



## The role of self-service technologies in restoring justice

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### ABSTRACT

As an increasing number of customers choose to interact with service firms via technology, there is an urgent need to understand whether consumers react differently to technology-based failures/recovery efforts than human failures/recovery efforts. Using resource exchange theory as a framework, the present investigation examined the role of failure mode (SST vs. face-to-face encounter) and recovery mode on customers' fairness perceptions. Results from Study 1 suggest that compensation offered by a front-line employee might be more effective in restoring justice with traditional failures (match condition) than with SST failures (mismatch condition). Findings from Study 2 further support the matching hypothesis in terms of distributive justice. On the other hand, human touch seems more effective in restoring interactional fairness than on-line recovery. The follow-up study extends the matching hypothesis to satisfaction with problem handling and repurchase intent. Managerial implications of these findings are discussed.

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## 1. Introduction

A growing body of service recovery literature suggests that an effective recovery is linked to positive outcomes such as loyalty, positive WOM, trust, service quality and value (Goodwin and Ross, 1992; Tax et al., 1998; Boshoff, 2005; Gustafsson, 2009). Given the rapid increase in on-line and self-service technology (SST) encounters, there is an urgent need to understand whether consumers react differently to technology-based failures than to human failures. This issue is particularly important since the reasons for dissatisfying experiences tend to differ across on-line and off-line environments (Holloway and Beatty, 2003; Harris et al., 2006a,b). Some evidence also exists to suggest that traditional service recovery strategies might not be directly transferable to on-line environments (Shapiro and Nieman-Gonder, 2006; Harris et al., 2006a,b; Meuter et al., 2003; Sousa and Voss 2009). Although these prior studies suggest that differences exist between the two delivery modes, they have failed to systematically examine the nature of such differences. Moreover, underlying theory for explaining the effects is lacking.

To bridge these gaps, the purpose of the present investigation is to contrast consumers' reactions to human and technology-based service failures and consequent recovery efforts. Specifically, the authors seek to understand the role of two frequently employed recovery efforts (compensation and apology) on customers' fairness

perceptions by comparing SST failures and on-line recoveries with their human counterparts. Relying on resource exchange theory (Smith et al., 1999; Foa, 1971; Brinberg and Castell, 1982; Rosenbaum and Massiah, 2007), the authors propose that the recovery mode (technology-based vs. human) needs to match the failure type (on-line vs. off-line). People tend to favor exchanges that are in kind; therefore, a mismatch between failure type and recovery mode should reduce the positive impact of compensation and apology on customers' fairness perceptions. The study focuses on fairness because customer responses to service recovery efforts are heavily guided by their perceptions of fairness in the recovery effort (e.g., Smith et al., 1999; Hocutt et al., 2006).

## 2. Background literature

### 2.1. Resource exchange theory and justice

Most human dealings, including service encounters, can be viewed as a form of market exchange (Kotler and Levy, 1969; Bagozzi, 1975). Zaltman and Sternthal (1974) propose that exchange is the very essence of consumer behavior. Foa's (1971) resource exchange theory of social exchange has been the dominant framework adapted in the marketing literature (Hirschman, 1987; Murgolo-Poore et al., 2003). Resource exchange theory suggests that resources of the same type are more likely to be exchanged (Brinberg and Wood, 1983; Foa et al., 1993; Foa, 1971; Brinberg and Castell, 1982). Moreover, normative expectations tend to influence the particular resource a consumer is willing to accept in a commercial exchange (Bagozzi, 1975). Accordingly, Smith et al. (1999) demonstrate that customers prefer service recovery efforts that match the

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loss (e.g., monetary compensation for overbooking or empathy for a social loss). In this paper, the authors extend Smith et al. (1999) work by suggesting that service recovery mode (on vs. off-line) should match the failure type (technology-based vs. human error). Fairness is typically viewed as a multidimensional construct. Some research supports a two-factor model in which distributive and procedural justice are considered independent facets of fairness (Greenberg, 1990; Lind and Tyler, 1988), whereas other work proposes that interactional justice is a third important dimension of people's justice perceptions (Bies and Shapiro, 1987; Aquino, 1995). The three-dimensional view of justice has been successfully applied to the context of service recovery (Mattila, 2001; Sparks and McColl-Kennedy, 2001; Chebat and Slusarczyk, 2005). As with complaint handling, customers evaluate fairness with the service recovery by three factors: outcomes, procedural fairness, and interactional treatment (Goodwin and Ross, 1992; Tax et al., 1998; Smith et al., 1999; Hui, 2007). Distributive justice refers to the perceived outcome, whereas procedural fairness involves the policies and rules by which recovery effort decisions are made (Smith et al., 1999). The speed by which service failures are corrected or complaints are handled is one of the major determinants of customer perceptions of procedural justice (Blodgett et al., 1997; Tax et al., 1998). Interactional fairness focuses on the interactional treatment during the process (Goodwin and Ross, 1992). Despite its robust effect in social psychology (e.g., Van Den Bos et al., 1998), procedural fairness might not always be applicable to commercial service encounters (Mattila, 2001). Consequently, this study focuses on distributive and interactional justice.

The authors are particularly interested in two types of service recovery strategies: tangible and psychological (Miller et al., 2000). Compensation is the most researched topic in complaint handling (Davidow, 2003) and tangible compensation for service recovery (e.g., free upgrades) has been shown to influence consumers' perceptions of distributive justice (Smith et al., 1999; Mattila and Patterson, 2004b). For example, Mattila and Patterson (2004b) show that offering compensation (i.e., a discount) is highly effective in restoring the sense of justice among Western consumers. A sincere apology, on the other hand, should communicate concern and empathy to the customer, thus enhancing customer perceptions of interactional justice (Smith et al., 1999). Prior research in the context of face-to-face encounters further shows that compensation and apology can jointly influence post-recovery satisfaction and customers' fairness perceptions (e.g. Blodgett et al., 1997; Sparks and McColl-Kennedy, 2001; Mattila, 2001; Wirtz and Mattila, 2004; Smith et al., 1999). For example, a tangible compensation might be ineffective if offered by a rude employee, or an apology might increase the positive impact of tangible compensation (Miller et al., 2000).

## 2.2. Matching human failures with human recovery

Relying on resource exchange theory as a theoretical framework, the authors argue that tangible compensation offered by a front-line employee will have a stronger impact on distributional fairness with human failures than with SST failures. Prior research shows that consumers are particularly upset with facility-related failures (Hoffman et al., 1995), thus suggesting that it might be difficult to recover from machine-based failures. Once an SST failure occurs, customers are often forced to interact with a company employee (Holloway and Beatty, 2003). Since avoiding interaction is one of the key motivations behinds SST use (Dabholkar, 1996; Meuter et al., 2000), it is logical to suggest that this unexpected human intervention is not likely to be seen in a positive light. This mismatch between failure mode (IT-based) vs. recovery mode (human) is expected to lessen the positive impact of compensation on fairness. Conversely, human failures can often be fixed on the spot, thus avoiding any extra interactions. Hence, consumers are expected to be more willing to accept tangible compensation as an effort to restore justice when the failure involves a human component. In other words, matching the recovery mode with failure type should enhance the effect of compensation on

consumers' justice perceptions. The authors thus put forth the following hypotheses:

**H1.** Compensation will have a more positive impact on customers' distributive fairness perceptions when the recovery mode matches the failure type (a human failure followed by a human recovery vs. an SST failure followed by a human recovery).

**H2.** Compensation will have a more positive effect on customer perceptions of interactional fairness when the recovery effort matches the failure type (i.e., a human failure followed by a human recovery as opposed to a mismatch situation).

## 2.3. Matching on-line failures with on-line recovery

The authors also want to investigate the relative effectiveness of on-line vs. human recovery in the context of on-line failures. Complaining is supposed to be easier with today's advanced technology (Bitner et al., 2000; Tax et al., 1998). Accordingly, consumers are likely to complain with technology-based failures (Meuter et al., 2000) or with on-line failures (Holloway and Beatty, 2003). Prior studies indicate that, in the context of on-line failures, a large proportion of consumers initially contact the company via e-mail, but that they typically remain unsatisfied with the recovery effort (Holloway and Beatty, 2003; Ahmed, 2002). Consumers seem particularly upset with generic e-mails and lack of apology, thus leading to perceptions of injustice (Holloway and Beatty, 2003). In this paper, the authors test the proposition that matching recovery mode with failure type (i.e., on-line failure followed by an on-line recovery) should be more effective in restoring justice than a mismatch situation (i.e., an on-line failure followed by a human recovery). In other words, offering tangible compensation for an on-line based failure will lead to higher perceptions of distributive justice with an on-line (e.g., e-mail) versus off-line (e.g., voice-to-voice phone interaction) recovery mode. Therefore, the authors propose the following:

**H3.** With on-line failures, offering compensation on-line (matching condition) will result in significantly higher perceptions of distributive justice than offering the same compensation off-line (mismatch condition).

While prior research has examined the effects of compensation on fairness in an on-line context (Harris et al., 2006a), studies investigating the interactional component of service recovery are scant. In this paper, the authors argue that a technology-based recovery might fail to convey compassion and empathy—two critical aspects of service recovery (Snellman and Vihtkari, 2003). Prior research shows that consumers seem to focus on the interactional component following an on-line failure (Holloway and Beatty, 2003). It thus seems reasonable to suggest that an off-line (i.e., human) interaction will be particularly salient with on-line failures. As Brown (1997) states, disgruntled customers want a real person accepting responsibility for the failure and to offer an apology, thus calling for high-touch recovery with technology failures. Therefore, propose the following hypothesis:

**H4.** In the context of on-line failures, off-line recovery (i.e., human interaction) will result in significantly higher perceptions of interactional justice than on-line recovery.

Three experimental studies were conducted to test our hypotheses. Hypothetical scenarios were used to avoid problems associated with retrospective survey approaches (e.g., Smith and Bolton, 2002). Study 1 aimed at exploring the impact of failure type (human vs. SST) on customers' fairness perceptions while keeping the recovery effort constant (i.e., a human recovery). Study 2, on the other hand, manipulated recovery mode (on-line vs. off-line recovery) while holding failure type constant (i.e., an on-line failure). See Fig. 1 for the

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