Service recovery: a framework and empirical investigation

Janis L. Miller a,*, Christopher W. Craighead b, Kirk R. Karwan c

a Clemson University, 101 Sirrine Hall, Clemson, SC 29631-1305, USA
b University of Texas at Arlington, Arlington, TX, USA
c University of South Carolina, USA

Received 2 December 1997; accepted 14 December 1999

Abstract

Although recovery activities are primarily managed by the operations function, service recovery has received little attention in the operations management literature. This paper outlines a framework for examining the service recovery process and then reports on an empirical study to test this framework. The results not only validate much of what is anecdotally claimed by researchers and casual observers of service industries, but also highlight the role of operational activities in service recovery. The paper then points to the need for an array of operations-based research efforts that will lead to better understanding of the recovery process and to more empirically based descriptive and prescriptive models.

Keywords: Empirical research; Service operations

1. Introduction

Repeat customers are a vital asset of service companies. The most effective way to ensure repeat customers is to provide a product or service that meets or exceeds the customer’s expectations every time. Unfortunately, when delivering a service, this task is formidable and, at times, impossible. Although service failure has the potential for destroying loyalty, effective application of recovery techniques may enable service managers to maintain or even increase loyalty.

This paper provides a framework for managers to understand the service recovery situation from an operations perspective as well as a starting point for researchers in operations management to identify issues for further study. In the sections that follow, we establish the context in which service recovery is important to the operations manager and organizational success. We then identify the elements of and issues associated with developing a service recovery capability and combine these elements into a framework for understanding what is required of an organization in responding to service failures. We then discuss an empirical study of concepts highlighted in the framework. Finally, we discuss the implications of service recovery for management and offer an outline of how related research efforts in the area of service operations might proceed.
2. The need for service recovery

Service recovery involves those actions designed to resolve problems, alter negative attitudes of dissatisfied consumers and to ultimately retain these customers. Service providers should make every effort to provide the customer with a positive experience the first time. However, in an environment where factors such as varying customer expectations and high levels of human involvement complicate the service delivery process, mistakes are inevitable. It is a service failure that provides the opportunity to recover from the mistake and a second chance to provide a positive service experience.

Although customers may often be convinced to remain loyal via psychological approaches, it is the combination of tangible and psychological actions that may ensure recovery from failure. Both service failure and success at recovery are very much the results of operational activities of the organization. Service failures typically result from fail points in the service delivery process and recovery efforts require employee intervention and specific activities to accommodate and retain the customer (Shostack, 1984).

3. A service recovery framework

Unlike the literature in operations management, the services marketing and management literatures are rich in studies that identify the key elements associated with recovery. As described below, these elements include: (1) outcome measures related to customer satisfaction and retention; (2) antecedents to successful/unsuccessful recovery; (3) the phases of recovery; (4) types of recovery activities; and (5) the delivery of service recovery. These elements are illustrated in Fig. 1.

3.1. Service recovery outcomes

Success in services is typically measured via outcome measures such as customer satisfaction, loyalty
Satisfaction is the most commonly measured outcome and is important in both the short and long term, but loyalty and retention are the long-term goals of most service managers.

Two studies explore the relationship between service failure and loyalty. First, a study conducted by Clark et al. (1992) illustrated that of the customers who received poor service in various industries and whose complaints were not responded to by the company, 52% intended to switch to a substitute service. The second study, conducted by the US Office of Consumer Affairs (1986), indicated that only 19% would remain loyal to the company if they were not happy with the service failure resolution.

3.2. Service recovery antecedents

A number of factors that are in place prior to service recovery efforts can have an impact on the customer’s relative attitude and likelihood of repeat patronage. These antecedents (shown on the left of Fig. 1) lead to service recovery expectations. The service provider may be able to tailor recovery efforts to account for these factors when a failure occurs. From an operations planning perspective, understanding the antecedents may help to determine where to fail-safe the service delivery system and how to design the service recovery process.

3.2.1. Customer commitment / loyalty

Kelley and Davis (1994) demonstrated that the degree of customer organizational commitment contributes to recovery expectations. It may seem that higher expectations may make it more difficult to recover from a failure, but customers with no expectations of recovery may just leave and never return, while loyal customers may give the business an opportunity to recover.

3.2.2. Service quality

According to Kelley and Davis (1994) and Halstead et al. (1993), the higher the perceived service quality, the higher the service recovery expectations. Like loyal customers above, customers may allow businesses with a higher perceived quality, more opportunity to recover.

3.2.3. Failure severity

The severity of the failure may increase the service recovery expectations (Bitner et al., 1990; Hoffman et al., 1995). The cost required to compensate and mollify customers may vary tremendously for differing failures.

3.2.4. Service guarantee

Customers expect a company to live up to an expressed guarantee stating the procedures which will be followed if a specific failure occurs (Hart, 1988; Halstead et al., 1993). The presence of a guarantee may also raise recovery expectations.

3.3. Service recovery phases

According to Schweikhart et al. (1993), service recovery efforts take place at three junctures; preventively or before the service failure occurs, concurrently or just as the service failure occurs and post hoc or some time after dissatisfaction is expressed. In Fig. 1, we have modified the phases in order to anchor the recovery phases to times observable by the service provider.

3.3.1. Pre-recovery phase

The pre-recovery phase begins with the service failure and lasts until the provider becomes aware of the failure, a period which may last a very short time (seconds) or a fairly long time (weeks or months). The customer formulates expectations for service recovery during this phase.

3.3.2. Immediate recovery phase

The immediate recovery phase begins when the provider becomes aware of a failure and concludes when fair restitution has been made to the customer. Ideally, this phase begins as soon as possible after the service failure (Hart et al., 1990) and concludes as soon as possible after that. Some studies report a significant decline in loyalty and satisfaction as a result of slow response to customer complaints (e.g., Schweikhart et al., 1993; Spreng et al., 1995). Efforts during this phase should focus on providing prompt, fair restitution to the customer.

3.3.3. Follow-up recovery phase

The follow-up recovery phase begins after the customer has received fair restitution. Follow-up re-
covery may or may not be necessary depending upon the success of the immediate recovery efforts as well as antecedent factors such as the severity of the failure.

3.4. Types of service recovery activities

The recovery activities undertaken during the immediate and follow-up recovery phases take two forms: psychological and tangible (Schweikhart et al., 1993).

3.4.1. Psychological

Psychological recovery efforts make a direct attempt to ameliorate the situation by showing concern for the customer’s needs. Two psychological techniques are recommended in every instance of service recovery: empathizing and apologizing (Bell and Ridge, 1992; Zemke, 1994). Simple and inexpensive, the two can be a powerful remedy when used together. Anecdotal evidence also suggests that these approaches may increase the negative experience if used inappropriately; a non-empathetic ‘‘I’m sorry’’ may be worse than no apology at all.

3.4.2. Tangible

Tangible recovery efforts offer compensation for real and perceived damages (Bell and Ridge, 1992; Zemke, 1994). The primary intent is to provide fair restitution for the costs and inconveniences caused by the service failure. A secondary intent may be to provide value-added atonement (see, e.g., Bell and Ridge, 1992; Clark et al., 1992; Zemke, 1994; Hoffman et al., 1995) where the customer is given more than the fair remedy to atone for a bad experience. A study by Clark et al. (1992) found that 91% of subjects who received a ‘‘little extra’’ after a service failure intended to stay loyal to the company.

3.5. The delivery of service recovery

3.5.1. Front-line empowerment

If service employees have the knowledge and power to compensate a dissatisfied customer for a service failure, it is more likely that a dissatisfied customer will become satisfied and retained (Bowen and Lawler, 1992, 1995).

3.5.2. Speed of recovery

Hart et al. (1990) state that a service failure is more likely to reach a successful resolution if the problem is solved promptly. They assert that the ideal is to identify and to solve the problem before the customer becomes aware of it.

4. An empirical study of service recovery relationships

Fig. 1 presents a framework that can be used to recognize and propose relationships among the key variables in the service recovery process. In this section, we describe a study of service failures to validate anecdotal claims within the context of our framework.

4.1. Research hypotheses

To test our proposed framework (Fig. 1) and to gain better understanding of the elements of service recovery, we conducted a study of service failure incidents. Four hundred and forty-eight incidents were analyzed to test the following hypotheses:

H1. Successfully resolved failures are related to recovery outcome measures as follows:

(a) positively to loyalty
(b) positively to satisfaction with the recovery process and outcome
(c) positively to retention

H2. Successfully resolved service failures are related to recovery antecedents as follows:

(a) negatively to severity (costliness, timeliness, inconvenience) of the problem
(b) positively to pre-failure loyalty
(c) positively to a service guarantee
(d) positively to perceived service quality

H3. Successful service recovery is related to the types of recovery activities as follows:

(a) positively to tangible recovery activities
(b) positively to psychological recovery activities
Successful service recovery is related to the recovery phases as follows:

(a) negatively to the length of the pre-recovery phase
d(b) negatively to the length of the immediate-recovery phase
c(c) positively to the presence of follow-up recovery activities

Successful service recovery is related to service delivery factors as follows:

(a) positively to the first person contacted attempting to solve the problem
(b) positively to the first person contacted having the authority to solve the problem
c(d) differentially to how the company found out about the problem

4.2. Methodology

The study employed an adaptation of the critical incident technique (CIT), an approach pioneered by Flanagan (1954) that has been widely used in various fields. The CIT is a flexible set of procedures designed to collect observations on behavior during actual situations and classify these behaviors in such a way as to give insight into how practical problems can be addressed. Recent applications of CIT that relate to satisfaction and dissatisfaction with service encounters include Bitner et al. (1990, 1994), Johnston (1995), Hoffman et al. (1995), and Youngdahl and Kellogg (1997). An excellent summary of the weaknesses of this approach is described in Johnston (1995) and will be discussed later in the context of this study.

A preliminary survey instrument was developed and tested on 48 upper-level undergraduate and graduate business students at two universities in the southeastern United States. The students were enrolled in operations management classes and had been exposed to the concepts of service failure and recovery. The survey instrument consisted of 12 open-ended questions where the respondents were asked to describe their experiences with specific service failure incidents. The questions were designed to gather information related to the service failure, the company’s response and the key elements presented in Fig. 1. Each respondent was asked to identify two experiences (critical incidents): one in which the problem was successfully resolved and the second for which the problem was not successfully resolved.

Two results that emerged from the preliminary survey led us from an open-ended instrument to a structured questionnaire which allowed us to gather a larger breadth of information from each respondent. First, the consistency of responses in the 96 incidents (two from each of the 48 respondents) was high among many issues relating to the incidents identified and the approaches taken to recover from failure. Second, respondents tended to focus on some issues and make little reference to others that seemed to affect their impressions of the situation and company.

Using the responses provided to the general questions on the initial survey, a refined survey was then developed and administered to 235 more graduate and upper-level undergraduate students at the two universities. Using a combination of open-ended and multiple-choice questions, each respondent again described two incidents, one in which a problem with a service business was resolved successfully and the other in which a problem with a service business was not resolved successfully. Respondents described the company, their relationship to the company before and after the failure, the service failure and the recovery process or attempt. See Appendix A for a detailed listing of the final survey questions.

4.3. Results

Incomplete and inconsistent responses were deleted from the sample. A response was considered to be inconsistent if the answer to question 23 (the company solved the problem to your satisfaction) did not correspond to the reporting of the incident as “resolved successfully” or “not resolved successfully.” A total of 448 responses remained, with slightly more than half of these (229) involving situations where the problem was deemed to be solved successfully. As can be seen in Table 1, the
respondents described a wide variety of service companies. The most frequently described company types were restaurants ($n=94$) followed by auto repair ($n=50$) and retail stores other than electronics ($n=47$). Thirty-four types of companies were described by only one respondent each.

### 4.3.1. Importance of service recovery

Hypothesis 1 states that successfully resolved service failures are positively related to retention, satisfaction and loyalty. This hypothesis is supported by the results in Table 2 which compares the results from Part A (resolved) and Part B (unresolved) of the surveys. For this analysis, we used the measures of retention, satisfaction and loyalty described in the table footnote. The table indicates large differences among situations where the problem was solved and not solved. Notably, in 90% of the incidents from Part A of the survey (problems solved), respondents intended to return for further service. This rate dropped to 22% in the incidents from Part B. The table shows even greater satisfaction differences. The results are even more striking when comparing those who were satisfied or dissatisfied with both the process and the outcome. Of the 179 respondents who were satisfied with both the process and outcome, all but nine indicated that they would return as a customer. Of the 177 respondents who were dissatisfied with both the process and outcome, only 34 respondents indicated a willingness to return.

Because the correlations among the four outcome variables (retention, satisfaction with process and outcome, loyalty) and resolution are quite high (between $r=0.68$ and 0.86) we report only results for resolution for Hypotheses 2, Hypotheses 3, Hypotheses 4 Hypotheses 5.

### 4.3.2. Effects of the antecedents of service recovery

Hypotheses 2 states that successfully resolved service failures are negatively related to the severity of the problem and positively related to pre-failure loyalty, perceived service quality and the presence of a service guarantee. Table 3 compares the results from Part A and Part B of the surveys for the severity and pre-failure loyalty variables.

The results in Table 3 support our hypothesis that serious problems are less likely to be resolved. Our sample seemed much more sensitive to actual severity than to potential severity. Note that when the problem was resolved, few respondents (18/229) felt that the problem was actually costly, implying that fair financial restitution had been made in almost all cases.

Table 3 also supports our hypothesis that loyal customers are more likely to have their problems resolved. Most notably, if respondents considered themselves loyal before the failure, there was a 61% probability that the problem was solved successfully, vs. 39% for non-loyal customers. Furthermore, of those who had their problems solved successfully,
Table 2
The importance of service recovery

<table>
<thead>
<tr>
<th>Problem solved (n = 229)</th>
<th>Problem not solved (n = 219)</th>
<th>Total (n = 448)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer retained(^a)</td>
<td>206**</td>
<td>48</td>
</tr>
<tr>
<td>Customer satisfied with the recovery process(^b)</td>
<td>188**</td>
<td>4</td>
</tr>
<tr>
<td>Customer satisfied with the recovery outcome(^c)</td>
<td>206**</td>
<td>9</td>
</tr>
<tr>
<td>Customer loyal after failure and recovery(^d)</td>
<td>149**</td>
<td>13</td>
</tr>
</tbody>
</table>

\(^a\) Responded 1, 2 or 3 to Q27.
\(^b\) Responded SA or A to Q33.
\(^c\) Responded SA or A to Q34.
\(^d\) Responded SA or A to Q35.

\(^* p < 0.05\) for test of difference in proportions within a row e.g., 206/229 compared to 48/219.
\(^** p < 0.01\) for test of difference in proportions within a row.

78% expressed loyalty after the recovery process that was the same or greater than the loyalty expressed before the recovery process compared to only 15% with unsuccessful resolutions. Although our results show loyalty increases for only a small number of customers with successfully resolved problems, the majority of our sample reported only that their loyalty did not decrease.

Table 3
The antecedents of service recovery expectations

<table>
<thead>
<tr>
<th>Problem solved (n = 229)</th>
<th>Problem not solved (n = 219)</th>
<th>Total (n = 448)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The problem could have been serious(^e)</td>
<td>104</td>
<td>123</td>
</tr>
<tr>
<td>The problem could have been costly(^b)</td>
<td>122</td>
<td>143</td>
</tr>
<tr>
<td>The problem actually was costly(^f)</td>
<td>18</td>
<td>95**</td>
</tr>
<tr>
<td>The problem could have been time-consuming(^d)</td>
<td>119</td>
<td>133</td>
</tr>
<tr>
<td>The problem actually was time-consuming(^g)</td>
<td>88</td>
<td>150**</td>
</tr>
<tr>
<td>The problem could have been inconvenient(^h)</td>
<td>185</td>
<td>190</td>
</tr>
<tr>
<td>The problem actually was inconvenient(^i)</td>
<td>104</td>
<td>193**</td>
</tr>
<tr>
<td>The correlations among the seven severity variables ranged from 0.26 to 0.54 (all (^p &lt; 0.0001)).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loyalty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company used more than four times prior to failure(^k)</td>
<td>130*</td>
<td>96</td>
</tr>
<tr>
<td>Company used longer than 1 week prior to failure(^l)</td>
<td>190*</td>
<td>157</td>
</tr>
<tr>
<td>Customer loyal prior to failure(^j)</td>
<td>157**</td>
<td>102</td>
</tr>
<tr>
<td>The correlations among the four loyalty variables ranged from 0.26 to 0.71 (all (^p &lt; 0.0001)).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^e\) Responded SA or A to Q8a.
\(^f\) Responded SA or A to Q9a.
\(^g\) Responded SA or A to Q29a.
\(^h\) Responded SA or A to Q10a.
\(^i\) Responded SA or A to Q30a.
\(^j\) Responded SA or A to Q11a.
\(^k\) Responded SA or A to Q31a.
\(^l\) Responded 5 or more to Q2.
\(^m\) Responded 3.4, or 5 to Q3.
\(^n\) Responded SA or A to Q4.

\(^* p < 0.05\) for test of difference in proportions within a row e.g., 104/229 compared to 123/219.
\(^** p < 0.01\) for test of difference in proportions within a row.
Perceived quality was operationalized based on the response to Question 5, “What made you decide to use this company vs. another?” We classified the service as “high perceived quality” if the respondent answered reputation, recommendation from a friend or family member (see Boulding et al., 1993), or personal experience with the company (see Rust and Zahorik, 1993) and low perceived quality if the respondents answered advertisement/sale, convenience or “no other choices available”. Table 4 supports our hypothesis in that successful resolution is more likely if the company had been chosen based on reputation or personal experience ($p < 0.05$). The opposite was true when there were no other choices available ($p < 0.01$). Not unexpectedly, our results indicate high repeat patronage intentions for those who patronized a business because there were no other choices available.

In 80% of our sample, the respondent was unaware of the existence of explicit service warranties or guarantees. We did find that when the customer was aware of a service guarantee, the problem was resolved 64% of the time, supporting our hypothesis ($p < 0.05$). To adequately test the effects of this antecedent it may be necessary to collect data within industries where warranties are common. See, for example, Halstead et al. (1993) for a study on the effects of product warranties in the carpet industry.

4.3.3. Types of service recovery activities

Hypothesis 3 states that successfully resolved service failures are positively related to both tangible and psychological recovery activities. Since more than 90% of the situations involved no follow-up recovery, we focused our analysis on the immediate

Table 4
Reasons for patronage

<table>
<thead>
<tr>
<th>Problem solved (n = 229)</th>
<th>Problem not solved (n = 219)</th>
<th>Total (n = 448)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reputation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50**</td>
<td>28</td>
<td>78</td>
</tr>
<tr>
<td>Personal experience with the company</td>
<td>50*</td>
<td>33</td>
</tr>
<tr>
<td>Recommendation of friend/family member</td>
<td>31</td>
<td>34</td>
</tr>
<tr>
<td>Advertisement/Sale</td>
<td>30</td>
<td>36</td>
</tr>
<tr>
<td>Conveniences</td>
<td>42</td>
<td>44</td>
</tr>
<tr>
<td>No other choices available</td>
<td>6</td>
<td>22**</td>
</tr>
<tr>
<td>Other</td>
<td>20</td>
<td>22</td>
</tr>
</tbody>
</table>

*p < 0.05 for test of difference in proportions within a row (e.g., 50/229 compared to 28/219).

**p < 0.01 for test of difference in proportions within a row.

Table 5
Psychological and tangible service recovery activities

<table>
<thead>
<tr>
<th>Problem solved (n = 229)</th>
<th>Problem not solved (n = 219)</th>
<th>(n = 448)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No recovery activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>139**</td>
<td>145</td>
</tr>
<tr>
<td>Apology without a fair fix*</td>
<td>7</td>
<td>66**</td>
</tr>
<tr>
<td>Fair fix without an apology b</td>
<td>24**</td>
<td>8</td>
</tr>
<tr>
<td>Fair fix and value added without an apology b,c</td>
<td>4*</td>
<td>0</td>
</tr>
<tr>
<td>Apology and fair fix</td>
<td>89**</td>
<td>4</td>
</tr>
<tr>
<td>Apology, fair fix and value added b,c</td>
<td>98**</td>
<td>0</td>
</tr>
</tbody>
</table>

*Responded SA or A to Q14.

**Responded SA or A to Q24.

*p < 0.05 for test of difference in proportions within a row (e.g., 6/229 compared to 139/219).

**p < 0.01 for test of difference in proportions within a row.
recovery phase in Fig. 1. Our results shown in Table 5 support (a) in Hypothesis 3 that tangible recovery activities are related to successful recovery. Our results do not support (b) in Hypothesis 3 that psychological recovery activities are related to successful recovery. We found that an apology without a fair fix is ineffective, although an apology added to a fair fix increases the effectiveness of the fair fix.

4.3.4. Service recovery phases

Hypothesis 4 predicts that successfully resolved service failures are negatively related to the length of the pre-recovery and immediate recovery phases. The results shown in Table 6 support our hypothesis about the length of the immediate recovery phase, but not about the pre-recovery phase. We found no significant difference in resolution based on when the company became aware of the failure. We did, though, find significant differences in resolution success based on how quickly the recovery process was started after discovering the problem and how quickly the process was completed. Hypothesis 4 also predicts that successfully resolved service failures are positively related to the presence of follow-up recovery activities. Although less than 10% of our sample involved follow-up recovery, we did find that 78% of the problems where there was follow-up recovery were successfully resolved.

4.3.5. Service delivery issues

Hypothesis 5 states that successfully resolved service failures are positively related to the first person contacted attempting and having the authority to solve the problem. The results in Table 6 support this

Table 6
Delivery issues in service recovery

<table>
<thead>
<tr>
<th>Timing issues</th>
<th>Problem solved (n = 229)</th>
<th>Problem not solved (n = 219)</th>
<th>Total (n = 448)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem discovered within a day</td>
<td>140</td>
<td>127</td>
<td>267</td>
</tr>
<tr>
<td>Solution process starts within a day of finding out</td>
<td>172*</td>
<td>84</td>
<td>256</td>
</tr>
<tr>
<td>Solution process is completed within a day</td>
<td>127**</td>
<td>62</td>
<td>189</td>
</tr>
</tbody>
</table>

Personnel issues

<table>
<thead>
<tr>
<th>First contact with</th>
<th>Problem solved (n = 229)</th>
<th>Problem not solved (n = 219)</th>
<th>Total (n = 448)</th>
</tr>
</thead>
<tbody>
<tr>
<td>manager</td>
<td>50</td>
<td>49</td>
<td>99</td>
</tr>
<tr>
<td>owner</td>
<td>13</td>
<td>20</td>
<td>33</td>
</tr>
<tr>
<td>customer service</td>
<td>61</td>
<td>45</td>
<td>106</td>
</tr>
<tr>
<td>someone else</td>
<td>103</td>
<td>103</td>
<td>206</td>
</tr>
<tr>
<td>First person attempted to solve problem</td>
<td>207**</td>
<td>99</td>
<td>306</td>
</tr>
<tr>
<td>First person was also last person dealt with</td>
<td>140*</td>
<td>108</td>
<td>248</td>
</tr>
<tr>
<td>First person was not last person dealt with</td>
<td>89</td>
<td>108</td>
<td>197</td>
</tr>
</tbody>
</table>

How the company discovered the problem

| Company found the problem before the customer | 25** | 5 | 30 |
| Customer told company in writing | 16 | 16 | 32 |
| Customer told company in person | 111 | 131 | 242 |
| Customer told company by phone | 66 | 60 | 126 |

*Q13.  
*Q16.  
*Q21.  
*Q17.  
*Q18.  
*Q19.  
*Q20.  
*Q12.  
*p < 0.05 for test of difference in proportions within a row (e.g., 140/229 compared to 127/219).  
**p < 0.01 for test of difference in proportions within a row.
hypothesis. Our respondents indicated that a variety of employees were first contacts when discussing a service failure. Whereas one might expect managers, owners and customer service representatives to be skilled in handling customer complaints, 45% of the complaints were directed at others in the company such as agents, clerks, employees, operators, salespeople, technicians, waiters and waitresses. Surprisingly, we found no significant difference in resolution as a function of whether the person contacted was a manager/customer service representative or one of the other types listed. We did find a significant benefit if the first person contacted tried to resolve the issue. We also found a significant benefit if this person had authority to solve the problem. This provides support for empowering the front-line employees so that they are able to solve problems.

In regard to “how” the company found out that there was a problem, the vast majority of cases (400/430) were reported by the customer. We found no significant differences based on how the customer informed the company of the problem. On the other hand, in most cases (25/30) where the company discovered the problem before the customer, the problem was resolved. Although the sample size for customers responding to a solicitation by the company was very small and spread over a number of the subcategories, retention was 100% if the problem was solved.

4.3.6. Discriminant analysis

To determine which of the above factors had the largest effect in determining problem resolution, a stepwise discriminant analysis was conducted using the nine significant variables from Tables 3–6 (severity, loyalty, quality, restitution, value-added, apology, pre-recovery time, immediate recovery time, 1st attempt to help, 1st authority to help). Because of high correlations among the severity and pre-failure loyalty variables, composite scales were made by summing the three actual severity measures and the three loyalty measures. The first variable to enter the discriminant analysis was a fair solution to the problem (partial $r^2 = 0.72$). The next variables to enter were value added (partial $r^2 = 0.033$), followed by an apology (partial $r^2 = 0.017$) and finally by pre-failure loyalty (partial $r^2 = 0.018$). No other variables were significant ($\alpha = 0.05$).

5. Discussion and implications

The results presented in Section 4 appear to provide support for many of the generally accepted principles of service recovery management. In short, two general lessons are apparent from our empirical analysis: (1) successful and unsuccessful service recoveries are characterized by very different customer outcome measures, mixes of psychological and tangible recovery efforts and attention to operational details; and (2) the factors that seem to matter the most (fair restitution and value-added) are very much operational in nature. Furthermore, as discussed below, the implications of the specific results and of these general conclusions are of value in validating past claims and in identifying issues for research in operations management.

5.1. Limitations

The principal caveat that needs to be noted is that university students were used for this study. Although these respondents do indeed represent important customer segments, care must be taken in the interpretation of some results. For example, respondents to our survey clearly indicated a slightly greater sensitivity to financial losses than to losses measured in terms of time or inconvenience which could be an artifact of the specific sample. On the other hand, the use of students is certainly appropriate in a study such as the one presented here. The students in the sample were the actual customers. Furthermore, although the results may not be entirely generalizable, the behaviors and experiences of students and other types of customers are likely to be more similar than different in these types of incidents (see the arguments of Greenberg, 1987; Gordon et al., 1987). Any other specific sample drawn to study service recovery situations (whether by industry or by customer segment) would also have drawbacks in terms of generalization.

A second potential limitation relates to the use of the CIT itself. As Johnston (1995) noted in his study, some of the incidents may have taken place some time ago, with respondents’ perceptions modified or reinterpreted in light of more recent events. We attempted to minimize this by asking for recent incidents. A more serious concern relates to the fact that respondents in studies such as this are likely to
report on the most extreme cases and not on those incidents that are close to being, or are within, the "zone of tolerance."

A third limitation is that with the statistical methods we employed, we are unable to determine causality. In the future, longitudinal studies may be needed to assess causality.

5.2. Validation of anecdotal claims

Our results provide support for a number of the tenants of effective service recovery management set forth in anecdotal studies. They also provide some insight into how some of the specific aspects of our framework need to be detailed. In support of the anecdotal evidence regarding effective service recovery, this study supports the following claims.

1. Successful recovery matters to customers. A higher percentage of customers return if recovery efforts are successful, and this is true even when failures are judged to be severe, when customers are not particularly loyal beforehand and whether or not the situation involves a "high-" or "low-quality" service.

2. In terms of antecedents, serious problems may warrant specific attention. Anecdotal evidence suggests that serious failures require more drastic repairation. The implication for managers would appear to be "do it right the first time" or, at least, to avoid the most grievous failures.

3. The specific remedies for service failures are multidimensional. Consistent with anecdotal evidence, our study supports the contention that an apology alone is ineffective, but increases the effectiveness of tangible recovery activities. It is also significant that value-added atonement beyond fair restitution adds to the positive effect of the restitution alone.

4. Rapid response to service failure is a key part of maintaining loyalty and assuring repeat patronage. More customers appear to be retained when the solution process starts soon after failure discovery and is completed quickly.

Several other results of the critical incident study were less in line with anecdotal evidence and are worthy of further investigation.

1. Serious failures are less likely to be repaired. This highlights a key choice for service managers. It may be possible that it will not be beneficial to fully resolve some severe failures.

2. The key to service recovery may be in fair restitution. This conjecture is supported by the results of our discriminant analysis and may seem obvious to the casual observer, but since most of the literature focuses on the psychological aspects of recovery, this possibility is almost overlooked. Our results suggest that both the recovery process and outcome are important, but the relative value of the process itself is still debatable.

3. Successful service recovery may not hinge on when the provider becomes aware of the failure. This is fortunate for managers since awareness is generally a function of the customer and not of the company.

4. Managers and customer service representatives do not appear to be more effective at solving service failure problems than other (possibly empowered) employees. Table 6 shows that there were no significant differences in problem resolution based on whether an owner, manager, customer service representative or someone else was contacted.

5.3. Implications for research

Studies in the marketing literature point to a number of research opportunities for academicians interested in service recovery. The current study directly and indirectly points to a number of these, with particular attention needed to gain a better understanding of the service recovery process and to the operational perspectives of Fig. 1. Specifically, these observations are as follows.

1. Service recovery is a process in all organizations and a core process in many. As such, a detailed understanding of this process is warranted. Other descriptive studies are needed to show how service providers plan for common and uncommon mistakes. It seems intuitive (Pareto’s law) that a small number of service failure types will regularly appear within an organization and that most companies have standard plans of action that can be employed when these failures surface. Research is needed to learn how uncommon failures are handled and whether different approaches may be warranted. More detailed experimental designs are needed to test for the relationships among the variables identified here and
in other studies. Path analytic studies will be an important next step. See, for example, the study by Collier (1991) in the context of service quality.

(2) Although it is clear that effective service recovery is closely related to repeat patronage and customer loyalty, the extent to which these can be maintained and even increased by applying different techniques has not been systematically researched.

(3) Researchers need to evaluate the mix of psychological and tangible components of service recovery and their relative impacts upon key outcome variables. According to studies conducted by Hart et al. (1990), more than 50% of service recovery attempts actually reinforced the negative experience. If this statistics is valid, it is apparent that managers who wish to implement recovery techniques should do so only when they have an understanding of the service failure situation, the techniques at their disposal and the impacts that the techniques may have on the situation and their company.

(4) In conjunction with observation #3, prescriptive approaches for applying both the tangible and psychological remedies to service failures are needed. This is a key area where researchers in operations management can have an impact, both from a theoretical and practical standpoint. The timing, sequence and cost effectiveness of service recovery techniques are essential components of the process that are not well understood.

(5) Delivery speed is a strategic priority that is emphasized by researchers in operations management. Speed would also appear to be a key variable to be examined in effective service recovery. Studies by Hart et al. (1990) and Schweikhart et al. (1993) have only touched the surface in this area.

(6) Researchers also need to add to our understanding of the effectiveness of proactive service recovery. Although this could entail many dimensions of management, the key components of the proactive approach involve (a) the use of customer criticism, (b) the empowerment of employees, and (c) the provision of information to customers.

(a) Criticism can be a valuable tool for finding service gaps and improving the service system (Abrams and Paese, 1993). Unfortunately, since customers who complain are in the minority, many advocate that service organizations need to actively seek criticism (Spreng et al., 1995), although a recent study by Sampson (1996) found that active solicitation of complaints resulted in lower ratings of the service.

(b) Empowerment is understudied in the operations literature. A key principle of total quality management is that employees who are closest to the customer are in a better position than management to detect service failure. It follows, then, that these "front line" employees should be trained to both discover and handle service failures (Bowen and Lawler, 1992; Bowen and Lawler, 1995; Spreng et al., 1995). In the case of service failure, employees need to be given the power to "fix" the problem (Hart et al., 1990; Schweikhart et al., 1993). Sorely missing in the literature is a detailed assessment of appropriate empowerment strategies and tactics.

(c) A third aspect of proactive recovery that needs to be addressed is providing information to customers. Since customers will likely discover the problem, employees should not attempt to hide actual or probable service failures. In fact, the ideal situation is discovering and solving the problem before the customer is even aware that there is one (Hart et al., 1990).

Although we are confident that the service recovery framework presented here is useful, future research will require the development and validation of the constructs in Fig. 1. Instruments are available in the marketing literature to measure loyalty and perceived service quality, but others will need to be developed to measure the remaining factors represented in the framework. Furthermore, future studies will need to be directed at prescription and to employ experimental designs that will permit rigorous testing of specific hypotheses that can be derived from these and other findings.

Appendix A. Survey

This is a survey about service recovery (things companies should do when they make a mistake in the service delivery process). Think of two recent incidents in which service companies (or the service side of non-service companies) failed to deliver what you expected. In Part A, describe a problem where a company solved the problem to your satisfaction. In Part B, describe a problem where the company knew
about and/or attempted to solve, but did not solve the problem to your satisfaction.

1. Describe the company that was involved (name, type of business, size of organization).
2. How many times had you used the company prior to the service failure. 0, 1, 2–4, 5–10, 11–19, 20 or more.
3. How long had you been using the company’s services when the failure occurred? the first time, days, weeks, months, years.
4. Prior to the service failure, you would have classified yourself as a loyal customer. 5 point scale: strongly agree to strongly disagree.
5. What made you decide to use this company vs. another? (Choose one factor only) reputation, personal experience with the company, advertisement/sale, convenience, recommendation of friend/family member, no other choices available, other.
6. Describe the service failure.
7. To the best of your knowledge did the company have a stated guarantee related to this type of problem?
8. (a) How serious could the failure have been if no resolution had been attempted? 5 point scale: very serious to of no consequence; (b) What is the worst thing that could have happened?
9. (a) The service failure could have cost me much money if no resolution had been attempted. 5 point scale: strongly agree to strongly disagree; (b) Estimate and describe the money that the failure could have cost.
10. (a) The service failure could have caused me much lost time if no resolution had been attempted. 5-point scale: strongly agree to strongly disagree; (b) Estimate and describe the lost time that the failure could have caused.
11. (a) The service failure could have caused me much inconvenience if no resolution had been attempted. 5-point scale: strongly agree to strongly disagree; (b) Describe the inconvenience that the failure could have caused.
12. How did the company find out that you were not satisfied with the service? the company figured it out and notified me before I complained. the company asked (— in writing, — in person, — by phone) and I responded (— in writing, — in person, — by phone) other.
13. How long after the failure occurred did the company find out about it? seconds, minutes, hours, days, weeks, months, years.
14. Once the company found out about the problem, did you receive an apology? yes, no.
15. If the answer to question 14 was yes, the apology was sincere. 5-point scale: strongly agree to strongly disagree.
16. How long after the company found out about the failure did the solution process begin? seconds, minutes, hours, days, weeks, months, years, never.
17. With whom did you originally discuss the problem (or write to)?
18. Did that person solve or attempt to solve the problem? yes, no.
19. id that person appear to have the authority to solve the problem? yes, no.
20. Who was the final person you dealt with during the problem resolution process? the person described above, a manager or supervisor, the business owner, other.
21. How long after the solution process was started was it completed? seconds, minutes, hours, days, weeks, months, years, never.
22. Describe the final solution to the problem.
23. The company solved the problem to your satisfaction. 5 point scale: strongly agree to strongly disagree.
24. The problem was solved in a manner that was fair to you. 5 point scale: strongly agree to strongly disagree.
25. The company went beyond a “fair fix” to the problem by including a little (or a lot) extra for your trouble. 5 point scale: strongly agree to strongly disagree.
26. If so, describe the “little extra”.
27. How likely are you to do business with the company again after the failure? 6 point scale: I already have gone back to the company to I am certain I will never return.
28. Explain how the company could have done a better job solving the problem.
29. At the end of the solution process, the service failure had cost me much money. 5 point scale:
strongly agree to strongly disagree. b. Estimate
and describe the actual cost of the failure.
30. At the end of the solution process, the service
failure caused me much lost time. 5 point scale:
strongly agree to strongly disagree; b. Estimate
and describe the actual time you lost because of
the failure.
31. At he end of the solution process, the service
failure had caused me much inconvenience. 5
point scale: strongly agree to strongly disagree.
31b. Describe the inconvenience that you en-
countered due to the failure.
32. Describe (who, what, when, how) the very last
time that the company contacted you about this
failure?
33. Without considering the outcome, how satisfied
were you with the solution process? 5 point
scale: very satisfied to very dissatisfied
34. How satisfied were you with the outcome of the
solution process? 5 point scale: strongly agree
to strongly disagree
35. After the service failure and the solution process
you would classify yourself as a loyal customer.
5 point scale: strongly agree to strongly dis-
agree
36. Your opinion of the company has improved
because of the service failure and recovery pro-
cess 5 point scale: strongly agree to strongly
disagree.

References

Abrams, M., 1993. Wining and dining the whiners. Sales and
Marketing Management 145 (2), 73–75.
Bell, C.R., 1992. Service recovery for trainers. Training and
Development 46 (5), 58–63.
encounters: the employee’s viewpoint. Journal of Marketing
58 (4), 95–106.
Bitner, M.J., Booms, B.H., Tetreault, M.S., 1990. The service
encounter: diagnosing favorable and unfavorable incidents.
Journal of Marketing 54 (1), 71–84.
dynamic process model of service quality: from expectations
to behavior intentions. Journal of Marketing Research 30 (1),
7–27.
workers: what, why, when and how. Sloan Management Re-
Clark, G.L., Kaminski, P.F., Rink, D.R., 1992. Consumer com-
plaints: advice on how companies should respond based on an
empirical study. The Journal of Services Marketing 6 (1),
41–50.
Collier, D.A., 1991. A service quality process map for credit card
Flanagan, J.C., 1954. The critical incident technique. Psychological
pigs: porcine predictors and particularist phenomena.
Greenberg, J., 1987. The college sophomore as guinea pig: setting
the record straight. Academy of Management Review 12 (1),
157–159.
Halstead, D., Dröge, C., Cooper, M.B., 1993. Product warranties
and post-purchase service. Journal of Services Marketing 7
(1), 33–40.
Hart, C.W.L., 1988. The power of unconditional service guaran-
art of service recovery. Harvard Business Review 68 (4),
148–156.
service failures and employee recovery efforts. Journal of
Services Marketing 9 (2), 49–61.
Johnston, R., 1995. The determinants of service quality: satisfiers
and dissatisfiers. International Journal of Service Industry
Management 6 (5), 53–71.
Kelley, S.W., 1994. Antecedents to customer expectations for
service recovery. Journal of the Academy of Marketing Sci-
ence 22 (1), 52–61.
retention, and market share. Journal of Retailing 69 (2),
193–215.
Sampson, S.E., 1996. Ramifications of monitoring service quality
through passively solicited customer feedback. Decision Sci-
ences 27 (4), 601–622.
recovery in health services organizations. Hospital and Health
Administration 38 (1), 3–21.
Business Review 62 (1), 133–139.
Spreng, R.A., Harrell, G.D., Mackoy, R.D., 1995. Service recov-
ery: impact on satisfaction and intentions. Journal of Services
Marketing 9 (1), 15–23.
Handling in America: An Update Study, Part II. Technical
Assistance Research Programs Institute, Washington, DC, p.
50.
service customers’ quality assurance behaviors, satisfaction,
and effort: a cost of quality perspective. Journal of Operations
Management 15 (1), 19–32.
17–19.