

AN EXPERIMENTAL INVESTIGATION OF CUSTOMER REACTIONS TO SERVICE  
FAILURE AND RECOVERY ENCOUNTERS: PARADOX OR PERIL?

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## Abstract

Service failure and recovery encounters represent critical moments of truth in a service organization's relationship with its customers. Despite a substantial amount of lip service given to the importance of service recovery and the dramatic effect that service failures and failed recoveries can have on a firm's ability to satisfy and keep customers, few empirical studies have addressed the influence of service failure/recovery encounters on customers' overall assessments of a service organization. Furthermore, most of the research in this area has been exploratory and non-generalizable.

This study develops a simple model which addresses the following questions: (1) How does a customer's satisfaction with a service failure and recovery encounter affect his/her cumulative satisfaction judgments and repatronage intentions? (2) To what extent do a customer's prior assessments of overall satisfaction and repatronage intentions formed before the service failure and recovery encounter ``carry over'' to influence his/her subsequent overall satisfaction and repatronage intentions? (3) Can a highly satisfying service failure and recovery encounter enhance a customer's overall satisfaction with a service organization and increase his/her repatronage intentions? The model is operationalized with data from two experiments conducted in different service settings (restaurants and hotels) in which actual customers experienced a hypothetical service failure and recovery encounter at an organization they had recently patronized.

For managers, answers to these research questions provide insight into whether effective service recovery leads to valuable returns in terms of customer satisfaction and retention. The results suggest that although excellent service recoveries can enhance customer satisfaction and increase repatronage intentions, viewing service failures as opportunities to impress customers

with good service performance may involve substantial risks.

Key Words: Service Recovery, Service Failure, Service Encounters, Customer Satisfaction,  
Repatronage Intentions, Updating

## INTRODUCTION

Research has indicated that customers need to have as many as twelve positive experiences with a service provider in order to overcome the negative effects of one bad experience (Bateson 1995; Zemke and Schaaf 1989). Service recovery refers to the actions a service provider takes in response to a service failure (Gronroos 1988). When service failures occur, the organization's response has the potential to either restore customer satisfaction and reinforce customer loyalty, or exacerbate the situation and drive customers to a competing firm. Therefore, service failure and recovery encounters represent critical moments of truth in a service provider's relationship with its customers.

Researchers have suggested that service failure and recovery encounters provide opportunities for organizations to communicate commitment to customers and strengthen bonds (Berry and Parasuraman 1991) and that service recovery should be viewed as a strategic marketing variable that offers a valuable return in the form of increased customer satisfaction and retention (Bell and Zemke 1987; Hart, Heskett and Sasser 1990). Therefore, by linking customer evaluations of service failure and recovery encounters to overall (cumulative) satisfaction and repatronage intentions, managers can evaluate the benefits and/or opportunity costs of this strategic marketing variable.

Leading scholars have (1) pointed out that customer evaluations of service encounters are important elements of customer satisfaction and long-term loyalty, (2) called for a greater focus on the relationships among service encounter issues and other organizational concerns such as repatronage, quality, and profitability, and (3) identified service recovery as one of the most important future research topics for services marketing academicians (Fisk, Brown and Bitner

1993). Despite this research directive and a substantial amount of •lip service• given in the business press to the importance of service recovery and the dramatic effect that service failures and failed recoveries can have on a firm's ability to satisfy and keep customers, few empirical studies have addressed the influence of service failure/recovery encounters on customer evaluations. Furthermore, most of the research in this area has been exploratory and non-generalizable. A notable exception is Bolton's (1997) study of the influence of service failures on the duration of customers' relationships with their cellular communications provider.

This study investigates how service failure and recovery encounters influence customers' overall assessments of a service organization. The study examines the following questions: (1) How does a customer's satisfaction with a service failure and recovery encounter affect his/her cumulative satisfaction judgments and repatronage intentions? (2) To what extent do a customer's prior assessments of overall satisfaction and repatronage intentions formed before the service failure and recovery encounter •carry over• to influence his/her subsequent overall satisfaction and repatronage intentions? (3) Can a highly satisfying service failure and recovery encounter enhance a customer's overall satisfaction with a service organization and increase his/her repatronage intentions? For managers, answers to these research questions provide insight into whether effective service recovery leads to valuable •returns• in terms of customer satisfaction and retention.

After reviewing the literature and providing a perspective for the study, we develop a simple model of how service failure and recovery encounters influence customers' cumulative satisfaction and repatronage intentions for services. The model is operationalized with data from two experiments conducted in different service settings (restaurants and hotels) in which actual

customers experienced a hypothetical service failure and recovery encounter at an organization they had recently patronized.

## REVIEW AND PERSPECTIVE

Researchers have suggested the existence of a very intriguing phenomenon known as the • service recovery paradox • whereby, in some organizations, customers whose service failures had been satisfactorily remedied seemed to be more satisfied, more likely to remain loyal, and more likely to engage in favorable word-of-mouth about the company than customers who had never experienced a failure (Hart, Heskett and Sasser 1990; McCollough and Bharadwaj 1992). Similarly, Bitner, Booms, and Tetreault (1990) found that over 23 percent of memorable satisfactory encounters in the airline, hotel, and restaurant industries were directly due to incidents relating to the way service employees responded to service failures. This finding demonstrates that service system failures can be perceived as highly satisfactory encounters if proper recovery measures are taken, and provides further evidence of the service recovery paradox.

On the other hand, an alarmingly large proportion (43 percent) of dissatisfactory service encounters were due to employees' inability or unwillingness to respond to service failures. Upon closer examination of the incident descriptions, the researchers concluded that it was not the initial failure that caused the dissatisfactory encounter, but rather it was the employee's response to the failure that caused the incident to be remembered unfavorably by the customer. In other words, it was not the service failure itself, but the failure to recover that caused the customer to be dissatisfied. Bitner, Booms, and Tetreault (1990) referred to this perceived inappropriate and/or inadequate response to service failures as a "double deviation" from

customer expectations of service organizations. These types of events result in the magnification of negative evaluations by service customers.

Even more striking is the evidence that these negative evaluations by customers prompt behavioral responses that translate directly into losses for service firms. In a recent study of customer switching behavior in a wide variety of service industries (Keaveney 1995), service failures and failed recoveries accounted for almost 60 percent of the critical behaviors by service providers that led directly to customer switching. Of the 60 percent, 45 percent of these behaviors were cited as the sole reason for the customer switching to another service provider. These percentages probably underestimate the level of customer switching due to service failures because at least two other categories of critical behaviors, inconvenience and ethical problems, included various forms of service failures that led to customer switching, such as unreasonable waiting time (for the service or to get an appointment) and dishonest or intimidating behavior by service providers. In terms of customer defection, these results provide compelling evidence of the potentially damaging impact of service failures followed by ineffective or non-existent service recoveries.

Johnston (1995) also used the critical incident technique to examine the impact of service failure and recovery encounters on satisfaction and reported evidence of the importance of responsiveness, empathy, communication, flexibility, and friendliness in the service recovery process, across a variety of service industry settings. Finally, in a study of satisfaction with an interstate moving service, Spreng, Harrell, and Mackoy (1995) found that the most important determinant of overall satisfaction among customers with damage claims was satisfaction with damage claims personnel-- the service recovery variable. The effect of this variable was greater

than the effect of the damage variable, which was the original cause of the service failure. The service recovery variable also had the strongest indirect effect on repatronage intentions and positive word-of-mouth.

Although these studies provide useful classification schemes and some qualitative and/or correlational evidence concerning the influence of service failure and recovery encounters on customer evaluations, they do not yield causal inferences or generalizable findings about how customers' reactions to failure/recovery encounters affect their overall (cumulative) satisfaction and repatronage intentions. This study attempts to fill that gap by developing a model that explains how customers update their overall assessments of a service organization after a service failure and recovery encounter. The model is tested using experimentally-generated failure/recovery scenarios, a feature which allows for the systematic investigation of a more representative and inclusive set (and, for statistical purposes, a fuller range) of encounters than is possible with retrospective survey approaches. Furthermore, the model accounts for effects due to individual differences and is operationalized in two different service settings using a sample of customers who patronized multiple organizations in the same industry (restaurants) as well as a sample of customers who patronized a particular organization in a single industry (hotels). These features enhance the generalizability of the study's results.

## MODELING CUMULATIVE SATISFACTION AND REPATRONAGE INTENTIONS AFTER A SERVICE FAILURE AND RECOVERY ENCOUNTER

This section develops a simple model and a set of hypotheses that describe how service failure and recovery encounters influence customers' cumulative satisfaction judgments and repatronage intentions. The model is illustrated in Figure 1.

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Figure 1 here  
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### Updating Satisfaction Judgments and Repatronage Intentions After a Failure/Recovery Encounter

Studies employing panel designs have shown that individual customers' prior satisfaction directly affects their subsequent satisfaction judgments (LaBarbera and Mazursky 1983; Oliver 1980; Woodruff, Cadotte and Jenkins 1983). This pattern is also evident in market level (i.e., aggregate) data (e.g., Johnson, Anderson and Fornell 1995). Research also has shown that customers' prior repatronage intentions directly affect their subsequent repatronage intentions (LaBarbera and Mazursky 1983). Consequently, there is considerable evidence that customers revise and update their satisfaction judgments and repatronage intentions based on prior assessments and new information.

Service encounters involving a failure and recovery provide the customer with new information so that he/she can update his/her satisfaction and repatronage intentions. Transaction-specific satisfaction (e.g., Oliver 1981; Parasuraman, Zeithaml and Berry 1994) is generally considered to be a post-choice evaluative judgment of a specific purchase and consumption experience (e.g., Anderson and Fornell 1994). For example, a customer might form a transaction-specific assessment of his/her satisfaction with an organization's recovery from a service failure. In contrast, cumulative satisfaction reflects the customer's feelings about multiple experiences, encounters, or transactions with the service organization (e.g., Bitner and Hubbert 1994; Bolton and Drew 1991b; Crosby and Stephens 1987; Oliva, Oliver and MacMillan 1992). Experimental studies have demonstrated a link between customer satisfaction with different service encounters and evaluation of the service provider, evaluation of service

quality, and evaluation of the service organization (Bitner 1990; Bolton and Drew 1991a; Oliver and DeSarbo 1988; Oliver and Swan 1989). Hence, we predict that customers' satisfaction judgments and repatronage intentions are updated depending on transaction-specific satisfaction with the service failure and recovery experience, resulting in revised cumulative satisfaction and repatronage intentions. That is,

H<sub>1a</sub>: A customer's cumulative satisfaction with a service organization will be higher (lower) when his/her transaction-specific satisfaction with its recovery from a service failure is higher (lower), after controlling for the effects of prior cumulative satisfaction.

H<sub>1b</sub>: A customer's repatronage intentions concerning a service organization will be higher (lower) when his/her transaction-specific satisfaction with its recovery from a service failure is higher (lower), after controlling for the effects of prior repatronage intentions.

#### The Influence of Cumulative Satisfaction on Repatronage Intentions

In a two-stage field study, consumers' intentions to participate in a flu inoculation campaign depended on their satisfaction and attitudes towards an earlier federal flu program (Oliver 1980). Similarly, Bearden and Teel (1983) showed that customers' intentions regarding automobile repair and service outlets depended on their attitudes, which were influenced by their satisfaction judgments. Satisfaction is the customer's fulfillment response (Oliver 1997), not an attitude. However, the finding of an effect for attitude suggests that customers may update repatronage intentions as a function of cumulative satisfaction, as well as transaction-specific satisfaction. This notion is supported by numerous studies that show a positive correlation between cumulative satisfaction and repatronage intentions across individuals within the same firm (Churchill and Suprenant 1982; Oliver and DeSarbo 1988; Spreng, Harrell and Mackoy

1995) and (in aggregate) across firms (e.g., Anderson 1994).<sup>1</sup> For example, drawing on Helson's (1964) adaptation level theory, LaBarbera and Mazursky (1983) found empirical support for a model of individual customer behavior in which repatronage intentions are adjusted based on current satisfaction, thus creating revised repatronage intentions. These studies suggest the following hypothesis.

H<sub>2</sub>: A customer's repatronage intentions concerning a service organization will be higher (lower) when his/her cumulative satisfaction is higher (lower), after accounting for the effects of transaction-specific satisfaction with the recovery from a service failure.

Note that the second hypothesis implies that service failure and recovery encounters have an indirect effect (operating through cumulative satisfaction) as well as a direct effect, on repatronage intentions.

### The Role of Stability Attributions

Stability attributions should play an important role in customers' judgments elicited after a service failure. Customers who attribute outcomes to stable and permanent causes are more confident that the same outcome will recur than customers who attribute outcomes to unstable causes (Weiner 1986). Consequently, a customer's inference about whether the cause of the service failure is stable or unstable over time should influence his/her repatronage intentions (Folkes 1984; 1988). In a field study, Folkes, Koletsky and Graham (1987) show that customers' stability attributions influence their propensity to repatronize an airline. Thus, we believe that when a service failure is attributed to a stable (i.e., recurring) cause, customers will have lower cumulative satisfaction and be less likely to repatronize the organization. For example, if a customer believes that a hotel room is unavailable because the organization

consistently overbooks its facility, he/she will be less satisfied and less likely to visit that hotel again. Stability of causal attributions may act as a main or interaction effect. In general,

H<sub>3a</sub>: A customer's cumulative satisfaction will be higher (lower) when he/she believes that the service failure is unlikely (likely) to happen again (*ceteris paribus*).

H<sub>3b</sub>: A customer's repatronage intentions will be higher (lower) when he/she believes that the service failure is unlikely (likely) to happen again (*ceteris paribus*).

### Model Specification

These three hypotheses yield a simple model of cumulative satisfaction ( $CumSat_t$ ) and repatronage intentions ( $RepInt_t$ ) after a service failure and recovery encounter. That is,

$$CumSat_t = (CumSat_{t-1}, Recovery_t, Stable_t) \quad (1)$$

$$RepInt_t = (RepInt_{t-1}, CumSat_t, Recovery_t, Stable_t) \quad (2)$$

where:  $CumSat_{t-1}$  represents prior cumulative satisfaction,  $RepInt_{t-1}$ , represents prior repatronage intentions,  $Recovery_t$  represents transaction-specific satisfaction with the organization's recovery from the service failure, and  $Stable_t$  represents stability attributions. Prior research has proposed additional antecedents of cumulative satisfaction and repatronage intentions (e.g., propensity to voice/exit, trust), but they are not of focal interest in this study.<sup>2</sup> Instead, this study focuses on how customers' satisfaction with the organization's recovery from a service failure operates in these two equations.

### The Functional Form of Customer Reactions to Service Failure and Recovery Encounters

In discussing the relationship between customer satisfaction and repatronage intentions, managers and researchers have begun to distinguish between customer satisfaction and customer •delight• (e.g., Rust, Zahorik and Keiningham 1995). This distinction is used to highlight the

notion that customers' repatronage intentions may become increasingly favorable at higher levels of satisfaction or unfavorable at lower levels of satisfaction. For example, Zeithaml, Berry and Parasuraman (1993) have proposed the existence of a • zone of tolerance • beyond which customers respond more favorably to service. As mentioned earlier in the paper, Bitner, Booms and Tetreault (1990) report that a careful reading of critical incidents reveals that it is not the core service failure alone that causes customer dissatisfaction, but rather the employee's *response* to the failure. They suggest that inadequate recovery efforts represent a • double deviation • from the expectations that customers hold for providers, resulting in magnification of the negative evaluation.<sup>3</sup> These arguments suggest that customers' cumulative satisfaction and repatronage intentions may be more strongly influenced by extreme levels of service -- that is, by very • good • or very • poor • recovery efforts in response to a service failure.

H<sub>4a</sub>: A customer's cumulative satisfaction with a service organization will be curvilinear in response to his/her satisfaction with the organization's handling of a service failure.

H<sub>4b</sub>: A customer's repatronage intentions will be curvilinear in response to his/her satisfaction with the organization's handling of a service failure.

In this study, we begin by postulating that both equations (1) and (2) are linear additive.

Re-writing equations (1) and (2),

$$CumSat_t = \forall CumSat_{t-1} + (Recovery_t + * Stable_t \quad (3)$$

$$RepInt_{it} = \forall RepInt_{t-1} + \exists CumSat_t + (Recovery_t + * Stable_t \quad (4)$$

Naturally, we expect that the weights ( $\forall$ ,  $\exists$ ,  $($ ,  $*$ ) in equation (3) will differ from the weights in equation (4). However, the subscript that distinguishes them is omitted for notational convenience. In the empirical portion of this paper, we test whether the functional form of the

cumulative satisfaction and repatronage intentions equations is non-linear with respect to recovery efforts by modifying the functional form of equations (3) and (4). These tests include a consideration of whether recovery efforts are evaluated relative to a reference value, such as prior experience.

### The Service Recovery Paradox.

As described earlier in the paper, the service recovery paradox suggests that customers who receive •good• or •excellent• recoveries in response to a service failure will exhibit enhanced levels of satisfaction and increased repatronage intentions which would not have been attained if they had not had a failure/recovery experience with the service organization. There are no generalizable findings regarding the conditions under which the service recovery paradox might hold. However, Bolton and Drew (1991c) found that the impact of a service encounter is very large, relative to other variables, and that only an "excellent" encounter enhances customers' perceived service value. These notions yield the following hypotheses.

H<sub>5a</sub>: A customer's cumulative satisfaction with a service organization will increase relative to his/her prior cumulative satisfaction when he/she is very satisfied with the organization's handling of a service failure.

H<sub>5b</sub>: A customer's repatronage intentions will increase relative to his/her prior repatronage intentions when he/she is very satisfied with the organization's handling of a service failure.

Algebraically, these hypotheses predict that when service recovery is highly satisfactory, the magnitude of the coefficient is sufficiently large that the changes in cumulative satisfaction and repatronage intentions are positive.

## RESEARCH DESIGN

Service recovery research is particularly challenging because the activities associated with recovery are triggered by a service failure, making systematic empirical studies (in a lab or field environment) very difficult to conduct. Thus, prior studies on service failure/recovery encounters have been limited to descriptive research based primarily on retrospective self-reports of service failure and recovery episodes. This study utilizes a quasi-experimental design, in which customers answered questions about an organization they had recently patronized and then evaluated experimentally-generated failure/recovery scenarios.

Scenarios have demonstrated ecological validity (Bateson and Hui 1992), and they are appropriate for studying customer reactions to service failure and recovery encounters for the following reasons. First, observation or enactment of service failure and recovery incidents in the field poses a number of difficulties, including the expense and time involved (due to low incidence rates), ethical concerns, and the managerial undesirability of intentionally imposing service failures on customers. Second, experimentally-generated scenarios avoid undesirable response biases due to memory lapses, rationalization tendencies, and consistency factors. For example, recall-based studies tend to be unrepresentative of customers' responses to • typical • service failures because customers tend to report on experiences that are unusually important to them in some way (e.g., ones that involve a large expenditure of money or extreme dissatisfaction) and because customers who complain tend to be unrepresentative of the total consumer population. Third, experimentally-generated scenarios can create greater variability in customer responses to service recovery than we would ordinarily observe in a natural environment. For example, customers' ratings of service recovery would ordinarily be highly

skewed and highly correlated with their (simultaneously obtained) ratings of cumulative satisfaction and repatronage intentions. The use of scenarios avoids or substantially reduces all of these potential limitations and problems.

### Samples

The study was conducted in two different service settings, restaurants (Study 1) and hotels (Study 2). These two industries are frequently studied by both managers and academic researchers interested in customer satisfaction and loyalty (e.g., Boulding, et al. 1993). Recent evidence suggests that they are particularly suitable for a study of the effect of service failure and recovery on satisfaction and loyalty. Specifically, the 1998 American Customer Satisfaction Index (ACSI) is currently 66 for restaurants and 71 for hotels -- both on a 100 point scale (Fortune 1998, p. 166). The ACSI has dropped -5.7% for restaurants and -1.4% for hotels since 1996. These relatively low satisfaction levels are likely to be indicative of low repeat purchase rates because switching costs in both industries are low.

The samples for both studies were composed of customers who had recently patronized a particular service organization. In the first study, 375 undergraduate students at University of Maryland's College Park campus were surveyed concerning their restaurant patronage. Surveys were administered to students in groups of 20-40 subjects. To ensure that students had prior experience with the service provider being evaluated, they were asked to name a specific restaurant (other than fast food) they had visited in the past three months. Surveys from 344 respondents were deemed usable for data analysis.<sup>4</sup> Note that the students are “real” consumers who had recently patronized different restaurants. They may have different attribute importance weights than another restaurant customer segment, but we believe that this feature does not make

them less appropriate for this study than any other customer group.

In Study 2, a probability sample of business traveler customers was selected from a mid-range hotel chain's general reservation list of customers who had stayed at one of their locations within the previous three months. In a mail survey, the respondents were offered a cash incentive for completing and returning the questionnaire. A total of 602 surveys were returned, resulting in a response rate of 29.85 percent. Surveys from 520 respondents were deemed usable for data analysis.

While Study 1 was conducted across multiple organizations (restaurants), Study 2 was conducted within a single organization which operates multiple locations (hotels). This facet of the research design enhances the generalizability of the study not only by testing the model and hypotheses across two different service settings but also by increasing the external validity of the research (i.e., the results of Study 1 can be generalized across organizations within the same industry) while providing for a high degree of internal validity (i.e., the results of Study 2 control for extraneous differences due to heterogeneity among organizations within the same industry).

### Experimental Design

Each customer was exposed to a scenario describing a service failure and a recovery effort by an organization they had recently patronized. Scenarios were completely randomized across customers. For each study setting, 96 service failure and recovery combinations were created using a between-subjects design. The design manipulated type of failure (outcome/process), magnitude of the failure (high/low), and four service recovery attributes: compensation (high/medium/none), response speed (immediate/delayed), apology (present/absent), and recovery initiation (prompted by the service employee/prompted by the

customer). (This design is described in more detail in Smith, Bolton and Wagner (1997)).

Examples of the service failure scenarios and recovery attributes for both the restaurant and hotel settings are provided in the Appendix.

The Task. The questionnaire used for both studies began by asking subjects to name a restaurant (Study 1) or the specific hotel location (Study 2) they had visited within the past three months. They then answered a series of open-ended questions regarding their prior experience with the organization (e.g., time of last visit, frequency of visits) followed by a short battery of structured questions regarding their loyalty to, and overall satisfaction with, the organization. Customers were then asked to engage in a role-playing exercise in which they imagined a return visit to the organization and were presented with a hypothetical scenario in which a service failure occurred. Following a verbal protocol task in which subjects recorded their thoughts and feelings about the failure encounter, they then answered a short battery of structured questions to determine their evaluations of the failure encounter (including a manipulation check for magnitude of the failure, attribution measures, and propensity to complain/exit measures).<sup>5</sup> Next, customers were presented with a recovery scenario which described the organization's response to the service failure they experienced. Lastly, they answered a short battery of structured questions regarding their evaluations of the service encounter, and their overall (cumulative) satisfaction with, and repatronage intentions toward, the service organization.

#### Operationalization of Model Constructs

Measurement scales were adapted from previous studies. In Study 1, which was conducted in a controlled group setting, subjects responded to multiple items for most constructs. The results were used to identify a subset of reliable and valid measures for Study 2, which

involved a mail survey of business travelers. There were minor modifications in wording between Study 1 and Study 2 to account for differences in the service settings. The scale items are presented in Table 1. These scales exhibit desirable properties according to conventional methods for assessing convergent and discriminant validity (e.g., Churchill 1979; Anderson and Gerbing 1988), but details are not provided here because these scales have been used elsewhere in the literature. Descriptive statistics for the model constructs are displayed in Table 2. These statistics show that: (1) average cumulative satisfaction and repatronage intentions decrease after the service failure and recovery encounter, but (as discussed subsequently) certain groups of respondents do experience increases in cumulative satisfaction and repatronage intentions; and (2) since service failure and recovery are experimentally manipulated, there is substantial variation in customers' ratings of the organization's *Recovery<sub>t</sub>* (as indicated by the standard deviation).

#### Model Estimation Procedure

The proposed model of cumulative satisfaction and repatronage intentions described by equations (5) and (6) was estimated for both the restaurant and hotel settings with an ordinary least squares estimation procedure. To control for the effects of individual differences among customers in terms of experience, propensity to voice/exit, type of facility, and demographics, a set of covariates was included in the equations for both settings.<sup>6</sup> Main and interaction effects for type and magnitude of failure were also included.

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Tables 1 and 2 here  
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## RESULTS

The results of the estimation procedure and hypothesis tests are presented in Tables 3 and 4. The overall fit of the model is good, considering the equations were estimated with cross-sectional data resulting from a between-subjects experiment. The adjusted R-squared values for the cumulative satisfaction equations are 0.57 for restaurants and 0.36 for hotels ( $p < 0.0001$  for both). The adjusted R-squared values for the repatronage intentions equations are 0.51 for restaurants and 0.64 for hotels ( $p < 0.0001$  for both). The model seems to fit the restaurant and hotel data equally well. This result is rather surprising because the restaurant data was elicited from students whereas the hotel data was elicited from high-involvement customers in a business-to-business context. Hence, it seems likely that the model is generalizable to other service settings.

Across both studies, the patterns of the regression coefficients were consistent with the proposed model. Most of the proposed relationships were supported in both the restaurant and hotel settings. However, prior repatronage intentions did not have a statistically significant effect on subsequent repatronage intentions in the hotel setting. This finding is consistent with prior research that shows that business customers tend to weigh perceptions of performance attributes heavily (e.g., Bolton and Drew 1991c). It suggests that business travelers are more knowledgeable and experienced concerning hotels than students are concerning restaurants, so that they are better able to interpret current service experiences without relying on prior cumulative assessments.

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Tables 3 and 4 here  
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## DISCUSSION

### The Effect of Transaction-Specific Satisfaction

After controlling for the effects of prior cumulative satisfaction and repatronage intentions, customers have higher levels of cumulative satisfaction and repatronage intentions when they are more satisfied with the organization's recovery from a service failure ( $p < 0.01$ ). These results are consistent with H<sub>1a</sub> and H<sub>1b</sub>. Customers' satisfaction with the failure/recovery encounter accounts for the majority of the explained variance in cumulative satisfaction in both the restaurant and hotel settings (73% and 59% respectively). Transaction-specific satisfaction also explains a substantial amount of the variance in repatronage intentions in both the restaurant and hotel settings (25% and 37% respectively).

Customers' memories of prior service experiences, as reflected in their prior cumulative satisfaction and repatronage intentions, significantly affect their revised cumulative satisfaction and repatronage intentions. However, the magnitude of the effect of the customer's prior experiences is relatively small compared with his/her satisfaction with the organization's recovery from the service failure. Customers' prior cumulative satisfaction accounts for only 13-16% of explained variance in their cumulative satisfaction in the restaurant and hotel settings. Customers' prior repatronage intentions account for approximately eight percent of explained variance in repatronage intentions in the restaurant setting only.

### The Moderating Effect of Cumulative Satisfaction on Repatronage Intentions

Consistent with H<sub>2</sub>, customers' repatronage intentions are higher when their cumulative satisfaction is higher ( $p < 0.01$ ), after accounting for the effects of transaction-specific satisfaction with the failure/recovery encounter. This result implies that service recovery

operates indirectly on repatronage intentions -- via cumulative satisfaction -- as well as directly (as represented by transaction-specific satisfaction). The magnitude of this effect is reasonably large, accounting for 41% of explained variance in the restaurant setting and 16% of explained variance in the hotel setting.

### The Effect of Stability Attributions

In the restaurant setting, customers' cumulative satisfaction and repatronage intentions are lower when they believe that the service failure is likely to happen again ( $p < 0.01$ ). In the hotel setting, customers' cumulative satisfaction and repatronage intentions are not influenced by stability attributions ( $p > 0.15$ ). Furthermore, statistical tests (not shown here) reject the hypothesis that stability attributions operate as an interaction effect as well as a main effect. Stability attributions typically account for one to four percent of explained variance in the dependent variable. Overall, the results provide mixed support for H<sub>3a</sub> and H<sub>3b</sub>.

### Comparison of Alternative Functional Forms

There was no empirical support for the existence of a non-linear relationship between customers' ratings of the organization's handling of the service failure and either cumulative satisfaction or repatronage intentions. We tested for the existence of non-linearities two different ways: by including a quadratic term and (separately) by representing the recovery ratings variable by piecewise segments. Both models were rejected in favor of a simple linear model. Hence, H<sub>4a</sub> and H<sub>4b</sub> are not supported.

An Alternative Functional Form. In assessing the fit of the proposed linear model, it is useful to compare it with alternative models. Unfortunately, there are no prior studies that have modeled cumulative satisfaction and repatronage intentions as a function of transactions

involving service failure and recovery. Hence, we created a plausible alternative model based on a popular belief-updating model. Following Hogarth and Einhorn's (1992) specification for estimation tasks, we specified a model in which customers' satisfaction levels are generated by an averaging model, in which the recovery is encoded as a deviation relative to the preceding anchor.<sup>7</sup> In other words, we created an alternative model in which customers encode their satisfaction with transactions involving service failure and recovery by making comparisons with their prior cumulative satisfaction levels. This functional form can incorporate the well-known psychological principle that losses (relative to a reference value) loom larger than gains (Kahneman and Tversky 1979; Thaler 1985; Tversky and Kahneman 1992). This feature seems particularly applicable because it seems likely that customers will weigh negative service experiences more heavily than positive service experiences. For example, Schul and Schiff (1993) find that negative experiences are likely to be processed more elaborately, and therefore are more likely to be accessed in responding to a general satisfaction survey. Algebraically,

$$CumSat_t = \forall CumSat_{t-1} + \exists_L RecovLoss_t + \exists_G RecovGain_t + * Stable_t \quad (5)$$

$$RepInt_{it} = \forall RepInt_{it-1} + \exists_L RecovLoss_t + \exists_G RecovGain_t + * Stable_t \quad (6)$$

where:

if  $Recovery_t - CumSat_{it-1} < 0$ ,  $RecovLoss_t = |Recovery_t - CumSat_{it-1}|$ , zero otherwise,

and

if  $Recovery_t - CumSat_{it-1} > 0$ ,  $RecovGain_t = |Recovery_t - CumSat_{it-1}|$ , zero otherwise.

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 Table 5 here  
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Comparison. We estimated the alternative model including the same covariates as in our

proposed model. Table 5 shows adjusted  $R^2$  and Amemiya's (1980) Prediction Criterion (PC) values for our proposed model (equations (3) and (4)) versus the alternative model (equations (5) and (6)). Adjusted  $R^2$  has the least penalty for extra explanatory variables, whereas the PC is a popular alternative which penalizes the addition of another explanatory variable much more heavily (c.f., Greene 1993). These criteria are created by specifying arbitrary loss functions, so they do not unambiguously identify the superior model (c.f., Amemiya 1980). However, all else being equal, higher adjusted  $R^2$  values and lower PC values are more desirable. When the alternative model has approximately the same adjusted  $R^2$  and PC values, theory should prevail over mechanical measures of fit. Both models provide an equivalent fit for the cumulative satisfaction equation, but our model is preferred on the grounds of theory and parsimony. Our proposed model clearly provides a better fit than the alternative model for the repatronage intentions equation. In summary, there is no strong evidence in support of an alternative model that incorporates a reference value representing prior service experiences.

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Table 6 here  
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### The Service Recovery Paradox

The service recovery paradox predicts that a customer's cumulative satisfaction with a service organization and his repatronage intentions will increase when he/she is very satisfied with the organization's handling of a service failure. We investigated  $H_{5a}$  and  $H_{5b}$  by tabulating the increases/decreases in cumulative satisfaction and repatronage intentions for different levels of transaction-specific satisfaction with the organization's recovery from the failure. Table 6 displays changes in cumulative satisfaction and repatronage intentions for different types (i.e.,

process or outcome) and magnitudes (i.e., low or high) of service failures.

Table 6 shows that cumulative satisfaction and repatronage intentions decrease after a service failure and recovery encounter for the majority of customers. Specifically, changes in customers' cumulative satisfaction are generally negative when the customer's transaction-specific rating of the organization's recovery from the service failure is less than five on a seven-point scale. Changes in repatronage intentions are generally negative when the customer's transaction-specific rating of the organization's recovery is less than three or four on a seven-point scale. However, consistent with the service recovery paradox, a customer's cumulative satisfaction and repatronage intentions increase when he/she is very satisfied with the organization's handling of a service failure in both the restaurant and hotel settings.<sup>8</sup> Therefore, the results of this study demonstrate empirically the substantial impact that service failure/recovery encounters can have on customers' assessments of a service organization.

There are some interesting patterns in the data displayed in Table 6. First, the change in repatronage intentions is consistently more positive than the change in cumulative satisfaction for all levels of satisfaction with the recovery effort. In other words, customers do not forget -- but they are willing to forgive and patronize the service organization again. Second, the impact of dis/satisfaction with service recovery seems larger for outcome failures than process failures. Third, it is (not surprisingly) harder to recover from high magnitude failures. Fourth, there are significant decreases in cumulative satisfaction and repatronage intentions when customers are less satisfied with recovery efforts in the hotel setting -- despite the fact that many of these customers are members of a loyalty club.

## MANAGERIAL IMPLICATIONS

### The Impact of Service Failure/Recovery Encounters on Customers' Assessments

Customers' cumulative satisfaction and repatronage intentions are substantially influenced by service encounters involving failure and recovery. This finding is consistent with exploratory research indicating that service failure/recovery encounters have a disproportionately large effect on customers' overall satisfaction with and behavioral responses toward organizations. For instance, recall Keaveney's (1995) report that service failures and failed recoveries accounted for almost 60 percent of the critical behaviors by service firms that led directly to customer switching. This study provides further evidence of the substantial impact that a single service failure/recovery encounter can have on customers' overall level of satisfaction with a firm, and (ultimately) on their intentions to repatronize the firm. Although service failures and failed recoveries are not the only reason customers defect, the potentially positive impact of effective service recovery on a firm's long-run financial performance can be substantial. In terms of the lifetime value of a customer, which represents the overall value of retaining or, alternatively, losing a customer, the aggregate effect of ignoring service recovery management can be staggering.

### Customer Satisfaction versus Customer Delight

We find no support for the notion that cumulative satisfaction and repatronage intentions become increasingly favorable at higher levels of satisfaction with the recovery effort or increasingly unfavorable at lower levels of satisfaction. This study primarily relies on multi-item scales, so our finding should be fairly robust across different study contexts. Customer satisfaction research has made notable efforts to include multi-item scales for key constructs, but

single item scales are sometimes unavoidable due to the limitations in questionnaire length imposed by field conditions. Managers and researchers should be cautious about inferring the existence of increasing or decreasing returns from recovery if they are relying on single-item scales. Rating scale responses vary depending on scale characteristics, such as the number of rating scale categories and the adjectives used as anchors (Peterson 1997).<sup>9</sup> For this reason, multi-dimensional judgment tasks are superior to unidimensional ones (Lynch, Chakravarthi and Mitra 1991, p. 296). Although we find no support for increasing or decreasing returns for service recovery efforts, this conclusion should not be extrapolated to suggest that a separate •delight• construct does not exist. In fact, Oliver, Rust and Varki (1997) argue that delight is a combination of pleasure and arousal (whereas satisfaction is a combination of pleasure and disconfirmation), and show that both satisfaction and delight can influence repatronage intentions.

#### The Influence of Cumulative Satisfaction on Repatronage Intentions

Since cumulative satisfaction influences repatronage intentions, service failure/recovery encounters have a dual effect on repatronage intentions. These encounters influence repatronage intentions both directly and indirectly via cumulative satisfaction. For this reason, customers' repatronage intentions will be more responsive to recovery efforts than cumulative satisfaction. In other words, service recovery can't entirely change customers' opinions regarding their prior service experiences -- but customers are willing to repatronize the service organization or •give it another chance. •

Since customers update their cumulative satisfaction judgments based on their prior overall satisfaction as well as new information about the failure/recovery encounter, repatronage

intentions will also vary depending on the customers' prior cumulative satisfaction. There is growing evidence that, as a customer gains more confidence or experience over time in evaluating service quality, he/she weighs his/her prior assessments of services more heavily and places less weight on new information (e.g., Boulding, Kalra and Staelin 1995; Bolton 1997; Tax, Brown and Chandrashekar 1998). This research stream predicts that customers' repatronage intentions will be less responsive to service recovery efforts when they have lengthy experience with low levels of prior cumulative satisfaction. Unfortunately, we cannot test this prediction in this study because the respondents do not exhibit sufficient variability in their experience with the organizations.

### The Service Recovery Paradox

This study finds empirical support for the existence of the service recovery paradox. A highly satisfactory recovery will maintain or increase cumulative satisfaction and loyalty. However, this conclusion is a challenge to service organizations because (conversely) a dissatisfactory recovery will decrease cumulative satisfaction and loyalty. In other words, *every* customer must be satisfied with the organization's recovery after every service failure -- or the organization risks alienating and losing customers. Even the best service organizations will find it difficult to consistently provide highly effective and customized recoveries for every service failure. In fact, Hart, Heskett, and Sasser (1990) have concluded that more than half of all efforts to respond to customer complaints actually reinforce negative reactions to a service. Therefore, most organizations will find it necessary to invest substantially in customer service to make highly satisfactory recoveries an achievable goal. The prospects for consistently •excellent• service performance seem questionable given that the American Customer Satisfaction Index

(ACSI) has recently shown decreases in many service industries, although some industries have been able to raise their historically low satisfaction ratings by substantially increasing service delivery levels (Fornell, et al. 1996).

Customers seem to formulate their repatronage intentions under a • what have you done for me lately • heuristic. If their most recent experience is not favorable, they are likely to substantially revise their repatronage intentions. Furthermore, if a customer does repatronize the service organization after a dissatisfactory failure/recovery episode, a second negative service experience is likely to completely eliminate any goodwill because customers' repatronage intentions have little memory. These observations suggest that differentiation through superior customer service (rather than price) and relationship building is critical for service organizations.

#### Service Failure and Recovery: Paradox or Peril?

A scan of the academic and business literature suggests that if organizations effectively recover from service failures, then failures will have few if any negative effects on customer satisfaction and retention, and (ultimately) on the firm's profitability. Some marketers even imply that service failures should be looked upon as opportunities to • impress • customers with good service performance and enhance their loyalty. Therefore, certain service organizations spend a substantial amount of time and effort training managers and front-line service employees in the • art • of service recovery.

The findings in this study provide empirical evidence that excellent service recoveries can lead to increased customer satisfaction and repatronage intentions. However, this result was only obtained at the very highest levels of customers' recovery ratings. Since prior research has tended to rely on retrospective self-report data concerning service failure and recovery,

researchers may have been misled by customers' tendency to report extreme examples of service recovery encounters. In contrast, this study randomly assigned subjects to experimentally-manipulated service failures and recoveries to achieve "excellent" and "less than excellent" levels that were independent of customers' prior experiences.

As explained throughout this paper, in terms of recovering from service failures, most organizations are not able to consistently perform at these top levels, while many others never reach these levels at all. In other words, if it is difficult to observe the positive effects of service recovery when recoveries are "controlled" to be excellent, it will be extremely challenging for firms to achieve these effects given the heterogeneity inherent to service employee behavior and the variability in service failures that occur. Therefore, it may be risky and even somewhat dangerous for organizations to welcome service failures as opportunities to delight customers. Rather, organizations may be better served by focusing on the importance of "doing it right the very first time."

## FUTURE RESEARCH

Further examination of customer updating processes provides important avenues for future research. The results of this research showed that customers tended to weigh their recent service encounter experiences (i.e., service failure/recovery encounters) very heavily in their cumulative evaluations of the organization. However, this updating mechanism may operate in a more complicated manner. Previous research concerning how customers revise their assessments of service quality shows that the more experience customers have with an organization, the less impact new information (e.g., failure and recovery experiences) will have on their overall evaluations (Boulding, Kalra and Staelin 1995; Boulding, et al. 1993; Drew and Bolton 1995;

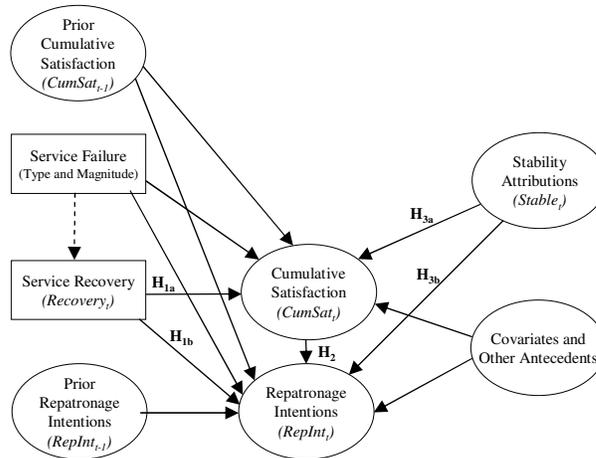
Rust, Inman and Zahorik 1995). This would suggest, for instance, that customers' prior overall satisfaction judgment (i.e., •anchor•) should have more influence on their updated overall satisfaction rating than any individual (recent) service encounter satisfaction judgment, at least under some circumstances (e.g., for frequent/loyal customers). This is an empirical question not yet addressed by researchers, except indirectly by Bearden and Teel (1983), Bolton (1997), and Oliver (1980). Studies of the nature of the updating mechanism could yield insights into why the impact of service failure and recovery on satisfaction and repatronage intentions differs across different customer groups and industries.

Customer repatronage behavior is not observed in this study, so it is reasonable to ask whether the results of this study can be extrapolated to the marketplace. On the one hand, prior experience has been shown to enhance the accuracy of predictions about the relationship between behavioral intentions and actual behavior (Morowitz and Schmittlein 1992) and all the customers in this study have prior experience with the service organization. On the other hand, recent research has suggested that the mechanism that links customer satisfaction to customer behavior is extremely complex (e.g., Bolton and Lemon 1997). For example, Bolton (1997) finds that perceived losses associated with transactions or service failures decrease the duration of the customer's relationship with the organization and this effect is not offset by the organization's response to a failure. Furthermore, customer repatronage behavior will be based on the availability of alternative suppliers, switching costs, and so forth – which will vary across industry settings.

More research is needed to completely understand how customers' satisfaction with the organization's recovery from a service failure influences their cumulative satisfaction and

repatronage behavior. This might involve collecting data from customers who have experienced service failures and recoveries within an organization and comparing this information to actual purchase behaviors by tracking and analyzing changes in repeat purchase activity. Such research is likely to be particularly valuable in a business-to-business setting, in which relationship marketing issues are very important.

**Figure 1**  
**Cumulative Customer Satisfaction and Repatronage Intentions**  
**After A Service Failure and Recovery Encounter**



**Note:**  $H_{1a}$  and  $H_{1b}$  test for the functional form of a relationship.  $H_{3a}$  and  $H_{3b}$  are based on mean rating changes. Therefore, these hypotheses are not represented here.

## APPENDIX

### Example Service Failure Scenarios - Restaurant Setting

#### Outcome Failure/High Magnitude

You and another person go to the restaurant for dinner to celebrate a special occasion. You are seated at your table. The waiter comes to take your order. You place your order. The waiter informs you that the restaurant is out of the entree you selected. You make another selection.

The waiter informs you that the restaurant is also out of your second choice of entree.

#### Process Failure/Low Magnitude

You and another person go to the restaurant for dinner to celebrate a special occasion. You are seated at your table. The waiter comes to take your order. You place your order. The waiter brings your beverages and entrees and leaves without asking if you need anything else. He doesn't refill your beverages while you're eating.

### Service Recovery Scenario Attributes - Restaurant Setting

#### Organization Initiated/Customer Initiated

The waiter acknowledges the problem without your having to complain.

vs.

You complain about the problem.

#### Immediate/Delayed Response

You immediately receive the following response.

vs.

After 15 minutes, you receive the following response.

#### Apology/No Apology

You are offered an apology.

vs.

You are not offered an apology.

#### High/Medium/Low Compensation

You are given a 50% discount off your total bill.

vs.

You are given a 20% discount off your total bill.

vs.

You are given no discount off your total bill.

## APPENDIX (cont'd)

### Example Service Failure Scenarios - Hotel Setting

#### Outcome Failure/High Magnitude

You are traveling on an important business trip. You arrive at the hotel at approximately 10:00 p.m. and go to the front desk to check in. The representative at the front desk looks up your prepaid reservation and informs you that the hotel is over-booked and you will have to stay at another hotel (several miles away) for the night.

#### Process Failure/Low Magnitude

You are traveling on an important business trip. You arrive at the hotel and go to the front desk to check in. You wait in line for 5 minutes. When you get to the desk, the representative answers a telephone call while you are trying to check in. When you get to your room, you find that the room has not been cleaned. You call the front desk and ask to be re-assigned to a clean room. The representative assigns you to another room.

### Service Recovery Scenario Attributes - Hotel Setting

#### Organization Initiated/Customer Initiated

The hotel employee acknowledges the problem without your having to complain.

vs.

You complain about the problem.

#### Immediate/Delayed Response

You immediately receive the following response.

vs.

After 20 minutes, you receive the following response.

#### Apology/No Apology

You are offered an apology.

vs.

You are not offered an apology.

#### High/Medium/Low Compensation

You are given a certificate for a 100% discount off one night's room bill.

vs.

You are given a certificate for a 50% discount off one night's room bill.

vs.

You are given no certificate for a discount off one night's room bill.

Table 1  
Operationalization of Model Constructs

Construct	Study 1- Restaurants	Study 2 – Hotels
Dependent Variables		
Cumulative Satisfaction ( <i>CumSat<sub>t</sub></i> )	Index of Four Items: Based on all your actual experiences, as well as the experience described in this scenario, how do you feel <u>overall</u> about this restaurant? ***	Single Item: Think about all the actual experiences you had with XYZ hotels, as well as the problem you read and the hotel's handling of your problem. How do you feel <u>overall</u> about XYZ hotels?*
Repatronage Intentions ( <i>RepInt<sub>t</sub></i> )	Index of Two Items: I would visit this restaurant again. I would go to this restaurant more often.**	Index of Two Items: I would stay at this particular hotel again. I would stay at other XYZ hotels in the future.**
Predictor Variables		
Prior Cumulative Satisfaction ( <i>CumSat<sub>t-1</sub></i> )	Index of Four Items: Based on all of your experiences, how do you feel <u>overall</u> about this restaurant. Four items.***	Single Item: Based on all of your experiences, how do you feel overall about XYZ hotels?*
Prior Repatronage Intentions ( <i>RepInt<sub>t-1</sub></i> )	Single Item: I consider myself to be a loyal customer of this restaurant.	Single Item: I consider myself to be a loyal customer of XYZ hotels.
Satisfaction With the Recovery Effort ( <i>Recovery<sub>t</sub></i> )	Index of Four Items: Think about both the problem you experienced and the restaurant's handling of the problem. How do you feel about the restaurant <u>on this particular occasion</u> ?***	Single Item: Think about both the problem you experienced and the hotel's handling of the problem. How do you feel about the hotel <u>on this particular occasion</u> ?*
Stability Attributions ( <i>Stable<sub>t</sub></i> )	Single Item: Based on all of your experiences with this restaurant, how likely is it that a similar problem would occur again in the future at this restaurant? (Not At All Likely / Very Likely)	Single Item: How likely is it that a similar problem would occur at the XYZ location you named? (Not At All Likely / Very Likely)

\* Seven-point scale, anchored at endpoints by Very Dissatisfied / Very Satisfied. Adapted from Bitner and Hubbert (1994) and Oliver and Swan (1989).

\*\* Seven-point scale, anchored at endpoints by Strongly Disagree / Strongly Agree. Adapted from Boulding, et al. 1993 and Zeithaml, Berry and Parasuraman (1996).

\*\*\* Index of four seven-point scale items, anchored at endpoints by Displeased / Pleased, Dissatisfied / Satisfied, Does a Poor / Good Job, Unhappy / Happy.

Table 2  
Descriptive Statistics

Variable	Study 1 – Restaurants		Study 2 - Hotels	
	Average	Standard Deviation	Average	Standard Deviation
Cumulative Satisfaction	4.97	1.46	4.99	1.52
Repatronage Intentions	4.21	1.47	3.46	0.81
Prior Cumulative Satisfaction	5.98	0.97	5.76	1.00
Prior Repatronage Intentions	4.90	1.45	5.26	1.27
Recovery	3.79	1.81	3.40	1.93
Sample Size	344		520	

Note: Customers' ratings ranged from one to seven for all variables.

Table 3  
Estimated Coefficients for Equations (3) and (4)

Study 1 – Restaurants					
Cumulative Satisfaction			Repatronage Intentions		
Variable	Coefficient	Explained Variance <sub>⊥</sub>	Variable	Coefficient	Explained Variance <sub>⊥</sub>
<i>Intercept</i>	0.792		<i>Intercept</i>	1.986	
			<i>RepInt<sub>t-1</sub></i>	0.096***	0.08
<i>CumSat<sub>t-1</sub></i>	0.369*****	0.13	<i>CumSat<sub>t</sub></i>	0.359*****	0.41
<i>Recovery<sub>t</sub></i>	0.475*****	0.73	<i>Recovery<sub>t</sub></i>	0.224*****	0.25
<i>Stable<sub>t</sub></i>	-0.121*****	0.04	<i>Stable<sub>t</sub></i>	-0.093*****	0.03
F-Statistic (17,343)	27.214*****		F-Statistic (17,343)	21.950*****	
Adjusted R-Squared	0.57		Adjusted R-Squared	0.51	
Study 2 – Hotels					
Cumulative Satisfaction			Repatronage Intentions		
Variable	Coefficient	Explained Variance <sub>⊥</sub>	Variable	Coefficient	Explained Variance <sub>⊥</sub>
<i>Intercept</i>	2.383		<i>Intercept</i>	3.905	
			<i>RepInt<sub>t-1</sub></i>	-0.001	0.00
<i>CumSat<sub>t-1</sub></i>	0.295*****	0.16	<i>CumSat<sub>t</sub></i>	0.257*****	0.16
<i>Recovery<sub>t</sub></i>	0.304*****	0.59	<i>Recovery<sub>t</sub></i>	0.310*****	0.37
<i>Stable<sub>t</sub></i>	-0.038	0.01	<i>Stable<sub>t</sub></i>	-0.001	0.00
F-Statistic (19,500)	16.56*****		F-Statistic (19,500)	48.661*****	
Adjusted R-Squared	0.36		Adjusted R-Squared	0.64	

\*\*\*\*\*  $p \leq 0.01$  \*\*\*\*  $p \leq 0.05$  \*\*  $p \leq 0.10$

⊥ Remainder of explained variance is due to covariates. Cumulative satisfaction equations have 14 covariates (restaurants) and 13 covariates (hotels). Repatronage intentions equations have 16 covariates (restaurants) and 15 covariates (hotels).

Table 4  
Summary of Hypothesis Tests

	Hypothesis	Study 1 Restaurants	Study 2 Hotels
H <sub>1a</sub>	A customer's cumulative satisfaction will be higher (lower) when his/her satisfaction with the organization's recovery from a service failure is higher (lower), after controlling for the effects of prior cumulative satisfaction.	Supported	Supported
H <sub>1b</sub>	A customer's repatronage intentions will be higher (lower) when his/her satisfaction with the organization's recovery from a service failure is higher (lower), after controlling for the effects of prior repatronage intentions.	Supported	Supported
H <sub>2</sub>	A customer's repatronage intentions concerning a service organization will be higher (lower) when his/her cumulative satisfaction is higher (lower), after accounting for the effects of transaction-specific satisfaction with the recovery from a service failure.	Supported	Supported
H <sub>3a</sub>	A customer's cumulative satisfaction will be lower (higher) when he/she believes that the service failure is likely (unlikely) to happen again.	Supported	Not Supported
H <sub>3b</sub>	A customer's repatronage intentions will be lower (higher) when he/she believes that the service failure is likely (unlikely) to happen again.	Supported	Not Supported
H <sub>4a</sub>	A customer's cumulative satisfaction with a service organization will be curvilinear in response to his/her satisfaction with the organization's handling of a service failure.	Not Supported	Not Supported
H <sub>4b</sub>	A customer's repatronage intentions will be curvilinear in response to his/her satisfaction with the organization's handling of a service failure.	Not Supported	Not Supported
H <sub>5a</sub>	A customer's cumulative satisfaction with a service organization will increase relative to his/her prior cumulative satisfaction when he/she is very satisfied with the organization's handling of a service failure.	Supported	Supported
H <sub>5b</sub>	A customer's repatronage intentions will increase relative to his/her prior repatronage intentions when he/she is very satisfied with the organization's handling of a service failure.	Supported	Supported

Note: All hypotheses are tested statistically, except H<sub>5a</sub> and H<sub>5b</sub> (which are examined in Table 6).

Table 5

Comparisons of Proposed Model with Alternative Model: Adjusted R-Square and Amemiya's Prediction Criteria

	Proposed Model		Alternative Model	
	Adj R <sup>2</sup>	PC	Adj R <sup>2</sup>	PC
Cumulative Satisfaction				
Restaurants	0.565	334.32	0.564	335.93
Hotels	0.363	798.73	0.364	799.48
Repatronage Intentions				
Restaurants	0.509	393.40	0.538	499.07
Hotels	0.636	490.86	0.358	622.35

Note: The proposed model is described by equations (3) and (4). The alternative model is described by equations (5) and (6). Recall that higher adjusted R-Squared and lower PC values are preferred.

Table 6  
Ratings Changes for Cumulative Satisfaction and Repatronage Intentions

	Restaurant Setting							
	Low Magnitude Failure				High Magnitude Failure			
Recovery Rating	Process		Outcome		Process		Outcome	
	<i>CumSat</i>	<i>RepInt</i>	<i>CumSat</i>	<i>RepInt</i>	<i>CumSat</i>	<i>RepInt</i>	<i>CumSat</i>	<i>RepInt</i>
1-1.9	-1.83	-0.61	-2.00	-0.97	-2.28	-0.52	-2.50	-0.61
2-2.9	-1.27	-0.19	-2.65	-1.20	-1.03	-0.59	-2.06	-0.23
3-3.9	-0.37	0.38	-0.86	0.54	-1.07	1.10	-1.12	-0.05
4-4.9	-0.53	1.60	-0.58	0.90	-0.66	1.27	-1.02	1.00
5-5.9	-0.03	0.60	-0.35	2.00	0.02	0.96	0.03	0.08
6-6.9	0.52	0.58	0.39	1.32	--	--	--	--
	Hotel Setting							
	Low Magnitude Failure				High Magnitude Failure			
Recovery Rating	Process		Outcome		Process		Outcome	
	<i>CumSat</i>	<i>RepInt</i>	<i>CumSat</i>	<i>RepInt</i>	<i>CumSat</i>	<i>RepInt</i>	<i>CumSat</i>	<i>RepInt</i>
1-1.9	-0.85	-0.95	-1.36	-0.89	-0.93	-1.26	-1.92	-1.72
2-2.9	-0.76	-0.47	-0.82	-0.14	-0.52	-0.48	-0.95	-0.39
3-3.9	-0.67	0.43	-0.45	0.18	-0.63	0.16	-0.38	-0.92
4-4.9	-0.35	0.47	-0.08	0.20	-0.13	0.41	0.22	-0.17
5-5.9	-0.10	0.84	0.14	0.64	0.09	0.32	--	--
6-6.9	0.30	0.80	0.33	1.11	0.00	1.20	--	--

Notes: Cell sizes reported in this table range from 10 to 25 in the restaurant setting and 10 to 46 in the hotel setting. Blank cells indicate cell sizes less than 10. Customers are randomly assigned to failure conditions, so prior cumulative satisfaction ratings and repatronage intentions are roughly equivalent across recovery treatments.

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## ENDNOTES

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- <sup>1</sup> Several studies show a positive relationship between perceived service quality and repatronage intentions (e.g., Boulding, et al. 1993; Cronin and Taylor 1994; Rust, Zahorik, Keiningham 1995). Two studies have described how a customer's perceived service quality influences his/her repatronage intentions over time. In a laboratory study concerning hotel visits by executives, Boulding, et al. (1993) find that customers' expectations are subject to a Bayesian-like updating process over successive service experiences. Rust, Inman and Zahorik (1995) develop and estimate a Bayesian model in which favorable disconfirmation increases preference for the chosen brand and unfavorable disconfirmation decreases preference. All these studies are consistent with the notion that repatronage intentions can be described by an extrapolative expectations model.
- <sup>2</sup> As discussed subsequently, these antecedents are either controlled by the experimental design or are represented by covariates.
- <sup>3</sup> Tax, Brown and Chandrashekar (1998) examined this notion in the context of studying the effects of customer satisfaction with complaint handling on certain relationship variables (i.e., trust and commitment).
- <sup>4</sup> Asking customers to name any restaurant they had visited rather than their favorite restaurant increases the likelihood of achieving variability in terms of loyalty and frequency of patronage. This type of variability tends to be more representative of a

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typical organization's actual customer base. In both studies, a small percentage of surveys were deemed unusable due to failure to follow instructions (e.g., naming a fast food restaurant, failure to name a specific hotel location), unacceptable levels of item non-response, or obvious intra-individual unreliability in scale responses (e.g., identical ratings across all questions).

<sup>5</sup> The verbal protocol task was used to obtain measures of constructs, such as expectations, which we did not wish to directly elicit. These measures were coded and included as covariates in the model, when statistical tests indicated that they were appropriate.

<sup>6</sup> The set of covariates is not described in more detail here due to space limitations. However, these covariates are described in detail in Smith, Bolton and Wagner (1997).

<sup>7</sup> Hogarth and Einhorn's (1992) specification also allows for the existence of contrast and assimilation effects. Our preliminary analyses indicated that contrast and assimilation effects were not present, so we do not consider a more complex specification here.

<sup>8</sup> This result is also consistent with Jones and Sasser's (1995) suggestion that highly satisfied customers will be much more loyal (i.e., likely to repatronize) than moderately satisfied customers.

<sup>9</sup> For example, the data obtained from conventional customer satisfaction ratings scales are

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typically highly skewed (Peterson and Wilson 1992).