hypotheses. Thus, the next hypothesis is proposed: Hypothesis 4: Service recovery has a direct influence on customer loyalty.

5. The relationship between service recovery and customer loyalty

Muhammad and Rana (2019, pp.1216-1232) found that customer forgiveness significantly affects customers' attitudinal loyalty; specifically, when customers forgive service failures, it reinforces their loyalty. In contrast, Salagrama and Prashar (2021, pp. 3973-3994) revealed that customer forgiveness also impacts behavioral loyalty. When customers choose to forgive or not hold grudges, they are more likely to select the restaurant for future orders. These insights underscore the importance of understanding the relationship between customer forgiveness and loyalty and can be formulated into relevant research hypotheses. Building on these literature reviews, the following hypothesis is proposed: **Hypothesis 5:** Service recovery has a direct influence on customer loyalty.

6. The relationship between service recovery and customer forgiveness

Service recovery is recognized as a crucial factor in fostering customer forgiveness and building customer loyalty (Tax and Brown, 2000, pp.271-286; Harrison-Walker, 2019, pp.285-302). When customers receive resolutions and responses to their complaints regarding service quality, it can lead to a 33% increase in their forgiveness and loyalty. Furthermore, if customers receive timely responses to significant issues, their loyalty can rise by an additional 44%. Effective service recovery efforts—such as apologies and explanations—can also enhance positive word-of-mouth, with customers being 48% more likely to recommend the restaurant to friends. This aligns with the findings of Ma, et al. (2020), who noted that service recovery positively influences customer forgiveness, with strategies that include apologies and clarifications for errors facilitating customer forgiveness for the mistakes made. Thus, the sixth hypothesis in this research was developed: Hypothesis 6: Service recovery influences customer forgiveness.

7. The relationship between service failure and customer loyalty with customer service recovery and customer forgiveness as a mediating variable

Laili, Sumiati and Sudjatno (2022, pp.23-29) found that service failures significantly influence customer loyalty through service recovery, with customer forgiveness acting as a partial mediating variable. This indicates that while service failures (as an independent variable) do correlate with customer loyalty (as a dependent variable), part of that relationship is mediated by customer forgiveness. Service recovery efforts by the service provider aim to rectify situations where customers have experienced dissatisfaction and disloyalty due to poor service. Customers who feel in-

adequately compensated or treated unfairly regarding the severity of the service failure are less likely to exhibit loyalty. Implementing effective service recovery strategies can thus help retain customers and foster their loyalty. Consequences of service failures include negative word-of-mouth, customers switching to other providers, and ultimately, customer disloyalty. Laili, Sumiati and Sudjatno (2022, pp.23-29) reiterated that service failures significantly affect customer loyalty through customer forgiveness, reinforcing that while there is a direct relationship between service failures and customer loyalty, some of that connection is mediated by forgiveness. This means that when service failures occur, customers can still remain patient and willing to forgive, helping maintain their loyalty despite the mistakes. Under these circumstances, we can present the seventh and eighth hypotheses:

Hypothesis 7: Service failures have an indirect influence on customer loyalty, mediated by service recovery; and,

Hypothesis 8: Service failures have an indirect influence on customer loyalty, mediated by customer forgiveness.

Based on these findings, several research hypotheses were formulated and shown in **Figure 1:**

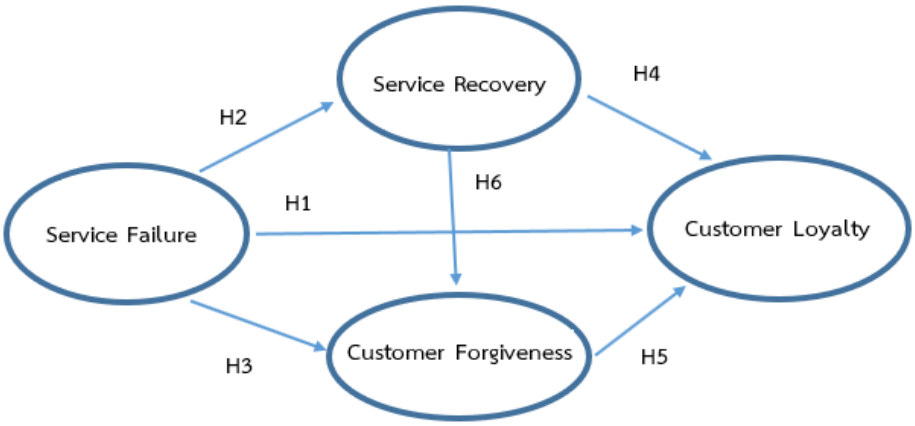

Figure 1 A conceptual framework of this research

Research Methodology

Population and sample sizes

This research is quantitative in nature and focuses on customers who have had experience ordering food from restaurants employing omnichannel marketing strategies in the Lower Northern Region 1 of Thailand, which consists of five provinces: Tak, Phitsanulok, Phetchabun, Sukhothai, and Uttarakhand. The sample size for this study is determined based on the criteria established by Hair et al. (2010), which suggests a sample size of ten respondents for each measurement variable. With this research including 75 observed variables, the total minimum required sample size is 700 participants. The researcher employed purposive sampling to select participants, specifically targeting customers with experience ordering from restaurants that use multiple communication channels in the specified region of Thailand. Additionally, accidental sampling methods were utilized for further selection of participants.

Research design and tools

This research developed a questionnaire as a data collection tool, informed by a review of relevant theories and prior research to define operational measures (Byrne and Russon, 1998, pp.667-684). A draft questionnaire was created, aligned with the research framework and objectives, and iteratively refined based on feedback from the dissertation advisor and assessment by three experts for content validity, utilizing the Item-Objective Index (IOC) to ensure reliability with a target above 0.50. The questionnaire includes Part 1 and Part 2, which consist of questions regarding the respondents' dining experiences at restaurants and their demographic information, including gender, age, marital status, education level, income level, and occupation, formatted as a check-list. Parts 2 through 6 focus on service failures, service recovery, customer forgiveness, and customer loyalty, with the questionnaire items presented in a Linkert scale format, comprising a total of 75 questions. The finalized questionnaire underwent a reliability test with a sample of 30 participants to calculate Cronbach's Alpha Coefficient, achieving a satisfactory value above 0.7. within the proposed framework. The statistics used in this study involved assessing the quality of the measurement tools, including composite reliability (CR), average variance extracted (AVE), and discriminant validity. Additionally, the study employed statistics to evaluate the fit of the developed model with empirical data, such as root mean square residual (RMR), goodness-of-fit index (GFI), and comparative fit index (CFI).

Construct and content validity

The collected data was then analyzed to assess the quality of the measurement model, confirming construct validity through Confirmatory Factor Analysis (CFA), which evaluates the causal relationships of both external and internal latent variables. Specifically, construct validity was assessed using Confirmatory Factor Analysis (CFA) to evaluate whether the measurement tool accurately reflects the variables as defined by the theory (Hair et al., 2006, pp.431-454). CFA employed statistical software to examine model fit through indices such as Chi-Square, Goodness-of-Fit Index (GFI), and Adjusted Goodness-of-Fit Index (AGFI), which should be greater than or equal to 0.90, while the Standardized Root Mean Square Residual (SRMR) should be less than 0.05. Additionally, convergent validity was analyzed by calculating the correlation between individual item scores and the overall category scores, with the criteria for inclusion based on the Person's Product-Moment Correlation coefficient indicating how well items belong to their respective groups.

Criteria for Assessing Model Fit

Measurement Model Analysis

This technique analyzes the relationships between observed variables and latent variables. It employs Confirmatory Factor Analysis to determine whether the relationships between the observed variables and latent factors fit the model appropriately and groups variables with similar characteristics into the same latent factor.

Structural Model Analysis

Model Fit Verification involves assessing whether the model developed by the researcher aligns well with the data gathered from the sample. If the model shows consistency with the data, it is referred to as "Model Fit." The verification uses six indices of model fit, as shown in Table 1.

Table 1 The criteria for the model consistency index

Index value	Criteria (Cut-off)	References
χ^2	p>0.05	Kline (2005)
p-value	p > 0.05	Kline (2005)
χ^2 /df	χ^2 /df ≤ 2	Kline (2005)
CFI	≥0.90	Kline (2005)
GFI	≥0.90	Kline (2005)
AGFI	≥0.90	Schumacker, & Lomax, (2010)
NFI	≥0.90	Bentler, & Bonett. (1980)
IFI	≥0.90	Bollen. (1989)
TLI	≥0.90	Hair et al., (2014)
RMR	≤0.05	Hair et al., (2014)
RMSEA	≤0.05	Dion (2008)

Results and hypothesis testing

Descriptive statistic results

Of 731 respondents who were customers with experience ordering food from stores that utilize multichannel communication, the majority of respondents were male (72.20%), followed by female (17.30%), and the least were other genders, or LGBTQ (10.50%). Most were aged between 41-50 years (38.35%), followed by the age group of 31-40 years (23.58%), the age group of 20-30 years (22.73%), and those over 50 years (15.34%), respectively. In terms of education level, the majority have education below a bachelor's degree (80.40%), followed by bachelor's degree holders (14.10%), master's degree holders (4.10%), and those with education above a master's degree (1.40%), respectively. Regarding average monthly income, most respondents earn less than or equal to 10,000 baht (43.50%), followed by a monthly income of 10,001-20,000 baht (35.00%), 20,001-30,000 baht (11.20%), 30,001-40,000 baht (4.40%), 40,001-50,000 baht (2.90%), 50,001-60,000 baht (2.30%), and more than 60,000 baht (0.70%), respectively. In terms of employment status, the majority of respondents are students (40.20%), followed by private company employees (32.00%), business owners/self-employed (10.50%), government officials/state employees (8.30%), and other occupations (9.00%)

Construct Reliability, Convergent Validity, Discriminant Validity

The researcher conducted an examination for common method bias (CMB) to identify biases that may arise from using common mea-

surement methods, such as using Likert scales, having the same respondent, using the same evaluation time frame, or using the same evaluation location and measurement tools. These biases can impact measurement errors (Podsakoff, et al., 2003, pp.879-903). According to Harman's Single Factor principle, all indicators from every variable are analyzed under a single factor without axis rotation. If the percentage of Variance (% of Variance) in the Initial Eigenvalues and the Extraction Sums of Squared Loadings exceeds 50%, it indicates a problem (Common Method Bias: CMB) (Eichhorn, 2014, pp.389-404). From the questionnaire data set, it was found that the percentage of Variance (% of Variance) in the Initial Eigenvalues and the Extraction Sums of Squared Loadings is 29.023. Therefore, the dataset collected from the questionnaire shows no issues with common method bias (CMB).

Table 2 and Table 3 demonstrates the reliability and validity analysis of this study.

Discriminant validity analysis of the model was conducted by the researcher using a method to examine the relationships among all latent variables studied. The average variance extracted (AVE) and composite reliability (CR) for all measurement scales need to exceed 0.50 and 0.70, respectively. According to Fornell and Larcker (1981, pp. 39-50), discriminant validity should be less than the square root of AVE (Asadi, Abdullah and Jusoh, 2019, pp. 513-532). Additionally, the standardized factor loading for all variables should be greater than the suggested threshold of 0.50 (Hair, et al 2014, pp. 106-121). Table No. 2 shows construct reliability and convergent validity of content of Service Failure (SF), Service Recovery (SR), Customer Forgiveness (CF), and Customer Loyalty (CL). The main components of Customer Loyalty, which includes two observable variables: 1) Attitudinal Loyalty (LOY1) and 2) Behavioral Loyalty (LOY2) with the empirical data.

Note: Significant a p-value at, *p<0.05, ** p < 0.01, and ***p < 0.001 (t-value: *p ≤ 2.575, **p ≥ 2.575, ***p ≥ 3.291)

Table 2 Construct Reliability and Convergent Validity Result (n=731)

Construct Items	Rang of Standard Loading	Cronbach's Alpha	CR	AVE	Discriminant validity			
					1	2	3	4
Service Failure (SF)	0.776-0.868	0.946	0.944	0.680	0.825			
Service Recovery (SR)	0.710-0.852	0.884	0.882	0.652	0.131**	0.807		
Customer Forgiveness (CF)	0.728-0.844	0.897	0.895	0.631	-0.046	0.689***	0.795	
Customer Loyalty (CL)	0.873-0.875	0.866	0.866	0.764	0.189***	0.663***	0.577***	0.874

Table 3 The reliability and validity analysis

Observed variables	Factor loading				
	b	β	SE	C.R.	R^2
Service Failure (SF)					
SF1	0.913	0.856	0.047	19.504	0.732
SF2	0.846	0.923	0.043	19.663	0.852
SF3	0.842	0.890	0.04	21.18	0.792
SF4	0.784	0.814	0.037	20.969	0.663
SF5	0.949	0.898	0.042	22.827	0.807
SF6	0.837	0.906	0.04	20.963	0.820
SF7	0.997	0.916	0.043	22.955	0.839
SF8	1.000	0.863	-	-	0.745
CR = 0.966 AVE = 0.781					
Chi-square = 1264.278, Chi-square/DF = 1.904, DF = 664, P = 0.000, CFI = 0.974, GFI = 0.919, AGFI = 0.900, NFI = 0.948, IFI = 0.974, TLI = 0.970, RMR = 0.038, RMSEA = 0.035					
Service Recovery (SR)	b	β	SE	C.R.	R^2
SR1	0.899	0.825	0.047	18.975	0.680
SR2	0.998	0.904	0.050	19.963	0.818
SR3	1.000	0.884	-	-	0.781
SR4	0.977	0.841	0.048	20.458	0.707
CR = 0.922 AVE = 0.747					
Chi-*square = 291.112, Chi-square/DF = 1.967, DF = 148, P = 0.000, CFI = 0.986, GFI = 0.961, AGFI = 0.945, NFI = 0.973, IFI = 0.986, TLI = 0.983, RMR = 0.028, RMSEA = 0.036*					
Customer Forgiveness (CF)	b	β	SE	C.R.	R^2
CF1	0.768	0.714	0.044	17.318	0.510
CF2	0.849	0.769	0.039	21.701	0.592
CF3	1.000	0.873	-	-	0.762
CF4	0.923	0.825	0.046	19.875	0.680
CR = 0.902 AVE = 0.649					
Chi-square = 111.070, Chi-square/DF = 1.587, DF = 70, P = 0.001, CFI = 0.994, GFI = 0.981, AGFI = 0.967, NFI = 0.983, IFI = 0.994, TLI = 0.991, RMR = 0.016, RMSEA = 0.028					
Customer Loyalty (CL)	b	β	SE	C.R.	R^2
Attitudinal Loyalty (Abbs=LOY1)					
LOY1.1	0.887	0.726	0.044	20.029	0.527
LOY1.2	0.840	0.701	0.043	19.605	0.491

Observed variables	Factor loading				
	b	β	SE	C.R.	R^2
LOY1.3	0.985	0.781	0.045	21.654	0.610
LOY1.4	0.899	0.757	0.043	21.118	0.573
LOY1.5	1.000	0.793	-	-	0.629
		CR = 0.867 AVE = 0.566			
Behavioral Loyalty (Abbs=LOY2)					
LOY2.1	0.981	0.796	0.043	22.676	0.633
LOY2.2	0.923	0.780	0.041	22.358	0.609
LOY2.3	0.965	0.783	0.042	22.969	0.614
LOY2.4	0.971	0.786	0.040	24.060	0.618
LOY2.5	1.000	0.801	-	-	0.641
		CR = 0.892 AVE = 0.623			
Chi-square = 40.396, Chi-square/df = 1.443, df = 28, p = 0.061, CFI = 0.997, GFI = 0.989, AGFI = 0.978 NFI = 0.990, IFI = 0.997, TLI = 0.995, RMR = 0.012, RMSEA = 0.025					

Measurement Model

The current study utilized statistical software to obtain fit indices in relation to the empirical data, which include: (1) Chi-square (χ2) value of 233.449, (2) Chi-square/df (χ2/df) value of 1.729, (3) P-value of 0.000, (4) Comparative Fit Index (CFI) value of 0.990, (5) Goodness of Fit Index (GFI) value of 0.968, (6) Adjusted Goodness of Fit Index (AGFI) value of 0.955, (7) Normed Fit Index (NFI) value of 0.970, (8) Incremental Fit Index (IFI) value of 0.990, (9) Tucker-Lewis Index (TLI) value of 0.988, (10) Root Mean Squared Residuals (RMR) value of 0.025, and (11) Root Mean Squared Error of Approximation (RMSEA) value of 0.032. The fit indices meet the established criteria (Wheaton, et al., 1977, pp.84-136; Hu and Bentler, 1999, pp.1-55; Diamantopoulos and Siguaw, 2000; Schreiber, et al., 2006, pp.323-338; Tabachnick and Fidell, 2007; Silpcharu, 2017), indicating that the model fits well with the empirical data.

The results of the Confirmatory factor analysis (CFA) are present in Table 4. The overall measurement models seem to fit the data well as supported by the goodness of fit indices as indicated by the respondents. The differences and relationships among observed variables derived from the data are used to infer causality within the model. Typically, standard deviation measures variation, while the correlation coefficient measures association. Thus, these should be thoroughly examined before conducting a comprehensive analysis.

Table 4 The confirmatory factor analysis

Model goodness of fit statistic	Acceptable Criteria	Hypothesis Model	Results
χ2 / df	χ2 /df ≤ 2	1.729	Accept
CFI	≥0.90	0.990	Accept
GFI	≥0.90	0.968	Accept
AGFI	≥0.90	0.955	Accept
NFI	≥0.90	0.977	Accept
IFI	≥0.90	0.990	Accept
TLI	≥0.90	0.988	Accept
RMR	≤0.05	0.025	Accept
RMSEA	≤0.05	0.032	Accept

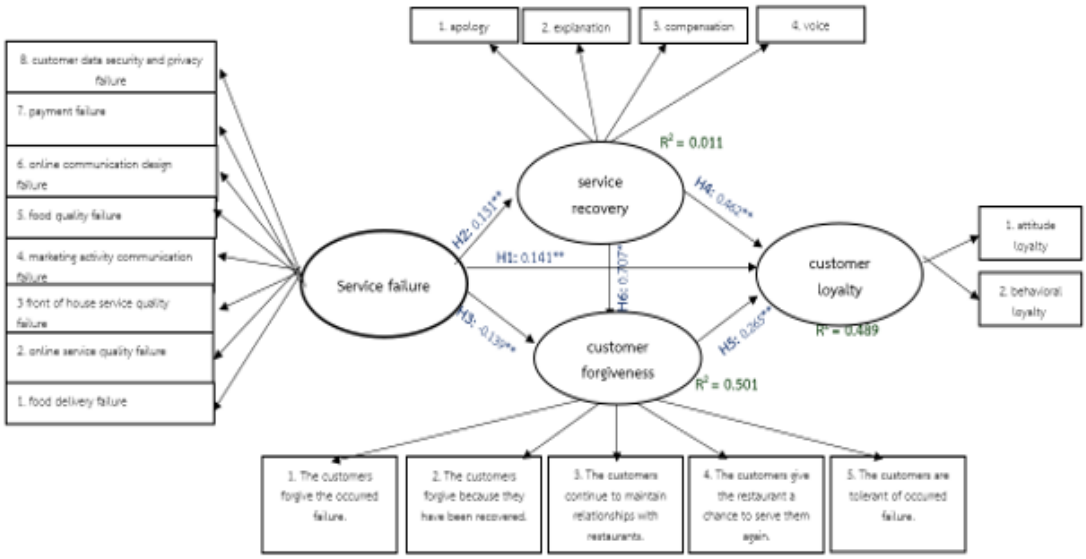

Figure 2 Modified structural equation model of the causal factors of service failure, service recovery, and customer forgiveness on customer loyalty

Note: Chi-square (χ2) value of 233.449, Chi-square/df (χ2/df) value of 1.729, P-value of 0.000, CFI= 0.990, GFI=0.968, AGFI=0.955, NFI=0.970, IFI= 0.990, TLI=0.988, RMR=0.025, and RMSEA=0.032.

Structural Model

Figure 2 illustrates the relationship model of the influence of service failure, service recovery, and customer forgiveness on customer loyalty: A case study of restaurants that implement multichannel marketing strategies in the Lower Northern Region 1 of

Thailand. After adjusting the model based on the statistics used to assess the fit between the model and the empirical data, the following results were found: the Chi-square value (χ2) was 233.449, the statistical significance (p-value) was 0.000, the relative Chi-square (χ2/df) was 1.729, the Comparative Fit Index (CFI) was 0.990, the Goodness of Fit Index (GFI) was 0.968, the Adjusted Goodness of Fit Index (AGFI) was 0.955, the Normed Fit Index (NFI) was 0.977, the Incremental Fit Index

(IFI) was 0.990, the Tucker-Lewis Index (TLI) was 0.988, the Root Mean Squared Residuals (RMR) was 0.025, and the Root Mean Squared Error of Approximation (RMSEA) was 0.032. All values met the established criteria (Hair et al., 2010), indicating that the model is consistent with the empirical data.

Additionally, the analysis of the coefficient of determination (R2) among the variables of service failure, service recovery, customer forgiveness, and customer loyalty showed that the model structure had a coefficient of determination (R2) for the latent variable of service recovery equal to 0.011 or 1.10%, indicating that the factor of service failure has an influence on service recovery at a level of 1.10% (R2=0.011) at a significance level of 0.01. The latent variable of customer forgiveness had a coefficient of determination (R2) of 0.501 or 50.10%, indicating that the factors of service failure and service recovery jointly influence customer forgiveness, with an influence of 50.10% (R2=0.501) at a significance level of 0.01. Among these, the factor of service recovery had the highest impact on customer forgiveness (DE=0.707), followed by the factor of service failure (DE=-0.139, IE=0.093). The latent variable of customer loyalty had a coefficient of determination (R2) of 0.489 or 48.90%, indicating that the factors of service failure, service recovery, and customer forgiveness jointly influence customer loyalty, with an influence of 48.90% (R2=0.489) at a significance level of 0.01. The factor of service recovery had the highest impact on customer loyalty (DE=0.462, IE=0.187), followed by customer forgiveness (DE=0.265) and service failure (DE=0.141, IE=0.048), respectively as shown in Table 5 and Table 6.

According to the Figure 2, The analysis examines the influence of service failure, service recovery, and customer forgiveness on customer loyalty in restaurants using multi-channel marketing strategies in Lower Northern Region 1 of Thailand. The findings for each hypothesis are summarized as follows:

Hypothesis 1 Service failure has a negative direct impact on customer loyalty. The results indicate a small positive direct effect (C.R. = 4.197, path coefficient = 0.141), thus this hypothesis is accepted.

Hypothesis 2 Service failure positively influences service recovery. The results show a small positive direct effect (C.R. = 3.239, path coefficient = 0.131), leading to acceptance of this hypothesis.

Hypothesis 3 Service failure negatively influences customer forgiveness. The analysis reveals a small negative direct effect (C.R. = -4.306, path coefficient = -0.139), which is acceptable. Additionally, there is a very small positive indirect influence of service failure on customer forgiveness (path coefficient = 0.093).

Hypothesis 4 Service recovery positively influences customer loyalty. The results support a medium positive direct effect (C.R. = 8.668, path coefficient = 0.462), thus this hypothesis is accepted.

Hypothesis 5 Customer forgiveness positively influences customer loyalty. The analysis confirms a small positive effect (C.R. = 5.126, path coefficient = 0.265), leading to this hypothesis being accepted.

Table 5 The direct effects (DE), indirect effects (IE), and total effects (TE) of the model

Causal Variable		DE	IE	TE
Customer Loyalty	Service Failure	0.141**	0.048	0.189**
	Service Recovery	0.462**	0.187**	0.649**
Customer Forgiveness	Customer Forgiveness	0.265**	-	0.265**
	Service Failure	-0.139**	0.093**	-0.046
Service Recovery	Service Recovery	0.707**	-	0.707**
	Service Failure	0.131**	-	0.131**

Note: Significant a p-value at, *p<0.05, ** p < 0.01, and ***p < 0.001
t-value: *p ≤ 2.575, **p ≥ 2.575, ***p ≥ 3.291

Table 6 Hypothesis testing results

Hypothesis	Results of hypothesis testing							
	Regression weights			Standardized regression weight	Effect			Results
	b	S.E.	C.R.	β	DE	IE	TE	Accepted
H1: SF → CL	0.099	0.024	4.197	0.141**	0.141**	0.048	0.189**	Accepted
H2: SF → SR	0.100	0.031	3.239	0.131**	0.131**	-	0.131**	Accepted
H3: SF → CF	-0.127	0.029	-4.306	-0.139**	-0.139**	0.093**	-0.046	Accepted
H4:SR → CL	0.421	0.049	8.668	0.462**	0.462**	0.187**	0.649**	Accepted
H5:CF → Cl	0.203	0.040	5.126	0.265**	0.265**	-	0.265**	Accepted
H6:SR → CL	0.842	0.047	17.970	0.707**	0.707**	-	0.707**	Accepted

Note: Significant a p-value at, *p<0.05, ** p < 0.01, and ***p < 0.001
t-value: *p ≤ 2.575, **p ≥ 2.575, ***p ≥ 3.291

Hypothesis 6 Service recovery positively influences customer forgiveness. The results indicate a large positive direct effect (C.R. = 17.970, path coefficient = 0.707), leading to acceptance of this hypothesis.

Hypothesis 7 Service failure has no indirect influence on customer loyalty through service recovery. The analysis shows a negligible effect (path coefficient = 0.048), resulting in a rejection of this hypothesis.

Hypothesis 8 Service failure has no indirect influence on customer loyalty through customer forgiveness. The analysis confirms this lack of influence, leading to the rejection of this hypothesis.

Overall, the study supports several hypotheses regarding the relationships between the key variables, while rejecting those concerning indirect influences on customer loyalty.

Discussion

Service failure directly influences customer loyalty

The research confirms that service failure significantly affects customer loyalty.

Respondents viewed the severity of service failures as low and unrelated to core services, leading to varied customer responses, such as giving the provider another chance or considering switching. More severe failures increase perceived harm (Kim, Kim and Kim, 2009, pp.51-62), raising dissatisfaction and the likelihood of switching providers (Shin, et al., 2017, pp.164-186; Ma, et al., 2020, pp.2317-2342). Unlike Lin, Wang, & Wu (2011, pp.628-650) which found that service failures lead to negative word-of-mouth and disloyalty, this study suggests that minor failures may be forgiven, resulting in latent loyalty—positive attitudes with low repeat purchasing. Spurious loyalty involves high repeat purchases despite negative attitudes, whereas true loyalty reflects consistent positive feelings and repeat purchases (Cheng, et al., 2019, pp.187-203; Yao, Qiu and Wei, 2019, pp.1-8; Dick and Basu, 1994, pp.99-113).

Service failure directly influences service recovery

The study highlights that service failures directly affect service recovery in restaurants, necessitating prompt and appropriate actions to restore customer satisfaction. Common service failures can range from minor issues, like unsatisfactory food, to severe problems, such as delivery delays or foreign objects in food, which may lead to disappointment and negative reviews. When managed effectively, these mistakes can present opportunities to strengthen customer relationships. Quick, responsible responses can enhance satisfaction and encourage repeat business. Chahal and Devi (2014, pp.67-85) assert that effective recovery methods drive repeat purchases, while Akarsu, et al. (2023, pp.186-217) stress the importance of recovery strategies after service failures. The findings align with previous research (Ye and Luo, 2016, pp.483-490; Yudi and Ruswanti, 2021, pp.179-193) showing that effective recovery is crucial for maintaining customer relationships in the restaurant industry.

Service failure directly influences customer forgiveness

The research supports that service failure negatively impacts customer forgiveness, indicating an inverse relationship; as service failures increase, forgiveness decreases. Customers often view service failures as inevitable, and if they receive fair and attentive care, they may forgive minor errors. However, serious and damaging mistakes reduce the likelihood of forgiveness and repeat patronage. Worthington and Scherer (2004, pp.385-405) noted that forgiveness diminishes negative reactions to failures by fostering relational preservation. If customers feel seriously affected by failures, they may become dissatisfied (Beverland, et al., 2010, pp.617-633). Laili, Sumiati and Sudjatno (2022, pp.23-29) also found that greater severity in service failures leads to decreased customer forgiveness. Thus, the severity of service failures is crucial, as it directly influences the likelihood of customer forgiveness.

Service recovery directly influences customer loyalty

The research confirms that service recovery significantly affects customer loyalty. Customers recognize high efforts in service recovery from providers, and effective strategies enhance satisfaction, thereby fostering loyalty. Andreasen (2001) and Tax & Brown

(2000, pp.271-286) assert that service recovery strategies are key to maintaining customer loyalty. Apologies serve as a vital emotional recovery strategy to restore damaged relationships (Davidow, 2000, pp.473-490; Gelbrich and Roschk, 2011, 24-43). Chou (2015, pp.119-125) found that proper apologies and explanations promote both attitudinal and behavioral loyalty, with Harrison-Walker (2019, pp.285-302) indicating that resolving complaints can increase loyalty by up to 44%. Thus, while service failures are common in the restaurant industry, effective recovery strategies are essential for maintaining customer relationships and converting failures into opportunities for enhancing loyalty in the long run (Nikbin et al., 2012, pp.232-254).

Customer forgiveness directly influences customer loyalty (Hypothesis 5 accepted)

The research confirms that customer forgiveness significantly impacts loyalty; higher forgiveness leads to increased loyalty, while lower willingness to forgive diminishes it. Thai consumers tend to be forgiving of service errors when addressed appropriately, which helps maintain long-term relationships with providers (Tax & Brown, 2000, pp.271-286). Laili, Sumiati and Sudjatno (2022, pp.23-29) found that forgiveness positively influences customer loyalty, and Muhammad and Rana (2019, pp.1216-1232) reinforced this by showing that forgiveness affects attitudinal loyalty. Additionally, Salagrama and Prashar (2021, pp. 3973-3994) noted that customer forgiveness fosters continued patronage and repeat purchases. Thus, effective recovery measures after service failures are vital for promoting customer forgiveness and sustaining loyalty.

Service recovery directly influences customer forgiveness

The research confirms that service recovery significantly impacts customer forgiveness; customers are more likely to forgive when they perceive fair and effective recovery efforts. Quick action is essential for maintaining customer relationships Harrison-Walker, 2019, pp.285-302). Effective service recovery enhances customer forgiveness and loyalty, as resolving complaints leads to increased satisfaction.

Apologies have been shown to reduce anger and blame (Fehr and Gelfand, 2010, pp.37-50; Hodgins and Liebeskind, 2003, pp.297-316; Ohbuchi, Kameda and Agarie, 1989, pp.219-227), while a lack of apology can heighten dissatisfaction. Providing clear explanations can alleviate frustrations (Casado, van Vulpen and Davis, 2011, pp.529-530), and active listening helps mitigate negative emotions and fosters forgiveness (Hui and Au, 2001, pp.161-173; Cottle, 1990). Timely responses to complaints are crucial for emotional recovery (Tang et al., 2018) and contribute to forgiveness (Yagil and Luria, 2016, pp.557-579). Additionally, compensation is a vital recovery strategy that seeks to restore balance for harmed customers (Walster, Berscheid and Walster, 1973, p.151). This study concludes that effective service recovery strategies should incorporate both economic elements, such as discounts, and emotional elements, like apologies and attentive listening, to successfully promote customer forgiveness and loyalty Harrison-Walker, 2019, pp.285-302).

Service failure has an indirect influence on customer loyalty through service recovery as a mediating variable

The research did not confirm the hypothesis that service failures indirectly influence customer loyalty through service recovery. While service failures directly affect customer loyalty, customers can still remain loyal without needing to forgive. This indicates that they may accept minor service failures and continue their patronage (Beverland, et al., 2010, pp.617-633). This aligns with Buttle and Burton (2002, pp.217-227), who noted that recovery strategies might yield mixed results, and Sousa and Voss (2009) found that such strategies only slightly improve customer satisfaction. This study measured service recovery using four indicators: Apology, Explanation, Compensation, and Voice, while Laili, Sumiati and Sudjatno (2022, pp.23-29) and Chou (2015, pp.119-125) identified additional dimensions like product exchanges and future discounts. This can thus further explain that consumer loyalty persists even after service failures due to effective service recovery, which enhances trust and satisfaction, as well as emotional attachments to brands. Additionally, perceived value and a strong brand reputation encourage customers to overlook shortcomings, while a lack of alternatives and consistent reliability further reinforce loyalty. Social influences from friends and family also play a significant role, as they can sway consumer behavior to align with positive experiences shared by peers. Thus, while service failure does not have an indirect effect on customer loyalty through service recovery, it has a direct influence, potentially due to overall service quality that satisfies customers, leading to spurious loyalty despite failures.

Service failure has an indirect influence on customer loyalty through customer forgiveness as a mediating variable

The research rejects the hypothesis that service failures indirectly affect customer loyalty through customer forgiveness. The findings show that service failure has a negative direct effect on customer loyalty and a positive indirect effect on customer loyalty, with effect sizes of 0.141 ($p<0.01$) and 0.048, respectively. This results in an overall positive influence on customer loyalty of 0.189 ($p<0.01$). This can lead to spurious loyalty, where customers continue to visit while holding negative attitudes toward the service, distinguishing it from true loyalty characterized by positive sentiments and repeat purchases Dick and Basu, 1994, pp.99-113).

The study assessed customer forgiveness through five indicators but did not include dimensions identified in other research, such as product returns and discounts (Laili, Sumiati and Sudjatno, 2022, pp.23-29) While service failure directly impacts loyalty, satisfactory service quality can help retain customers, contributing to spurious loyalty. The findings highlight that although customers may be disappointed by service failures, they can remain forgiving and loyal when effective recovery strategies are implemented, fostering positive relationships and favorable word-of-mouth referrals. When a customer encounters a service failure, their initial reaction may be negative, threatening their loyalty to the brand. However, if

the business addresses the issue effectively through strong service recovery efforts—such as apologies, compensation, or prompt resolution—the customer may be more inclined to forgive the transgression. This forgiveness can restore trust and satisfaction, ultimately leading to sustained loyalty and illustrating how navigating service failures can transform negative experiences into opportunities for reinforcing customer allegiance.

Conclusion

This research has two primary goals. The first is to investigate how service failures, service recovery efforts, and customer forgiveness directly and indirectly impact customer loyalty in restaurants utilizing omnichannel marketing strategies in Thailand's Lower Northern Region 1. The second goal is to develop a model that depicts the connections between service failures, service recovery, and customer forgiveness and their effects on customer loyalty within the same omnichannel marketing framework in this specific Thai region. The findings indicate two critical insights: 1) Service recovery factors have a direct impact on promoting customer loyalty but have no effect as a mediating variable between service failure and customer loyalty. The study emphasizes the need for restaurants using omnichannel marketing to improve their service recovery strategies to increase customer forgiveness and loyalty. It finds that while service failures directly impact customer forgiveness, recovery factors influence loyalty but do not mediate between service failure and loyalty. Additionally, it highlights that the severity of service failures diminishes the chances of customer forgiveness, stressing the importance of managing controllable service errors in line with the expectation-disconfirmation paradigm, which describes customer reactions to service failures and recovery efforts. Customers evaluate recovery efforts against their expectations, leading to satisfaction if expectations are met (Zhu, et al., 2013, pp.15-29). Additionally, environmental factors such as the Thai cultural context of forgiveness may influence the research outcomes, suggesting that customers might be more inclined to overlook some service errors due to cultural norms. The economic context also plays a significant role; during challenging economic times, customers may exhibit heightened loyalty to brands that they perceive as providing value. This interplay between cultural attitudes and economic conditions could enhance understanding of customer behavior in the Thai market. Overall, the study effectively highlights that service recovery is the most influential factor on customer loyalty, reinforcing its critical role in maintaining customer relationships. By considering these environmental factors, future research can gain deeper insights into the complexities of customer loyalty in various contexts.

Theoretical contributions

This study identifies theoretical contributions by highlighting gaps in research due to changing consumer behavior. It supports the Expectancy Disconfirmation Theory and offers insights for restaurants using multichannel marketing. Key findings show that service recovery significantly influences customer loyalty, promoting repeat business and referrals. Effective

recovery strategies include sincere apologies, clear explanations, appropriate compensation, and accessible feedback channels. The study also emphasizes the need to explore psychological factors affecting customer forgiveness and suggests aligning recovery with digital behaviors. Overall, effective service recovery management is vital for fostering loyalty in omni-channel restaurant models.

Substantial contributions

This study presents four key strategies for effective service recovery in restaurants facing service failures. The Voice of Customer Strategy emphasizes actively listening to customer feedback to understand expectations better. The Apology Strategy highlights the importance of sincere apologies in diffusing anger and taking responsibility amidst social media scrutiny. The Explanation Strategy involves clarifying misunderstandings to improve customer relations. Finally, the Compensation Strategy focuses on providing appropriate reparations to balance customer and business interests, transforming frustration into satisfaction. Implementing these strategies can enhance customer loyalty and strengthen the restaurant's reputation in a competitive digital environment.

Future research

This research suggests new factors like personal characteristics and perceived switching costs influencing customer loyalty in restaurants. It advocates for exploring these factors beyond service failures and using diverse methods across varied contexts to enhance and validate understanding of customer loyalty. Expanding geographically and integrating different theories can also provide new insights into loyalty dynamics.

However, it's important to acknowledge that purposive sampling can introduce bias and limit generalizability, as it relies on the researcher's judgment to select specific individuals rather than random selection. Researchers can mitigate these limitations by combining purposive sampling with random sampling techniques or including a diverse range of participants to enhance representativeness and reduce bias. Clearly defining selection criteria and transparently reporting the sampling process will further improve the study's validity and reliability. Lastly, future research should provide clear guidelines by exploring the role of psychological factors and utilizing mixed methods research to gain deeper insights. Additionally, incorporating comparative discussions with studies in similar contexts would be beneficial to highlight the similarities or differences in results. This approach can enhance the understanding of customer behavior dynamics and service recovery processes across different industries and cultural settings.

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