# MIXED FINDINGS ON SERVICE RECOVERY PARADOX: AN ILLUSTRATION FROM AN EXPERIMENTAL STUDY

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**ABSTRACT**

*The purpose of this study was to test service recovery paradox and double deviation on customers' overall satisfaction considering definitional and methodological issues. This study employed a scenario experimentation manipulated three dimensions justice at two levels each (2x2x2 factorial design). A convenience sample of 286 casual restaurant customers was used in the study. Paired sample t-tests were employed to test recovery paradox and double deviation effects after selecting four groups of customers based on recovery satisfaction to take into account the if-condition in the definition of the service recovery paradox. Customers' post-recovery overall satisfaction could be higher than their initial overall satisfaction provided customers were highly satisfied with service recovery (recovery paradox). When customers are somewhat satisfied with recovery efforts, their initial overall satisfaction could be carried over after two transactional evaluations. Double deviation effects were obvious and consistent when customers were either highly dissatisfied or somewhat dissatisfied with service recovery.*

**Key words** – service failure, satisfaction, service recovery paradox, double deviation, ceiling effect

**INTRODUCTION**

As the cost of attracting a new customer substantially exceeds the cost of retaining an existing customer, business entities are striving to build long-term relationships with their existing customers (Fornell and Wernerfelt, 1987; Kotler et al., 2003; Spreng et al., 1995). Meeting customers' demand for value and quality service and, in turn, satisfying customers are vital for continued existence of a business (Hoffman et al., 1995; Sundaram et al., 1997). Service providers strive to ensure 100 per cent error free service in the "moment of truth" (Bitner et al., 1994, p. 95); service failures, however, are inevitable in service delivery because of the nature of the services (Collie et al., 2000; Fisk et al., 1993; Hart et al., 1990). For instance, even a defect-free product and well-performed service delivery can result in a negative service encounter because of the heterogeneity of customers' outcome and process expectations. These unavoidable product and service failures imperil the goal of retaining customers. Therefore, service providers endeavor at 'doing the service very right the second time' (Berry and Parasuraman, 1991, p34).

Service failures and subsequent recovery efforts are costly for both customers and service providers. For customers, service failure means imbalances in equity evaluation, that is, customers do not get what they expect to get. It also induces psychological costs to reduce discomfort and eventually to restore psychological equity (Goodwin and Ross, 1990). For businesses, it costs to recover customers' imbalance in equity evaluation by putting more input (e.g., free offers or discounts). Service failure and inappropriate service recovery efforts that do not meet customers' recovery expectation directly link to negative word-of-mouth behavior and switching behavior that result in losing revenues (Dubé and Maute, 1996; Hoffman and Kelley, 2000; Jonhston and Hewa, 1997; Keaveney, 1995). The

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importance of satisfactory service recovery can be found not only in mitigating negative impact, but also in retaining relationships with customers.  Studies have provided empirical supports for the proposition that complaint handling and service recovery are closely tied with both trust and commitment  (Kelly and Davis, 1994; Tax et al., 1998).  Therefore, increased emphases on understanding roles of service recovery efforts were given in services marketing and consumer research (Brown et al., 1996; Maxham and Netemeyer, 2002a).

In efforts to understand the effects of service recovery, researchers and practitioners alike were interested in how customers overall satisfaction and behavioral intentions change after experiencing service failure(s) and recovery efforts.  Many researchers observed that post-recovery overall satisfaction could be as high as or even higher than initial overall satisfaction granted exceptional service recovery is provided.  On the other hand, others researchers did not find the recovery paradox effect.  Little effort was made to understand potential reasons for the mixed findings.  This study attempts to provide possible explanations for the mixed findings of service recovery paradox.  In addition, this study examines a research question that was addressed but not considered in previous service recovery paradox studies: Is there a ceiling effect in the test of recovery paradox effect?  This study presents an illustration of mixed findings by employing scenario experimentation.  Then, this study presents the results followed by discussing managerial implications and provides suggestions for future study.


**REVIEW OF LITERATURE**

Service failure arises when the service delivery performance does not meet a customer's expectations (Kelley and Davis, 1994; Kelley et al., 1993; Oliver, 1997).  Two

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types of service failures are recognized: outcome and process (Hoffman et al., 1995; Smith and Bolton, 2002). An outcome failure (typically involves utilitarian exchange) occurs when the failure is related to the core service offerings; on the other hand, a process failure (typically involves symbolic exchange) occurs when it is related to the manner in which the service is delivered (Smith et al., 1999; Smith and Bolton, 2002). These service failures, resulting from not being able to meet customers' expectation, leads negative evaluation of the encounter and results in dissatisfaction and negative word of mouth communication.

Consumer complaining behavior studies have focused on understanding customers' responses to product/service failures (Folkes, 1984; Hirschman, 1970; Landon, 1980). Voice occurs when customers verbally complain and express their dissatisfaction to the company (Andreassen, 2000). The purpose of the voice option is "to retrieve restitution, to protect other consumers, or to assist the firm in correcting a problem" (Landon, 1980, p. 337). Exit involves customers who stop buying the company's product/service (Andreassen, 2000; Webster and Sundaram, 1998). It is a voluntary termination of an exchange relationship (Singh, 1990) and is often implemented if voice were not successful (Blodgett et al. 1993). Loyal customers are those who continue to stick with an unsatisfying product/seller with the hope that things will soon improve (Boshoff, 1997; Hirschman, 1970). Among feedback mechanisms from dissatisfied customers, customers' voiced complaints offer service providers opportunity to rectify the problem and positively influence subsequent consumer behavior (Blodgett et al., 1997; Colgate and Norris, 2001).

**Service Recovery and Evaluation Process**

Service recovery is defined as actions that service providers take in response to service defections or failures in service delivery to return aggrieved customers to a state of

satisfaction by addressing customers' problems (Grönroos, 1988; McCollugh and Bharadwaj, 1992; Zemke and Bell, 1990). Service recovery embraces a much broader set of activities than complaint management, which focuses on customer complaints triggered by service failures (Smith et al., 1999). Service recovery studies focus on how customers react to service providers' responses on service failures.

Studies exploring customers' evaluation of service recovery efforts have theoretical foundation in the equity theory (Blodgett et al., 1993; Goodwin and Ross, 1992; Kelley and Davis, 1994). Equity theory suggests that perception of inequity arises when an individual's perceived inputs and perceived outcomes (sometimes in relations to others' outcomes) are not in balance in human exchange relationships (Adams, 1965). In further understanding of equity theory, researchers in social psychology and organizational behavior emphasized effects of procedural elements (e.g., fairness of policies and procedures) on the evaluation of outcomes (Folger, 1977; Greenberg, 1986; Thibaut and Walker, 1975). Bies and Moag (1986) introduced the concept of interactional justice. Enactment of the procedure (e.g., providing causal account or justification), distinguished from the process itself, influences judgments of fairness of a decision (Bies and Moag 1986; Bies and Shapiro 1987).

Then, how do customers evaluate fairness in a service failure and recovery situation? Customers establish expectations for recovery efforts from service providers (Kelley and Davis, 1994; Ruyter and Wetzels, 2000). A three dimensional view of justice applied to investigate how customers response to providers' recovery efforts. Studies have provided empirical evidence that perceived fairness of tangible outcomes (e.g., discounts, free meals, and store credit) has positive effect on recovery evaluation (Boshoff, 1997; Goodwin and Ross, 1992; Hoffman et al., 1995; Smith et al., 1999). Studies also found that consumers are

concerned both with the way resources or rewards are allocated (interactional justice) and with the process used to resolve conflicts or dispense rewards (procedural justice) in service recovery evaluation (Blodgett et al., 1997; Conlon and Murray, 1996; Maxham and Netemeyer, 2002a; Ruyter and Wetzels, 2000; Tax et al., 1998).

**Service Recovery Paradox vs Double Deviation**

Customers have an initial summary satisfaction evaluation toward service providers. In consumption situations, they hold certain level of expectation on service delivery from past experiences, friends, and other information sources (Zeithaml et al., 1993). When a customer experiences service failure(s), the customer's post-failure satisfaction (transaction-specific satisfaction) will be lower to some degree than previous overall satisfaction. Appropriate service recoveries will mitigate harmful effects and level up the post-recovery satisfaction (transaction-specific satisfaction) (Tax et al., 1998). When the service recovery efforts are exceptional, the level of customers' overall satisfaction rates can be actually higher than those of customers who have not experienced any problem in the transaction (Maxham and Netemeyer, 2002b; McCollough and Bharadwaj, 1992; Smith and Bolton, 1998).

On the other hand, inappropriate service recoveries will lead to the negative evaluation of the transaction and result in magnification of negative evaluation. Double deviation happen when customers experience two negative disconfirmations. One is from not meeting "predictive expectation" (Zeithaml et al., 1993), or "will expectation" (Boulding et al., 1993; Oliver, 1997) that customers bring in purchasing situations. The other is from not meeting "desired expectation" (Parasuraman et al., 1991; Zeithaml et al., 1993), or "should expectation" (Boulding et al., 1993) that are more specific to encounter. Yim et al.

(2003) proposed the expectancy-disconfirmation framework in the form of justice-based "should" recovery expectations. They emphasized that "should expectation" is different from "will expectation." Once the service delivery does not meet the customers' predictive expectations, customers take action (often complain to managers or employees) to resolve the conflict. Customers develop justice-based normative recovery expectations comprised of distributive, procedural, and interactional justice needs and use them as reference standards in evaluating recovery performance of the service provider (Yim et al., 2003).

End result of the double deviation leads customers' overall satisfaction after service failure and recovery far below to customers' initial overall satisfaction. Consumers accumulate those encounter evaluations and develop summary, or overall satisfaction (Oliver, 1997). In other words, a customer's his/her encounter evaluations (failure and recovery) moderate post-recovery overall satisfaction. Figure 1 portrays the flow of satisfaction in service failure and recovery context.

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**Take in Figure 1**


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**Problem Description and Hypotheses**

Service recovery paradox effects were observed in many studies, particularly that used critical incident technique (CIT). For example, using the critical incident technique, Bitner et al. (1990) found that among reported 232 incident outcomes in service delivery system failures, 81 customers (about 35%) remembered the employees' responses to failures

as satisfactory encounters.  Such study findings were inspiring so that researchers were encouraged providing statistical significance.  However, statistical findings have not been consistent to support for the practical importance of service recovery.  The service recovery paradox on satisfaction was observed in many studies (e.g., Maxham & Netemeyer, 2002b; Simth & Bolton, 1998).  However, other researchers did not find any recovery paradox effects (e.g., Boshoff, 1997; McCollough et al., 2000).  Several reasons may explain these mixed findings.

First, the definition of recovery paradox that emphasizes practical importance is not consistent with the statistical meaning of recovery paradox.  Service recovery paradox defined as "a situation in which a consumer has experienced a problem which has been satisfactory resolved, and where the consumer subsequently rates their satisfaction to be equal to or greater than that in which no problem had occurred" (McCollough and Bharadwaj, 1992, p.119).  The most often referred definition above encloses two potential conflicts with data analysis.  First, service recovery paradox was observable (though not all of them) only when customers consider the recovery effort as highly satisfactory (not just satisfactory).  Therefore, analysis should be separated into more categories rather than unsatisfactory recovery and satisfactory recovery based on customers' evaluations.  Further, recovery paradox was tested whether the satisfaction levels of customers are greater (rather than be equal to) than those of customers who have not experienced any problem (Gilly, 1987; Maxham and Netemeyer, 2002b; Smith and Bolton, 1998).

Second, data collection methods contributed to mixed findings.  CIT bases recovery paradox in individual incidents.  By the nature of data collection, CIT technique most often compares transaction (post-failure or pre-recovery) to transaction (post-recovery) evaluation.

Further, as the term "critical" implies, reported incidents by customers tend to be extremities rather than neutral (Johnston, 1995). Therefore, it tends to report significant difference between pre-failure and post-recovery.

Third, the levels of satisfactions are not properly compared. Post-recovery satisfaction (transaction-specific) and post-recovery overall (cumulative) satisfaction should be considered separately in evaluating the effectiveness of service recovery (Maxham and Netemeyer, 2002a; Ruyter and Wetzels, 2000). Similarly, measurement of satisfactions was not distinguished between transactional and overall satisfaction. Ruyter and Wetzels (2000) emphasized that encounter and overall satisfaction should be clearly distinguished in the measurement because respondents might answer construct measurements without distinguishing them.

Finally, customers visit more often at certain service providers with which they are more satisfied. Therefore, customers' responses to attitudinal and behavioral measures tend to be non-normally distributed (usually negatively skewed). With extremely high initial evaluations, it is difficult to show appreciable increase. Researchers from various disciplines argued that the ceiling effect contributed to no significant mean difference between pre and post evaluation (Chen et al., 2002; Cramer, 2004; Norris and Colman, 1992; Shimp et al., 1991). As the test of recovery paradox is to show significant mean difference in customers' satisfaction in positive direction, relative improvement from pre-failure overall satisfaction to post-recovery overall satisfaction is hardly attainable because there is very little margin (in case customers' pre-failure overall satisfaction are high) or even no margin (in case a customers' pre-failure overall satisfaction are as high as possible) to improve. Therefore, it is

impractical to observe a significant mean difference even after experiencing an exceptional service recovery.

Considering potential reasons for mixed findings on service recovery, this study evaluated the following hypotheses using experimental scenarios to test the recovery paradox and double deviation effects on overall satisfaction:

H1. Customers' overall satisfactions after experiencing highly positive service recovery are higher than their overall satisfactions before experiencing service failures.

H2. Customers' overall satisfactions after experiencing somewhat positive service recoveries are higher than their overall satisfactions before experiencing service failures.

H3. Customers' overall satisfactions after experiencing somewhat negative service recoveries are lower than their overall satisfactions before experiencing service failures.

H4. Customers' overall satisfactions after experiencing highly negative service recoveries are lower than their overall satisfactions before experiencing service failures.


**METHODOLOGY**

**Research Design and Measures**

Conducting an empirical study of service recovery in service consumption setting is limited because of expense and time involved, ethical concerns, and managerial unwillingness to intentionally pose service failure to customers (Smith and Bolton, 1998;

Smith et al., 1999).  As an alternative method, a retrospective approach that asks respondents to remember positive or negative experiences and to respond to a survey questionnaire was used in several studies (Kelley et al., 1993; Tax et al., 1998).  However, this method also is not free from criticism.  Memory bias can influence the results of a study in that customers tend to remember extremities that are not representative of experiences from general population (Hoffman et al., 1995; Smith and Bolton, 1998;).  Instead, a role-plying method using experimental scenarios has been extensively used for service recovery studies in services marketing and consumer behavior (Goodwin and Ross, 1992; Hess et al., 2003; McCollough et al., 2000, Smith and Bolton, 2002).  Its advantage over other methods includes enhanced internal validity resulting from more control over manipulated variables and less effect of extraneous variance (Bitner, 1990; Cook and Campbell, 1979).

A scenario-based experimental design was chosen for the study.  A 2x2x2 factorial design was used in which the dimensions of justice were manipulated into two levels each: interactional, procedural, and distributive justice.  Eight different versions of recovery scenarios were prepared.  The service failure scenario was identical to all participants (see appendix A for examples).

The questionnaire was developed through an extensive review of existing service recovery literature.  Satisfaction (initial satisfaction, recovery satisfaction, and overall satisfaction) was measured at three intervals.  Overall satisfaction items were adapted from Oliver and Swan's measure (1989).  Recovery satisfaction of which measurement adapted from studies of Maxham and Netemeyer (2002a&b) and Brown et al. (1996) was measured after the service failure scenario and one of the service recovery scenarios had been

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presented. Recovery satisfaction measures particularly emphasized the nature of transactional evaluation.

The initial questionnaire was pilot-tested on a sample of 96 undergraduate students taking general elective course in a college. Reliability of measurements estimated using Cronbach's alpha and values well exceeded the conventional cut off .70 (Nunnally, 1978). Table I reports the measurement items and reliability of the measurements. Manipulation checks were satisfactory so that no changes were made in the instrument for the final study.

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**Take in Table I**

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**Sample and Data Collection**

The study involved convenience sample of casual dining restaurant customers. Survey questionnaires were administered to members of local community service groups, religious groups, and a college faculty and staff group in a Midwestern state during their community fund raising events, educational programs, and regular meetings. Participants were first asked to list a name of the casual restaurant that they have visited recently. As suggested by Smith and Bolton (1998), this was done to ensure that they had prior experience with the restaurant and to have various initial attitudes toward restaurants. Then, they were asked several questions regarding their initial overall satisfaction toward the restaurant they named. Then, a failure scenario and one of the recovery scenarios were presented. Finally, their post-recovery overall satisfaction was asked at the end.

Six hundreds copies of the research instrument were distributed and a total of 308 completed questionnaires (51% respondent rate) were returned from 15 different groups. Most questionnaires were collected through mail (87%). Of the 308 returned surveys, 286 cases were retained after data cleaning, yielding a 47.67% usable response rate.

**Profile of Respondents**

Of the 286 respondents, 60.5% were female ($n = 173$) and 84.3% were Caucasian/white ($n = 241$). The age of respondents ranged from 18 to 91 years old. The age category of 45 to 54 (22.7%) and $\geq 65$ (9.4%) accounted for the highest and the lowest number of the respondents, respectively. Twenty percent of the respondents reported a household income between $20,000 and $39,999, 19% had an income between $40,000 and $59,999, and 14% had income between $60,000 and $79,999.

**DATA ANALYSIS AND RESULTS**

**Manipulation Check**

Realism of the scenarios were evaluated by asking participants to rate the likelihood that a similar problem would occur to someone in real life (1 = very unlikely to 7 = very likely) and the reality of recovery situations given in the scenarios (1 = very unrealistic to 7 = very realistic). Participants perceived the failure scenario (M = 5.87, SD = 1.15) and recovery scenarios (M = 5.42, *SD* = 1.38) as highly realistic, ensuring ecological validity. Participants tend to rate low recovery scenarios (any combination of 2 or more low dimensions) less realistic than high recovery scenarios (with 2 or more high dimensions). The results may imply that customers' past experiences were not as bad as stated in low

recovery scenarios and description of the high recovery scenarios were close to their

recovery expectations.

Convergent validity checks were performed using 2x2x2 factorial univariate analyses

of variance. Participants who were exposed to high conditions of each dimension of justice

rated the fairness evaluation favorably than those who were exposed to the low condition of

dimension of justice as intended (see Table II).

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**Take in Table II**

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**Tests of Recovery Paradox**

Several previous studies tested recovery paradox effect based on customers'

evaluations of recovery efforts with dichotomy of satisfaction and dissatisfaction. However,

this study formed four groups of customers based on their recovery satisfaction to test

recovery paradox effect considering the if-condition in the definition of service recovery

paradox situation. When customers were highly satisfied with recovery efforts, recovery

paradox was attainable at significance level of .05 (mean difference = -.22, SD = 1.01, $t$ = -

2.29, $p$ = .024). When customers were somewhat satisfied with service recovery, their post-

recovery overall satisfaction were not significant different from their initial overall

satisfaction (mean difference = .08, SD = .85, $t$ = .84, $p$ = .403). "Not statistically

significantly different" indicates that recovery efforts take the customers' evaluations of

satisfaction back to normal, which partly satisfy the purpose of the service recovery efforts.

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On the other hand, double deviation effects were obvious when customer were both highly dissatisfied (mean difference = 1.89, SD = 1.51, $t$ = 6.28, $p$ < .001) and somewhat dissatisfied (mean difference = .93, SD = 1.14, $t$ = 4.75, $p$ < .001) with service recovery efforts.  Table III reports results of paired sample t-tests.

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**Take in Table III**

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**Test of Ceiling Effect**

Despite our efforts to induce variability in customers' initial overall satisfaction (we asked participants to write a name of the restaurant that they recently visited, not the name of their favorite restaurants), the distribution of customers' initial overall satisfaction is negatively skewed (M = 5.68, SD = 1.18, Skewness = -1.48).  Almost two thirds of participants (191 out of 286) had their initial overall satisfaction over 4.50.  In the study, we test paradox effect after excluding a portion of customers' initial overall satisfaction.

Mean difference between pre-failure overall satisfaction and post-recovery overall satisfaction was significant at $p$ = .05, but not significant at $p$ = .01 for highly satisfied customers in previous analysis.  However, when customers whose initial overall satisfactions over 6.5 were deleted, the mean difference was larger and was significantly different at $p$ = .01 (mean difference = -.42, SD = 1.05, $t$ = -3.38, $p$ = .001, see Table III).  The finding may indicate that mixed findings on recovery paradox are partly attributed to the presence of the

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ceiling effect (A positive improvement was hardly attainable because of very little margin or even no margin to improve).

**DISCUSSION AND IMPLICATIONS**

This study found that customers' post-recovery overall satisfaction could be higher than their initial overall satisfaction when customers were highly satisfied with service recovery. The finding indicates that recovery efforts need to be exceptional rather than just good to have even higher customers' overall satisfaction after service failure and recovery. When customers are somewhat satisfied with recovery efforts, recovery efforts can mitigate negative effect of service failure and customers' initial overall satisfaction can be carried over after two transactional evaluations. Double deviation effects were obvious and consistent when customers perceive the recovery effort as either highly negative or somewhat negative. The following is an illustration of the research findings. Customer Jones will leave the restaurant being more satisfied than before even though he had experienced a service problem provided the recovery was exceptional (recovery paradox – statistically significant mean difference in a desired way). Restaurateurs should not be discouraged because they may not be able to recover all service failures into an exceptional one. Customer Jones may not change his attitude significantly toward the restaurant (no significant statistical mean difference though some are still less satisfied and others are a bit more satisfied) if he thinks the recovery was appropriate. However, if customer Jones perceived the service recovery as either poor or terrible, he will definitely be dissatisfied with the restaurant (double deviation – statistically significant mean difference not in a favored way).

Service recovery recognized as an opportunity. It is, however, an opportunity to turn a dissatisfying encounter into a satisfying encounter (Bitner, 1990; Bitner et al., 1990; Johnston, 1995). As end result of exceptional recovery, positive redress outcomes provide business opportunities to establish long-term relationships with customers (Kelly et al, 1993) and to attain loyal customers (Blodgett et al., 1995). On the other hand, inadequate company responses to service failures and mishandling of customer complaints influence not only the affected customers but also their friends and families via negative w-o-m communication (Hoffman and Chung, 1999; Hoffman and Kelly, 2000). Regardless, its possibility of recovery paradox, restoring customers' negative evaluation of service performance caused by not being able to meet customers' expectation is not an option but a necessity in building continual relationships with existing customers.

Researchers criticized recovery paradox effect in that if it is practically possible to achieve higher post-recovery overall satisfaction than pre-failure overall satisfaction, it is worthwhile to make mistake intentionally and make good recovery. However, the argument does not consider several other factors. First, studies confirmed that a customer's post-recovery evaluation is negative if he/she perceived similar problem occurred overtime. A longitudinal study of customer complaints and business recovery efforts found that paradoxical increases diminished after more than one failure despite effective service recovery because customers adjust their recovery expectations higher from one failure to the next (Maxham and Netemeyer, 2002b). Second, customers' expectation for service recovery vary depending on their past experience. Therefore, it is risky to make customers impressed by making extra recovery efforts. Johnston and Hewa (1997) illustrate an example of an instigate failure and recovery approach in quick delivery service (p. 472). They discourage

this approach because the recovery may fail and the carrier has no control over the failure and, therefore, it is too risky. Third, recovery paradox is only obtained at the very highest levels of customers' recovery ratings. Therefore, it is too costly to make customers even more satisfied by making intentional failures and recovery. For example, Boshoff (1997) observed significantly higher post-recovery satisfaction than disconfirmation only in one from 27 scenarios in an airline setting in which the supervisor immediately reinforced with a refund offer of expenses and an additional free airline ticket.

Inequity can be balanced back by customers or service providers. Customers may not purchase the product/service in the future (balancing by reducing future inputs) and/or spread negative word-of-mouth (discouraging others' future inputs). Service providers can balance back the inequity by providing extra efforts in various aspects, delivering more outputs to customers. However, there exist "silent majority (p. 151)" who do not give service providers opportunity to resolve the problem (Hart et al, 1990). Therefore, service recovery efforts should go further than "squeaky wheel approach," a case-by-case basis approach responding to only complaining customers (Johnston and Hewa, 1997, p. 469). Service providers proactively respond to service mistakes and assess their systematic responses to service defections.

Customer satisfaction in a service failure and recovery situation depends on not a service failure alone but the manner in which employees respond to complaint(s) about service failure (Bitner et al., 1990; Spreng et al., 1995). Smith and Bolton (1998) argue that it is extremely challenging for businesses to achieve recovery paradox because of employee behavior and dissimilarity of service failure. Therefore, employee training is critical to make

customer happy again. Business can employ scenario based training to respond various customers' complaint and recover diverse service failures.

## LIMITATIONS AND SUGGESTIONS FOR FUTURE STUDY

This study is subject to several methodological limitations, such as the nature of service, sampling, and data collection. This study examined recovery paradox in a restaurant setting. It has been suggested that recovery evaluation is context specific (Hess et al., 203; Hoffman and Kelley, 2000). Applicability of study findings may be limited to other segment of the service industry. Therefore, future study may incorporate multi-service industries to validate the finding.

This study tested the recovery paradox effect from primarily one ethnic group. Understanding differences in customers from various cultural and ethnical backgrounds would be useful in developing effective service recovery because those background factors may have effects on service recovery evaluation (Mueller et al., 2003; Palmer et al., 2000).

Service failures trigger negative emotion, and in turn, customers' affective responses to service failures influence service recovery evaluation (Smith and Bolton, 2002). The use of experimental scenarios in the study may limit the emotional involvement of participants and, therefore, their responses to experimental scenarios may weaker than to actual purchase experiences (Hess et al., 2003; Smith and Bolton, 2002; Sundaram et al., 1997). Data collection in a field setting may increase external validity of the study findings.

The study findings are based on an outcome service failure (being served overcooked steak). Studies suggested that customers' perception of magnitude of service failures affect customers' recovery satisfaction. Customers' perception on the magnitude of the service

failure provided in the study may not be severe enough to satisfy the lexical meaning of "paradox".  Smith et al. (1999) suggested that a failure that occurred during the service delivery process (symbolic exchange) might be more critical than a failure resulted from defect(s) of outcome (utilitarian exchange).  Therefore, future study may incorporate a process failure.

# Appendix A:

## Service Failure Scenario and an Example of Recovery Scenarios

### Service Failure Scenario

> On Friday evening, you and your family went out for dinner at *the restaurant you named* to celebrate one of your family member's graduation from high school or college. After waiting about 15 minutes, a hostess seated your group. Shortly after, a waiter took your order. You ordered a steak and requested it to be cooked "medium." When your meal was served, you noticed that your steak was "overcooked." You stopped eating and informed your server that your steak was overcooked.

### Examples of Recovery Scenarios

> After you explained the problem to the server, he sincerely apologized for the problem. He said that he could take care of the problem and removed the steak. After 2-3 minutes, the manager approached you and apologized for the problem. She said she was informed about the problem from the server and you didn't have to re-explain the problem. She also explained why the problem happened. She informed you that another steak would be served and you would not be charged for it. She also asked if there was anything else that she could do to serve you better.
>
> (the example of high interactional, high procedural, and high distributive justice)
>
> After you explained the problem to the server, he simply apologized for the problem. He said that he could not do anything about the problem and would get a manager to resolve it. After 10 minutes, the manager approached you but did not apologize for the problem. The manager asked you what the problem was and you had to re-explain the problem. She did not provide an explanation for the problem. She informed you that another steak would be served. No other compensation was offered. She did not ask if there was anything else that she could do to serve you better.
>
> (the example of low interactional, low procedural, and low distributive justice)

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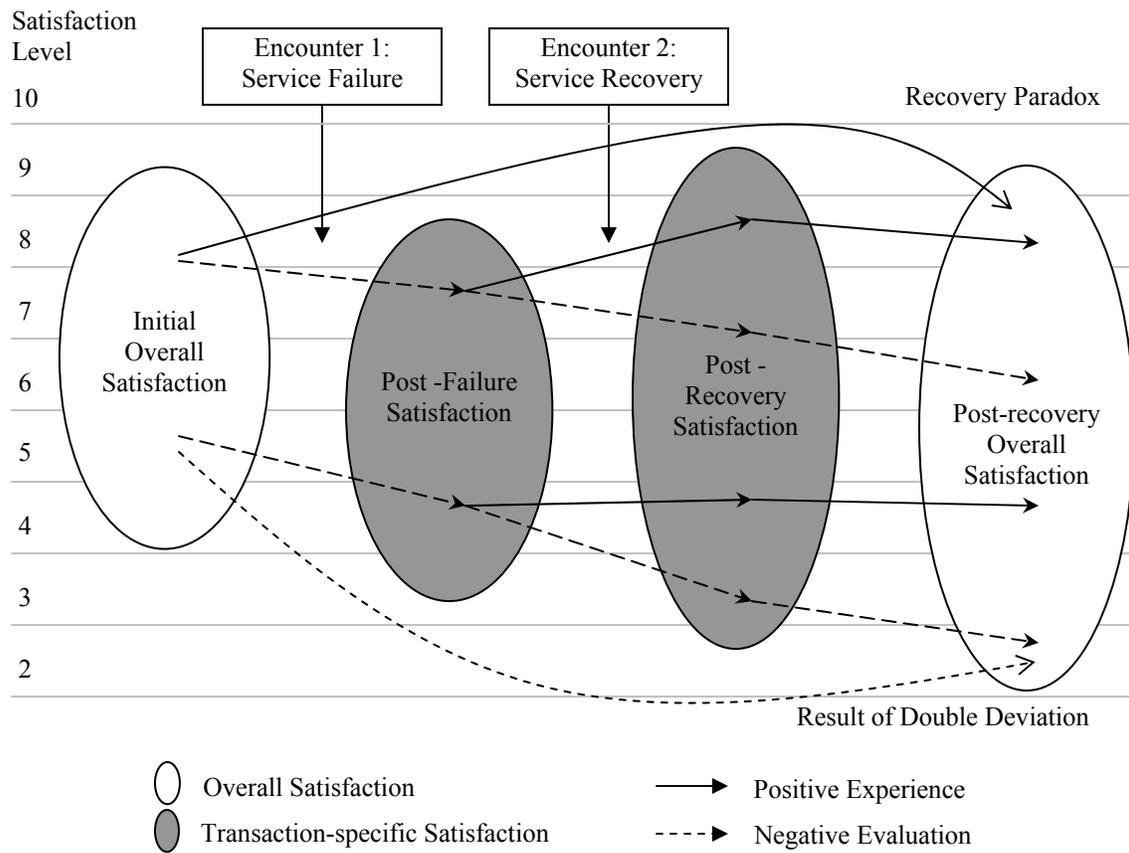Zemke, R. and C. Bell (1990) Service Recovery: Doing It Right the Second Time, *Training,* 27(6), 42-9.

**Figure 1. Flow of Satisfaction in Service Failure and Service Recovery Context**

The figure shows a vertical axis labeled "Satisfaction Level" marked from 10 (top) down to 2.

Boxes at top: "Encounter 1: Service Failure" and "Encounter 2: Service Recovery". At top right: "Recovery Paradox".

Ellipses from left to right:
- Initial Overall Satisfaction
- Post-Failure Satisfaction
- Post-Recovery Satisfaction
- Post-recovery Overall Satisfaction

Bottom label: "Result of Double Deviation"

Legend:
- ○ Overall Satisfaction
- ● Transaction-specific Satisfaction
- → Positive Experience
- ---► Negative Evaluation

**Table I.**
**Measurement Items and Reliability**

| Constructs and Measurement Items | Cronbach's Alpha |
|---|---|
| **Recovery Satisfaction** <br> • In my opinion, the restaurant provided a satisfactory resolution to the problem on this particular occasion. <br> • I am satisfied with the restaurant's handling of this particular problem. <br> • I am satisfied with this particular dining experience. | .95 |
| **Overall Satisfaction (Pre-failure and Post-recovery)** <br> • I am satisfied with my overall experience with the restaurant. <br> • As a whole, I am happy with the restaurant. <br> • Overall, I am pleased with the service experiences with this restaurant. | .95 and .97 |

**Table II.**
**Convergent Validity of Manipulation**

| Manipulation | Dependent Variable | | F | p |
|---|---|---|---|---|
| | M | SD | | |
| **Interactional Justice** | Perceived IJ | | | |
| High | 5.68 | 1.09 | 104.50 | .000 |
| Low | 4.24 | 1.55 | | |
| **Procedural Justice** | Perceived PJ | | | |
| High | 5.74 | 1.05 | 159.91 | .000 |
| Low | 3.94 | 1.55 | | |
| **Distributive Justice** | Perceived DJ | | | |
| High | 5.62 | 1.07 | 100.41 | .000 |
| Low | 4.22 | 1.49 | | |

Note. The mean differences were significant in all perceived justice at the $p = .05$ level.

**Table III.**
**Test of Recovery Paradox and Double Deviation**

**Paired Sample t-tests**

| Recovery Satisfaction | N | IS | OS | Mean Difference | SD | t | Sig |
|---|---|---|---|---|---|---|---|
| Highly Dissatisfied (1.00-2.25) | 25 (22) | 5.48 (5.27) | 3.59 (3.35) | 1.89 (1.92) | 1.51 (1.59) | 6.28 (6.11) | .000 (.000) |
| Somewhat Dissatisfied (2.26-3.50) | 34 (29) | 5.47 (5.23) | 4.54 (4.36) | .93 (.87) | 1.14 (1.21) | 4.75 (3.88) | .000 (.001) |
| Somewhat Satisfied (4.50-5.75) | 88 (71) | 5.58 (5.25) | 5.50 (5.35) | .08 (-.10) | .85 (.76) | .84 (-1.15) | .403 (.254) |
| Highly Satisfied (5.76-7.00) | 103 (71) | 5.90 (5.43) | 6.11 (5.86) | -.22 (-.42) | 1.01 (1.05) | -2.29 (-3.38) | .024 (.001) |

Note. Respondents' recovery satisfaction between 3.51 and 4.49 were deleted for clear interpretation since 4 indicates neither dissatisfied nor satisfied.
Values in parentheses indicate measures after customers' initial overall satisfactions over 6.5 are deleted (ceiling effect).