How Compensation Affects Customers’ Repurchase Decisions after Service Failure?

By

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ABSTRACT

HOW COMPENSATION AFFECTS CUSTOMERS’ REPURCHASE DECISIONS AFTER SERVICE FAILURE?

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The goal of this thesis is to investigate what compensation level is effective to retain customers’ repurchase likelihood in different service failure conditions. Specifically, this thesis examines how magnitude of failure and two causes attributions: stability and locus of responsibility influence the effects of compensation. Additionally, we employed Discrete Choice Experiment (DCE) to quantify compensation amount to figure out the optimal compensation level for different service failure conditions. The results provide support for the interaction effects of magnitude of failure, compensation and stability/locus of responsibility in both airline and hotel contexts, such that for a high (low) magnitude service failure, high compensation will lead to higher customers’ repurchase likelihood when the failure is unstable (when the company is not responsible for the failure) than when the failure is stable (when the company is responsible for the failure). These findings provide implications for companies to effectively recover service failures using compensation.
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CHAPTER 1: INTRODUCTION

A lot of attention has been paid to service failure and service recovery in the last decades because companies are facing the challenge of competing with each other to retain customers. When a service failure happens, whether or not a company can successfully retain its customers’ repurchase intentions largely depends on how it responds to the failure. Service recovery refers to a series of actions that service providers take to solve service failure problems in order to retain dissatisfied consumers (Gronroos, 1988; Miller, Craighead, & Karwan, 2000). As Senior Programing Director of Disney Institute, Bruce Jones (Bruce, 2013) stated: “As a consumer, sometimes the most frustrating aspect of a service failure isn’t the problem, but rather the organization’s inability to fix the problem.” Echoing this note, research finds that failing to solve service failure can lead to customers churn and customer switching behaviors (Keaveney, 1995). Thus, a successful service recovery can transform a service failure into an opportunity for companies to retain customers and build further relationship with them.

Compensation, apology, response speed and initiation are common service recovery strategies, among which compensation is most commonly employed (Johnson & Fern, 1999; Levesque & McDougall, 2000; Kim & Ulgado, 2012) given its effectiveness (e.g., Boshoff, 1997; Gilly & Hansen, 1985; Smith, Bolton, & Wagner, 1999). Offering compensation has been found to attenuate customers’ intentions to express negative word-of-mouth (WOM; Roschk & Gelbrich, 2014), lead to positive WOM (Davidow & Leigh, 1998), and enhance repurchase intentions (Goodwin & Ross, 1989). However, compensation may not always be
effective (e.g., Megehee, 1994; Garrett, 1999), its effectiveness may vary depending on conditions (e.g., Bitner, 1990; Smith et al., 1999; Wirtz & Mattila, 2004). The first objective of this research was to identify factors that may affect the effectiveness of compensation on retaining customers’ repurchase decisions. Prior research already looked at how service failure magnitude (i.e., customers’ perception of failures’ severity) influences consumers’ satisfaction with compensations (e.g., Kim & Ulgado, 2012). Some, on the other hand, explored how the causes of service failure relate to compensation effectiveness. Here, causes of failures refer in particular to the reasons why these failures would happen from customers’ understanding, and is also called causal attributions. Causal attributions mainly include whether the service failure occurs frequently or infrequently (failure stability) and whether the company is responsible for the failure or not (locus of responsibility). Nevertheless, most of prior research investigated the influence of magnitude of failure (e.g., Smith et al., 1999; Kim & Ulgado, 2012; Roggeveen, Tsiros, & Grewal, 2012) and causal attributions (e.g., Wirtz & Mattila, 2004; Grewal, Roggeveen, & Tsiros, 2008), separately, little attention has looked in how these two factors may jointly influence compensation effectiveness. In the current research, I investigate service failure magnitude and causal attributions simultaneously to further our understanding of the conditions for compensation to effect. The answer to this question is also of practical importance as it can provide insights on the optimal compensation level companies can set to recover service failure and boost customer repurchase likelihood.

To figure out the optimal compensation level for different service failure conditions, I
employed discrete choice experiments (DCEs) in this research. Specifically, participants need to make trade-offs between compensation and three factors: magnitude of failure, stability and locus of responsibility. Marginal rate of substitution (MRS) was used to calculate compensation amount for different service failure conditions. Here, MRS refers to the minimum compensation amount a customer is willing to accept to put up with a service failure s/he encounters. Since it is important for companies to know what compensation amount level can be effective to retain customers’ repurchase decisions after the service failure, the calculated amount will provide some guidance for companies to minimize the cost of service recovery (Noone, 2012).

Taken together, the main goal of this research is to experimentally investigate what compensation amount level can be effective to enhance customers’ repurchase likelihood in different service failure conditions. More specifically, we examine how magnitude of failure and two causes attributions: stability and locus of responsibility affect the effectiveness of compensation on customers’ repurchase decisions. In doing so, we explored customers’ needs of compensation in different service failure conditions and gain some insight into the joint effects of compensation, magnitude of failure and stability/locus of responsibility. Moreover, we employed Discrete Choice Experiment (DCE) to quantify compensation amount. Therefore, this research can contribute to a better understanding of the effectiveness of compensation in service failure recovery by taking magnitude of failure and causal attributions into consideration. In addition, it may contribute to identifying how much compensation amount is needed to increase repurchase likelihood in different service failure conditions.
conditions with three service failure-related factors: stability, locus of responsibility and magnitude of failure.

The rest of the paper proceeds as follows. The first part presents the literature review that begins with discussions about service recovery literature, compensation, magnitude of failure and two causal attributions: stability and locus of responsibility in terms of their theoretical bases. Next, it moves into hypotheses, which propose that customers need to make trade-off between cause attributions and compensation under different magnitude of failure conditions. Then, research methodology used in this study is introduced and explained. Following results of the experimental studies, the paper concludes with a general discussion of the contributions, managerial implications and suggestions for future research and practice in this area. Overall, this paper aims to find the connection between compensation, magnitude of failure and causal attributions that may lead to more effective service recovery when companies try to maintain customers’ repurchase decisions after service failures.
CHAPTER 2: LITERATURE REVIEW

The literature review includes the concepts of service recovery and the most common recovery strategy compensation, and several important service failure-related factors: type of failure, and causes of failure. Type of failure is about severity of service failures (named magnitude of failure) and causes of failure mainly include whether the service failure occurs frequently or infrequently (named stability) and whether the company is responsible for the failure or not (named locus of responsibility). It then reviews the effects of these factors existent in this domain in order to explore how they can affect the relationship between compensation and customers’ repurchase decisions after experiencing a service failure. To make it clearer, these service failure-related factors (including magnitude of failure, stability and locus of responsibility) are called service failure-related attributes and compensation is called service recovery-related attribute in the rest of this research paper.

2.1 Service Recovery Literature

Service recovery has gained a lot of attention in the last two decades due to its importance for both companies and researchers. It is regarded as one of the major factors for obtaining customer loyalty (e.g., Tax & Brown, 2000; Wirtz & Mattila, 2004). Service recovery is defined as a series of actions that taken by service providers to solve service failure problems in order to retain those dissatisfied consumers (Gronroos, 1988; Miller, Craighead, & Karwan, 2000). Since dissatisfied consumers anticipate that service failure can be resolved through complaint (Sundaram, Jurowski, & Webster, 1997), effective service recovery has been illustrated to have positive impacts on consumer satisfaction (e.g., Tax,
Brown, & Chandrashekaran, 1998), consumer retention rates (e.g., Fornell, & Wernerfelt, 1987; Kelley, Hoffman, & Davis, 1993), and consumer evaluations of recovery efforts (e.g., Smith & Bolton, 1998). As a result, the final goal of service recovery is to retain existing customers to let them repurchase in the future. Since social exchange and equity theories stated that, service failures would break the balanced exchange relationship (in which customers mainly use money to exchange for products or services) between a service provider and a customer, the key in service recovery is to restore the imbalanced or inequitable relationship between customers and companies caused by the failure (Kwon, & Jang, 2012). Companies must compensate the loss that customers experience from the service failure by offering certain amount of recovery efforts (e.g., Grewal et al., 2008).

Two research streams have looked at how customers evaluate and respond to service recovery. The first line of research examines the influence of service recovery strategies through a cognitive process, which has suggested that customers would form their service recovery satisfaction and post-purchase intentions based on perceived justice (e.g., Smith et al., 1999; Sparks, & McColl-Kennedy, 2001; Schoefer, 2008). Since service failure may lead to customer losses, by providing service recovery to customers, companies can enhance customers’ perception of justice to influence their post-purchase reactions (e.g., Blodgett, Granbois, & Walters, 1994). However, researchers found that the impact of service recovery strategies such as compensation and explanations also depend on other factors (e.g., Kelley & Davis, 1994; Berry, 1995; Blodgett et al., 1994; Smith et al., 1999; Grewal et al., 2008). We will discuss these factors in details in the following sections.
The second line of research is related to the consequences of customers’ service recovery satisfaction. In other words, these studies investigate how service recovery satisfaction leads to customers’ post-purchase behaviours. For example, in an empirical study, Tax et al., (1998) demonstrated that service recovery satisfaction serves as a bridge between different dimensions of perceived justice and relationship marketing variables: trust and commitment. By applying the customer satisfaction framework developed by Oliver (1997) to the service failure recovery context, researchers have identified three main outcomes of satisfaction with the service recovery (Orsingher, Valentini, & de Angelis, 2010). They are repurchase intention, word-of-mouth (WOM) behaviour, and overall satisfaction. Prior research has consistently found that satisfaction has a relationship with repurchase intentions in various contexts (see Yi, 1990, p104 for a review). However, in the service failure and recovery context, the relationship between customers’ service recovery satisfaction and repurchase intention has varied across studies. Although many previous studies have shown that consumers’ service recovery satisfaction will further lead to future repurchase intentions (e.g., Gilly & Gelb, 1982; Hess, Ganesan, & Klein, 2003; Holloway, Wang, & Parish, 2005), some other researchers indicated that service recovery satisfaction is not always a good predictor of consumers retention (e.g., Hoffman, Kelley, & Rotalsky, 1995; Ok, Back, & Shanklin, 2005).

Among all kinds of service recovery strategies, compensation is the one that researchers have paid a lot attention to. Although previous research has studied the effects of compensation in different aspects, when need to offer compensation and what is the optimal
compensation amount that should be offered are not explored thoroughly. Therefore, this study will also focus on the effect of compensation, which is discussed in the next sections.

2.2 Compensation

2.2.1 Compensation as A Recovery Strategy

Compensation is a strategy used to make up customers’ losses resulting from service failure in order to restore balanced exchange relationship between buyers and sellers (Walster, Berscheid, & Walster, 1973; Smith et al., 1999). In terms of the types, speaking from a broad sense, compensation can be classified into monetary compensation and non-monetary compensation. Whereas, speaking from a narrow sense, compensation indicates monetary compensation. Since this research focuses on compensation amount, all the compensation mentioned in the rest of the paper implies monetary compensation and compensation types imply monetary compensation types. Monetary compensation is usually in the form of refunds, discounts, coupons, and store credits (e.g., Goodwin & Ross, 1992; Estelami, 2000), and it can be further classified into immediate or on-the-spot monetary compensation and delayed monetary compensation these two types. According to Kim and Ulgado (2012), immediate monetary compensation is a compensation that is offered to customers at the time of the failure, such as refunds and discounts, while delayed monetary compensation refers to one that guaranteed by the company to take place at the next visit or purchase, such as coupons and store credits. In the aspect of compensation levels, Gelbrich and Roschk (2011) used simple compensation and overcompensation as two major categories in their studies. Simple compensation represents that the maximum restoration is to get a failure-free position,
namely the compensation is amounting to no more than 100% (Gelbrich & Roschk, 2011). However, overcompensation represents that companies not only restore failure but also provide additional remuneration, namely the compensation is amounting to more than 100% (Gelbrich & Roschk, 2011). The underlying assumption of overcompensation is that it can offset customers’ negative reactions toward service failure and enhance post-purchase intentions (Noone, 2012). However, overcompensation is not always more effective than simple compensation. Many prior research studies have found evidences to support the positive effect of overcompensation on customers’ satisfaction (e.g., Boshoff, 1997; Hocutt, Bowers, & Todd Donavan, 2006), repurchase intentions (Gilly & Hansen, 1985) as well as WOM (Gilly & Hansen, 1985) whereas some other research studies did not find a support (e.g., Megehee, 1994; Garrett, 1999). Using different level of compensation amount to investigate the effectiveness of compensation on customers’ reactions is a common research manipulation in the service recovery literature (e.g., Smith et al., 1999; Smith & Bolton, 2002; Wirtz & Mattila, 2004; Grewal et al., 2008; Gelbrich & Roschk, 2010). Therefore, this study will also manipulate compensation amount. One important thing is that in this research we assume that compensation is provided after simply fixing service failures. Take flight overbooking as a service failure example, compensation is provided after the airline company arranges customers to take the next flight. Namely, it is an extra compensation.

2.2.2 Effects of Compensation on Customers’ Evaluations

In the literature of service recovery, a lot of research studies have examined the effectiveness of service recovery from the justice perspectives (e.g., Goodwin & Ross, 1992;
Tax et al., 1998), because customers seem to rely on justice dimensions to evaluate whether a service recovery is fair or not (Wirtz & Mattila, 2004). According to social exchange theory, there are three dimensions of perceived justice: distributive justice, procedural justice and interactional justice, and distributive justice is the one that pertinent to compensation mostly among those three dimensions (Tax et al., 1998; Smith et al., 1999). Distributive justice deals with how to allocate resource and how a customer perceives the outcome of exchange in a conflict situation such as service failure (Adams, 1965; Deutsch, 1975). It has been found that compensation has the strongest impact on customers’ perception of distributive justice (Blodgett et al., 1997; McCollough, Berry, & Yadav, 2000; Homburg & Fürst, 2005; Mattila, 2006; Gelbrich, & Roschk, 2010). Especially, if the magnitude of failure is low or the service failure is less severe, providing compensation would result in higher perceptions of distributive justice than providing other recovery strategies do (Simth et al. 1999; Weun, Beatty, & Jones, 2004).

Moreover, it is found that compensation has positive effects on customers’ repurchase intentions (e.g., Gilly, 1987; Bonifield & Cole, 2008; Grewal et al., 2008). Take Bonifield and Cole’s (2008) study for an example, they not only found that compensation significantly influenced customers’ post-purchase intentions, but also demonstrated that compensation interacted with down social comparisons, such that a downward social comparison does not have a significant impact on customers’ post-purchase intentions when compensation is provided. Down social comparison here refers to a phenomenon when individuals who
experience negative affect compare themselves to others who are less fortunate to enhance their own subjective wellbeing (Aspinwall & Taylor, 1993; Bonifield & Cole, 2008).

Furthermore, there are some research studies in the service recovery literature that further look at the effectiveness of compensation on customers’ reactions toward service recovery efforts in terms of the compensation types and compensation levels. For example, through both a meta-analysis of research studies investigating the effect of compensation and an experimental analysis study, Roschk and Gelbrich (2014) illustrated that immediate monetary compensation has a greater influence on customer reactions, which includes service recovery satisfaction as well as repurchase intentions, than delayed monetary compensation does. Additionally, studies comparing overcompensation with simple compensation show that overcompensation has a greater impact on customers' service recovery satisfaction (Gilly & Hansen, 1985; Boshoff, 1997). Gelbrich and Roschk’s (2011) study also stands out for its consideration of two types of post-complaint satisfaction: transaction-specific satisfaction and cumulative satisfaction, while earlier research (e.g., Gilly & Hansen, 1985; Boshoff, 1997; Tax et al., 1998; Roggeveen et al., 2012) only focused on the impact of compensation on transaction-specific satisfaction, such as service recovery satisfaction (Maxham III & Netemeyer, 2003) or satisfaction with complaint handling (e.g., Davidow, 2003). They pointed out that overcompensation, compared to simple compensation, has a lower incremental impact on transaction-specific satisfaction. However, the effect size of overcompensation is larger than that of simple compensation on cumulative satisfaction. Therefore, researchers should not only distinguish between compensation levels, but also
differentiate post-complaint satisfaction types when conducting research in the service failure contexts.

The impact of compensation on customers’ reactions toward service recovery, such as service recovery satisfaction and repurchase intentions, also varies depend on different service failure-related attributes which are discusses in the next section.

2.3 Service Failure-Related Attributes

Previous service recovery research studies have examined different factors that can influence customers’ evaluations of service recovery. The following sections mainly introduced three service failure-related attributes and highlight important research findings about these attributes in relation to compensation and customers’ repurchase intention so as to delve into how service failure scenarios with different attributes influence customers’ demand of compensation levels.

2.3.1 Magnitude of Failure in Marketing Literature

In the service recovery literature, magnitude of failure refers to a customer’s perception of the failure’s intensity (Weun et al., 2004). More specifically, it is how a customer perceives loss on the basis of money, time and inconvenience (Craighead, Karwan, & Miller, 2004). Previous research proposed that magnitude of failure as an important factor that influences company’s failure recovery strategies (e.g., Smith et al., 1999; McCollough et al., 2000; Weun et al., 2004).
The mechanism of magnitude of failure can be illustrated from the following three perspectives. Based on social exchange and equity theories, when a service failure happens, the exchange relationship between a service provider and a customer turns to unbalanced. To restore the former balance, the service provider needs to offer a gain to the customer, which should be sufficient to cover the failure-caused loss. However, the customer’s perceived loss is associated with the magnitude of failure that he or she has suffered. Thus, the amount of resources that the customer requires to be offered by the recovery strategies will also depend on the magnitude of failure. Namely, the effects of the recovery strategies are influenced by magnitude of failure. The second perspective comes from the prospect theory, which deals with how customers perceive gains and losses. This theory indicates that people tend to be more aware of what they lose than what they gain (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992; Smith et al., 1999). From the customer’s perspective, a service failure is perceived as loss since normally customers expect no service failure when he or she purchases a service initially. Hence, customers’ sensitivity to the failure depends on the magnitude of failure, which will further influence the way that customers weigh losses and gains. The last perspective lies in mental accounting principles. It is argued that customers are more likely to weigh what they lose in service failures heavily than what they gain from service recovery (Kahneman & Tversky, 1979; Smith et al., 1999, Weun et al., 2004). For example, suppose the amount of a loss suffered by a customer and a gain he or she receives from the service recovery is equivalent, the customer will still regard the loss caused by a service failure as larger than the gain. Therefore, magnitude of failure will impact how much a gain should be provided through a service recovery and further impact the customers’
perception of distributive justice.

Previous research suggested that if a customer perceives a failure as severe, it would be more difficult to recover the service failure (Mattila, 1999; Smith & Bolton, 1998; Swanson & Hsu, 2011). According to Sparks and Fredline (2007), if the service failure is more severe, customers’ satisfaction and loyalty will be lower. Moreover, Kelley and Davis (1994) pointed out that magnitude of failure is associated with customers’ switching behavior and WOM behavior, such that customers are more likely to switch companies and have negative WOM when they perceive the service failure as more serious than less serious. Hence, higher magnitude of service failure can lead to lower repurchase intentions.

More importantly, prior research indicated that service failures that are too severe are unlikely to be recovered by any recovery strategies (e.g., Bolton & Drew, 1992; Michel, 2004; Kim & Ulgado, 2012). Therefore, the failures that we investigated in this study are all assumed to be recoverable. That is, neither high magnitude failure nor low magnitude failure is too severe to be compensated from the customers’ perspective.

2.3.2 Causal Attributions in the Marketing Literature

Much previous research has taken causal attributions into consideration when investigating customers’ reactions toward service recovery (e.g., Folkes, 1984; Folkes, Koletsky, & Graham, 1987; Smith & Bolton, 1998; Hess et al., 2003; Choi & Mattila, 2008; Hess Jr, 2008; Iglesias, 2009). This is because that when failures incur, customers tend to search for reasons about why these failures would happen (Folkes, 1984; Bitner, 1990). Both
positive and negative outcomes can activate attribution search. However, since people are more sensitive to negative outcomes, they are more likely to engage in attribution activities when they experience some negative events (Hess Jr, 2008). Thus, in service recovery literature, service failures or product failures are such negative events that will lead customers into causal attribution search.

2.3.2.1 Attribution Theory

From the perspective of attribution theory, consumers are rational information processors who behave under the influence of their causal inferences (Folkes, 1984). According to the categorization system that developed by Weiner (1980), causes are classified into three dimensions: stability, locus and controllability. First of all, stability is concerned with whether the service failure cause is relatively temporary or quite permanent that remaining unchanged. Locus, as the second dimension, addresses the issue of whether the cause of the failure is consumer related or firm related. The last dimension, controllability, deals with the issue whether there can be a choice to avoid the service failure or the failure is forced by some constraints. However, Weiner (2000) proposed another attribution dimension responsibility, which is the combination of locus of causality and controllability. On the one hand, who caused the service failure, namely locus of causality, is an obviously necessary factor to be considered when assigning responsibility of the failure outcome. On the other hand, controllability addresses the issue about how much control the causal party has on the service failure encounter. It is also an important factor to assess the responsibility. As Folkes (1984) found in her study that the two dimensions: locus of causality and controllability had a
high correlation of .94, indicating that these two dimensions are supposed to be highly correlated. Thus, responsibility is determined by locus of causality and controllability (Weiner, 2000; Tsiros, Mittal, & Ross, 2004). Since the dimensions of stability and responsibility are most salient in ordinary service encounters and are most useful to understand customers’ post-consumption behaviors (Weiner, 2000), this study mainly focuses on these two dimensions.

2.3.2.2 The Role of Stability Attribution and Responsibility Attributions

As mentioned above, a stable cause is anticipated to occur frequently while an unstable cause is anticipated to occur infrequently. For example, if a consumer experienced a poor banking service because the bank hired unprofessional employees, he or she would also expect poor banking services in the future. On contrast, if a poor banking service occurred because of an unusual computer system error, the consumer would not significantly expect the future banking services to be poor again. Therefore, consumers perceive that stable causes related failures will be more likely to occur in their future purchase than unstable causes related failures will do (Folkes, 1984; Hess et al., 2003). Previous research in service recovery has illustrated that stability attributions have effects on customers’ affective and behavioral intentions. For example, Smith and Bolton (1998) conducted an experimental design in a restaurant setting and found that customers had less repurchase intentions when a service failure was stable. Besides, prior researchers have shown that stability also affects customers’ compensation preferences (Folkes, 1984) and service recovery satisfaction (e.g., Bitner, 1990; Hess et al., 2003).
Responsibility should also play an important role in how customers evaluate service recovery effort after service failure. Responsibility of the cause can be either the company should be responsible for the failure or the customer should be responsible for the failure. For example, when a customer goes to a hotel in which he or she has already booked a room online before but there is no room available for him or her. If this service failure is due to overbooking, the hotel should be responsible for it since the failure is occurred because the hotel could not provide available room and the hotel could have controlled overbooking by limiting booking amount. If this failure is due to the careless of the customer who has booked a wrong day, the failure is caused by the customer’s fault initially and the cause is under the control of the customer rather than the hotel. Hence, the customer should be responsible for the failure. In terms of the impact of responsibility attribution, it is argued that customers show lower repurchase intentions if the company is responsible for the failure as compared to the company is not responsible for the failure (Grewal et al., 2008). Furthermore, responsibility attribution has been found to influence customers’ emotions such as anger (Weiner, 2000) as well as satisfaction with the service recovery (Choi & Mattila, 2008).

When considering whether the compensation offered is effective or not is rely on whether customers are willing to repurchase from the company after experiencing a service failure. Customers’ willingness to repurchase can be expressed through their repurchase intentions, which is discussed in the next section.
2.4 Repurchase Intentions

To keep current consumers to continue purchasing is a persistent concern for many companies since retaining a customer usually cost greatly less than obtaining a new customer (Spreng, Harrell, & Mackoy, 1995). Repurchase intentions have been viewed as the basis to predict consumers’ future purchasing behaviors (Kuo, Wu, & Deng, 2009). Especially in a service failure context, it is more important for companies to recover service failures to retain customers. According to equity theory, service failures will lead the equal exchange relationship into out of balance. Once customers perceive the exchange relationship to be unequal, their perceptions of justice as well as repurchase intentions will be lower. If a company can provide effective service recovery to customers who experience service failures, those customers’ low repurchase intentions can be restored. Previous research has suggested that using a fair manner to respond to service failures, companies can retain customers’ retentions (Blodgett et al., 1994; Seider & Berry, 1998; Maxham, 2001). Which means that effective service recovery will maintain customers’ repurchase intentions even through service failures happens initially (Maxham, 2001). Therefore, in this study we will look at the mechanism behind the relationship between compensation and customers’ repurchase decisions.

2.5 Summary of Research Gaps

Previous researchers have studied the effect of compensation on customers’ reactions toward service recovery (such as service recovery satisfaction and repurchase intention) based on different service failure-related attributes. As Grewal et al. (2008) examined the
interacted influence of stability and responsibility on the relationship between compensation and customers’ repurchase intentions, they didn’t investigate the effectiveness of compensation in scenarios with different magnitude of failure. Since magnitude of failure has drawn a lot of researchers’ attention in the service recovery literature (Smith et al., 1999; Weun et al., 2004; Kim & Ulgado, 2012; Roggeveen et al., 2012), it is useful to study how magnitude of failure has an impact on the relationship between compensation and customers’ repurchase intention. By including both magnitude of failure and causal attributions (stability and locus of responsibility) into the same model, this study may contribute to illustrating how compensation, magnitude of failure, and causal attributions (stability and locus of responsibility) jointly influence customers’ repurchase decisions.

Moreover, when choosing to provide compensation to customers in order to recover the service failure, companies also need to decide how much compensation should be offered or what level of compensation amount should be effective to retain customers’ repurchase intention after the failure. However, less previous research has focused on quantifying compensation. More specifically, to quantify compensation means to answer a question such as “how much compensation will be required in order to recover a severe failure (magnitude of failure is high) vs. a less severe failure (magnitude of failure is low)?” For example, if the air company provides each customer with $200 as a compensation for 3 hours’ delay, and this amount is sufficient to retain or enhance customers’ repurchase intention, the impact of offering $200 to compensate for cancellation of the flight may not be as effective as that of offering $200 for 3 hours’ delay. Because in this case, flight delay is a peripheral feature
related failure since the air company will still fly customers to the destination they have booked on the same day. Whereas, cancelling flight means that customers cannot acquire the service (flying to a place on a specific day) they have purchased. Hence, it is a core feature related failure, magnitude of which is considered as high. According to previous research that customers tend to require different compensation levels based on the severity of the failure or magnitude of failure (Smith et al., 1999). For the current example, when customers experience a service failure such as flight cancellation, the air company has to provide more than $200 as compensation in order to maintain or enhance customers’ repurchase intention after the failure. Since different service failure scenarios have different attributes such as magnitude of failure, stability of failure, and locus of responsibility for the failure, it is important for companies to figure out each appropriate compensation amount that corresponding to each failure scenario. Thus, to quantify compensation is useful and helpful for managers to design effective service recovery strategies.

In this study, we will use the Marginal rate of substitution (MRS) to help quantify compensation amount for different failure scenarios. In economics, the marginal rate of substitution is the rate at which a customer is willing to give up one good in order to get another good while maintaining his or her utility. For most discrete choice models, the ratio of any two estimated coefficients stands for people’s willingness to obtain more amount of one attribute at the cost of giving up some of another attribute (Ryan, Gerard, & Amaya-Amaya, 2007). Namely, the ratio of any two estimated coefficients is the marginal rate of substitution between the two attributes (Hensher & Johnson, 1981). To apply the
marginal rate of substitution to the service recovery context, we want to know how much compensation amount a customer is willing to accept to put up with a failure attribute such as a stable failure, while maintaining the same level of repurchase likelihood. By using discrete choice analysis (DCA) model to quantify compensation amount that customers acquired to recover the service failure, this study may also contribute to identifying how much compensation amount is needed to retain or increase repurchase likelihood in different service failure scenarios with three failure attributes: stability, locus of responsibility and magnitude of failure.
CHAPTER 3: CONCEPTUAL FRAMEWORK AND HYPOTHESES

3.1 Interaction of Compensation, Magnitude of Failure and Causal Attributions

According to social exchange and equity theories, service failures would break the balanced exchange relationship between a service provider and a customer, in which customers mainly use money to exchange for products or services. Once the failure happens, customers would face a loss caused by the failure and expect to receive compensation from the service provider to regain the former balance. However, whether compensation is effective or not depends on the magnitude of failure and failure causes attributions.

As Grewal et al. (2008) found that compensation leads to higher customers’ repurchase intentions when the failure is stable, whereas compensation has no such impact when the failure is unstable. Because when the failure cause is unstable, customers tend to be less likely to doubt whether the exchange relationship is equitable or not (Seiders & Berry, 1998), and the need of offering extra compensation to restore equitable customer-company exchange relationship is reduced (Bitner, 1990; Widmier & Jackson, 2002) since simply fixing the problem is enough to cover the loss that customers experience in the service failure; when customers attribute the failure cause to be stable, they tend to view this condition as lack of equity (Blodgett et al., 1994), and extra compensation is required to help restore equity, which can further enhances repurchase intentions (Grewal et al., 2008).

In addition to stability this causal attribution, magnitude of failure may also influence customers’ perception of equitable exchange relationship. In particularly, when magnitude of failure is high, customers will perceive more losses (Weun et al., 2004) and anticipate companies to compensate their loss. Compared to a failure that occurs frequently, a failure that occurs infrequently will not lead customers to doubt whether the exchange relationship is
equitable or not (Seiders & Berry, 1998) and to request more compensation. Thus, based on the findings that Grewal and his colleagues (2008) found, it was expected that when magnitude of failure is high, customers would require less compensation for an unstable failure to retain their repurchase decisions than they would do for a stable failure. Whereas when magnitude of failure is low, both low compensation and high compensation would be able to meet customers’ lower expectations for the service recovery (Kim & Ulgado, 2012) due to the trivial loss perceived by customers (Weun et al., 2004) regardless of stability. In other words, when magnitude of failure is high, the impact of high compensation on customers’ repurchase decisions for an unstable failure is expected to be greater than it is for a stable failure.

In terms of locus of responsibility, if it is not company’s responsibility for the service failure, customers will view this condition as lack of equity (Blodgett et al., 1994) and anticipate companies to offer more compensation to restore equitable exchange relationship. Since when the company is not responsible for the failure, customers tend to be less likely to perceive inequity in the exchange relationship (Seiders & Berry, 1998), and extra compensation is not necessary (Grewal et al., 2008). Namely, the fact that the company is not responsible for the failure will reduce customers’ need or demand of extra compensation. Similarly, the interaction of compensation, magnitude of failure and locus of responsibility may also exist. When magnitude of failure is high, customers will still anticipate companies to compensate their loss to restore equitable exchange relationship even though the fact that company is not responsible for the service failure per se will not lead customers to doubt whether the exchange relationship is equitable or not (Seiders & Berry, 1998). On contrast,
when magnitude of failure is low, it is more likely that customers are willing to accept and forgive the service failure if the company is not responsible for it than if the company is responsible for it. Thus, it is expected that high compensation may result in higher repurchase likelihood compared to low compensation when the company is not responsible for the failure and magnitude of failure is low than when the company is responsible for the failure and magnitude of failure.

3.2 Hypotheses

Therefore, we hypothesized that:

H1*: A three-way interaction of compensation, stability, and magnitude of failure exists, such that:

For a high magnitude service failure, high compensation will lead to higher customers’ repurchase likelihood when the failure is unstable (it happens infrequently) than when the failure is stable (it happens frequently).

*H1a: in the airline context; H1b: in the hotel context.

H2*: A three-way interaction of compensation, locus of responsibility, and magnitude of failure exists, such that:

For a low magnitude service failure, high compensation will lead to higher customers’ repurchase likelihood when the company is not responsible for the failure than when the company is responsible for the failure.

*H2a: in the airline context; H2b: in the hotel context;
In this research study, two experiments were conducted to test the following Moderated-Moderation Models (figure 1 and figure 2):

**Figure 1:** Moderated-Moderation model 1

- Magnitude of Failure (high/low)
- Stability (stable/unstable)

**Figure 2:** Moderated-Moderation model 2

- Magnitude of Failure (high/low)
- Locus of Responsibility (responsible/not responsible)

Compensation (high/low) → Repurchase Decision

Compensation (high/low) → Repurchase Decision
CHAPTER 4: RESEARCH METHODOLOGY

This section outlines the research methods that used to test the previous hypotheses. Firstly, we discuss the type of study conducted. Next, we discuss participants and sample size. Then, we explain data collection plan, and detailed procedures of experimental studies. Finally, we describe data analysis plan.

4.1. Type of Study

This research used Discrete Choice Experiment (DCE) method to investigate customers’ repurchase decisions in two experimental studies with different service settings. A scenario-based experimental research approach was also employed in these two studies. For details description of this methodology and applications, see Noseworthy, Finlay, & Islam (2010); Noseworthy, Wang, & Islam (2012); Eckert, Louviere, & Islam (2012); Czoli, Goniewicz, Islam, Kotnowski, & Hammond (2015); Kotnowski, Fong, Gallopol-Morvan, Islam, & Hammond (2016). This approach not only can alleviate observation of service failure and recovery difficulties, but also can reduce ethical considerations due to exposing customers to service failures intentionally. When compared to retrospective self-reports, scenarios are able to decrease biases caused by memory lapses, consistency elements and rationalization trend. For example, using retrospective self-reports approach to examine customers’ responses to a particular service failure seems to be unrepresentative since what kind of experience that customers would like to report is uncontrollable and these customers may not be able to represent the total customer’s population. Moreover, researchers can collect various customer responses to service recovery through experimental scenarios. It is
proposed that customers’ ratings of service recovery are highly correlated with customers’ ratings of repurchase intentions (Smith & Bolton, 1998). Therefore, using experimental scenarios is a good way to avoid potential problems.

In addition, both study 1 and study 2 used 2x2x2x2 within-subject design to examine the interaction effect of magnitude of failure, causal attributions and compensation. More specifically, participants were asked to make trade-offs between compensation and three service failure attributes: magnitude of failure, stability and locus of responsibility in DCE preference choice sets.

Two different service contexts were chosen to test the hypothesis in this research: hotels (study 1) and airlines (study 2). These two industries were selected because generally they are familiar to customers including the student sample, and researchers and managers who are interested in customer loyalty (Boulding, Kalra, Staelin & Zeithaml, 1993) have frequently used these two industries in studies (Smith & Bolton, 1998; Grewal et al., 2008). Additionally, it is common to see or to hear service failures in both industries in our real life since the quality of hotels varies from one to another (Boulding et al., 1993; Hoffman, Kelley & Rotalsky, 1995) and it is common to see flight delays in the airport (Grewal et al., 2008). Hence, to be in line with the previous literature (e.g., Smith et al, 1999; Grewal et al., 2008; Kim & Ulgado, 2012), hotels and airlines these two service settings were selected.

There is one service failure scenario in each service context (See Appendix A). However, the specific service failure information is different depend on the four attributes:
magnitude of failure, stability, locus of responsibility, and compensation amount. A high magnitude of failure is regarded as high degree of severity whereas a low magnitude failure is regarded as low degree of severity. Stability indicates failure frequency, namely whether this failure occurs frequently or infrequently. Locus of responsibility means failure responsibility: whether it is the company’s responsibility for the failure or not. Previous research indicated that service failures that are too severe are unlikely to be recovered using any recovery strategies (e.g., Bolton & Drew, 1992; Michel, 2004; Kim & Ulgado, 2012). Therefore, it is necessary to make sure that neither high magnitude failure nor low magnitude failure is too severe to be compensated from the customers’ perspectives. Another issue is that prior research also suggested that the presence of other service recovery attributes such as response speed and apology can influence the effect of compensation on customers’ evaluations and behaviors (Wirtz & Mattila, 2004; Hocutt et al., 2006; Noone, 2012). Therefore, it is assumed that in all failure scenarios the service provider responds quickly and offers an apology as well as an explanation after a service failure occurs. In that way, we could test the hypotheses without the influence of other service recovery attributes.

Both hotel service failure scenarios and airline service failure scenarios in the DCE consisted of four attributes. The four attributes were classified into one service recovery attribute and three service failure attributes. These attributes’ levels were chosen based on the service failure and service recovery literature. As summarized in Table 1, magnitude of failure has two levels: high and low, previous research designed different scenarios to embody high magnitude of failure and low magnitude of failure (Smith et al., 1999; Smith &
Bolton, 1998; Kim & Ulgado, 2012). In addition, stability and locus of responsibility these two attributes are normally divided into two levels each: stable or unstable and the company is responsible for the failure or the company is not responsible for the failure. Prior research that had included these two attributes mainly presented their levels by informing the participants whether the failure occurred frequently or not, and whether the company was responsible for the failure or not, respectively (Grewal et al., 2008; Vázquez-Casielles, Iglesias, & Varela-Neira, 2012). As for the attribute of compensation level, in the hotel context, it was set based on the original money value of the room charge, mainly using the form of discount. Some of the researchers used three different compensation levels, such as Smith and his colleagues (high/medium/none), and some used only two levels, such as Kim & Ulgado (2012) (20% discount off/none) and McColl-Kennedy et al., (50% discount off/none). As we can see that many articles used room overbooking as high magnitude of failure (e.g., Smith et al. 1999; Noone, 2012), however, whether high compensation levels is necessary to be offered to the customer to recover the failure may depend on the quality of the new arranged hotel. For example, if the customer is arranged to another hotel with higher quality, he or she may not regard overbooking as a failure. Namely, compensation may need not to be provided because the higher quality hotel is enough to cover the overbooking failure itself. To avoid the potential problem of the overbooking failure scenario, in this research, we set “booking record missing, need to wait until system recovers” as high magnitude of failure because waiting hour is unknown under this circumstance, and “room unready, need to wait for 2 hours” as low magnitude of failure because it is common for customers to wait sometime for their room nowadays in the hotel context. Hence, the two compensation
amounts we chose are $100 (equals to 50% off the room charge) and $20 (equals to 10% off the room charge) if we set one night room charge as $200 in the scenario. Moreover in the airline context, both Grewal et al., (2008) and Vázquez-Casielles et al., (2012) set it into two levels under one of which was “none compensation”. But for the other one level, one article used “50% off coupon” while the other one article used “20% of the tourist package in cash”. In order to be consistent with the hotel context, we also use $100 (equals to 50% off the flight charge) and $20 (equals to 10% off the flight charge) as two compensation amounts if we set the domestic flight ticket price as $200 in the scenario.

Table 1: Summary of Attributes Levels in Literature

<table>
<thead>
<tr>
<th>Study</th>
<th>service failure setting</th>
<th>Failure scenarios</th>
<th>Magnitude of failure</th>
<th>Compensation</th>
<th>Stability</th>
<th>Locus of responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith et al., 1999</td>
<td>Hotel</td>
<td>1. overbooking</td>
<td>high</td>
<td>high (100% discount off)</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. wrong room</td>
<td></td>
<td>medium (50%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. room uncleaned</td>
<td></td>
<td>none</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smith &amp; Bolton, 1998</td>
<td>Hotel</td>
<td>1. overbooking</td>
<td>high</td>
<td>high (100% discount off)</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. room uncleaned</td>
<td></td>
<td>medium (50%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kim &amp; Ulgado, 2012</td>
<td>Hotel</td>
<td>1. room unready</td>
<td>high</td>
<td>20% discount off</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>beyond official check-in time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. lack of towel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonne, 2012</td>
<td>Hotel</td>
<td>overbooking</td>
<td>50% off</td>
<td></td>
<td>100% off</td>
<td></td>
</tr>
<tr>
<td>McColl-Kennedy, Daus, &amp; Sparks, 2003</td>
<td>Hotel</td>
<td>1. service complaint</td>
<td>50% discount off</td>
<td></td>
<td>none</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. inappropriatel e charge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vázquez-Casielles et al., 2012</td>
<td>airline</td>
<td>flight cancellation</td>
<td>20% of the tourist package in cash</td>
<td>none</td>
<td>stable</td>
<td>unstable</td>
</tr>
<tr>
<td>Grewal et al., 2008</td>
<td>airline</td>
<td>flight cancellation</td>
<td>50% off coupon</td>
<td>none</td>
<td>stable</td>
<td>unstable</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Therefore, the specific four attributes levels we chose for the hotel service failure scenario were shown in table 2: level 1 indicates high magnitude of failure/the service failure is stable/the hotel is responsible for the failure/the hotel provides $100 as compensation for the failure; level 2 indicates low magnitude of failure/ the service failure is unstable/the hotel is not responsible for the failure/the hotel provides $20 as compensation for the failure. Similarly, in terms of the airline service failure scenario, the specific four attributes levels are presented in the following table 3.

**Table 2: Different Attributes of Service Failures---Hotel**

<table>
<thead>
<tr>
<th>Service failure attributes</th>
<th>Level 1</th>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnitude of failure</td>
<td>Booking record missing, wait until system recovers</td>
<td>Room unready, wait for 2 hrs</td>
</tr>
<tr>
<td>Stability</td>
<td>Reviews show it occurs frequently</td>
<td>Reviews show it occurs infrequently</td>
</tr>
<tr>
<td>Locus of responsibility</td>
<td>Hotel computer system bug</td>
<td>An external computer hacking</td>
</tr>
<tr>
<td>Compensation</td>
<td>$100</td>
<td>$20</td>
</tr>
</tbody>
</table>

**Table 3: Different Attributes of Service Failures---Airline**

<table>
<thead>
<tr>
<th>Service failure attributes</th>
<th>Level 1</th>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnitude of failure</td>
<td>Fight overbooked, rebooked to fly <strong>6hrs later</strong></td>
<td>Flight overbooked, rebooked to fly <strong>2hrs later</strong></td>
</tr>
<tr>
<td>Stability</td>
<td>Reviews show it occurs frequently</td>
<td>Reviews show it occurs infrequently</td>
</tr>
<tr>
<td>Locus of responsibility</td>
<td>Airline lacks overbooking regulation</td>
<td>Third-part agents' oversold tickets</td>
</tr>
<tr>
<td>Compensation</td>
<td>$100</td>
<td>$20</td>
</tr>
</tbody>
</table>
Thus, for each service context, we designed DCE with four attributes each has 2 levels, that is 24 full profiles (16). Then we used Balance Incomplete Block Design (BIBD) to allocate these 16 profiles into 20 choice sets. Thus, after reading each scenario in each service context, every participant will face 20 choice sets, each choice set consists of 4 options. Participants have to make decisions for each choice set. The underlying mechanism of DCE is that every participant will face a choice set and he or she has to make trade-offs among different attributes of the service context and try to maximize their preference by choosing the options that would make “Least Negative Impact” in subsequent booking in the same hotel/airline” and “Most Negative Impact” in subsequent booking in the same hotel/airline”.

4.2 Participants and Sample Size

Undergraduate students from the Marketing and Consumer Studies department at University of Guelph were recruited to participate in this study with the ethics approval via the Research Ethics Board. The research pool of Marketing and Consumer Studies department provided them a platform to participate into research studies by posting an announcement both in SONA website and their course link. Students who chose to participate in this study were compensated for two credits as research component in a marketing course they were registered. There were no restrictions in terms of age, gender, or educational level. This study was conducted in the computer lab such that each participant had an individual computer to complete the study.
The required sample size for this study is based on the following formula that is adopted from Hensher, Rose, and Greene (2005). We use this formula to calculate the number of participants under each condition of each experimental study:

\[ n \geq \frac{z^2 q}{rp\alpha^2} \]

Note: \( n \) is the number of participants required for each condition; \( p \) is the choice share of a brand; \( q \) is equal to \( 1 - p \); \( r \) is the number of the choice sets; \( \alpha \) is the allowable margin of error (namely, percentage of choice share).

Assuming:

- \( z = 1.96 \) (95% confidence level)
- \( p = 0.25 \) (this study has 4 option situations, therefore \( p = 0.25 \))
- \( q = 1 - p = 1 - 0.25 = 0.75 \) (that is unselected choice share of the alternatives)
- \( r = 20 \)
- \( \alpha = 0.1 \) (margin of error 10% of \( p \))

Thus,

\[ n \geq \frac{1.96^2 \times 0.75}{20 \times 0.25 \times 0.1^2} = 57.624 \]

Therefore, 58 participants are required at least. Thus, according to DCE sample calculations, study 1 needs at least 57 participants and study 2 also needs at least 57 participants. Totally, 114 participants are required at least.
4. 3 Data Collection Methods

Qualtrics software was used to design online survey as well as collect all data. With the help of this software, we not only can effectively design a survey and collect data, but also can randomly assign participants into different conditions of the experiment.

Study 1 as well as study 2 tested whether a interaction effect of among magnitude of failure, stability (or locus of responsibility) and compensation exists but in different context. In particular, we expected that when magnitude of failure is high, high compensation will lead to higher customers’ repurchase likelihood if the cause of failure is unstable (it happens infrequently) than if the cause of failure is stable (it happens frequently), whereas when magnitude of failure is low, compensation level will have no effect on repurchase decisions regardless of the failure’s stability. Also, when magnitude of failure is low, high compensation will lead to higher customers’ repurchase likelihood if the company is not responsible for the failure than if the company is responsible for the failure, whereas when magnitude of failure is high, compensation level will have no effect on repurchase decisions regardless of the responsibility of the failure. Accordingly, all participants were asked to sign the consent form first. After that, the following steps were proceeded:

Step 1: participants were asked to read a hypothetical scenario either in a hotel context (Study 1) or in an airline context (Study 2).

Step2: after reading the scenario, participants were asked to complete a DCE preference choice set consists of 4 options each (See Appendix D&E).

Step3: At last, participants were asked to answer some demographic questions.
4.4 Procedures

Undergraduate students in Marketing and Consumer Studies department at University of Guelph were recruited through SONA system. In order to encourage students to participate and express appreciation for their participation, students who chose to participate in this study would receive course credits as compensation for their contribution.

Both study 1 and study 2 were conducted in a computer lab. When participants entered into the computer lab, they were informed that they would complete an online survey for a research study at Marketing and Consumer Studies department and that their responses would be kept confidentially and anonymously. Before they answered the online survey, all participants were asked to sign a consent form indicating that they were willing to participate in this study. The length of the study was approximately 20 minutes.

Basically, study 1 and study 2 were based on an identical research design, but with a few wording modifications in accordance to different contexts. In each study, there was a service failure scenario in a specific context for participants to read. After finishing reading the scenario, they were asked to complete the online survey. Also, both studies used identical online survey format. Participants read the instructions for the survey (See Appendix B&C for the instructions for both hotel context and airline context, respectively) before starting it. The main survey consisted of 20 choice set questions, each composed of 4 options. These four options were provided with respect to four attributes (one service recovery attribute and three service failure attributes), reflecting different levels of attributes. Those 20 choice set
questions were randomly presented to each participant. For each choice set, participants were asked to read each options carefully and choose “Which of the four service failure would make Least Negative Impact in subsequent booking in the same hotel/airline?” and “Which of the four service failure would make Most Negative Impact in subsequent booking in the same hotel/airline?” At the end of the study, each participant was asked to complete a brief questionnaire about his or her demographic information, such as age, gender and year of study.

4.5 Data Analysis Plan

With respect to H1 and H2, the interaction effects of magnitude of failure, causal attributions and compensation on customers’ repurchase decisions were analyzed. The dependent variable in both two studies is the repurchase decision choices. We used SPSS to calculate customers’ preference for trading off recovery attributes for failure attributes when analyzing the DCE data. Table 4 provides a summary for the effect coding.

**Table 4: Summary of the effect coding values**

<table>
<thead>
<tr>
<th>The Attributes</th>
<th>The coding for hotel context</th>
<th>The coding for airline context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compensation level</td>
<td>1</td>
<td>Compensation level</td>
</tr>
<tr>
<td></td>
<td>-1</td>
<td>$100</td>
</tr>
<tr>
<td>Magnitude of failure</td>
<td>$20</td>
<td>Magnitude of failure</td>
</tr>
<tr>
<td>Stability</td>
<td>high</td>
<td>Stability</td>
</tr>
<tr>
<td></td>
<td>low</td>
<td>unstable</td>
</tr>
<tr>
<td>Locus of responsibility</td>
<td>stable</td>
<td>Locus of responsibility</td>
</tr>
<tr>
<td></td>
<td>unstable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 5: RESEARCH RESULTS

5.1 Study 1

The main objectives of this study were to, first, explore the interaction between magnitude of failure, stability (or locus of responsibility) and compensation on customers’ repurchase decisions after the service failure, and then to quantify the compensation amount that would be effective to retain customers’ repurchase decisions. We conducted this study in the airline context. Discrete Choice Experiment (DCE) was used to test how customers made trade-off decisions in different service failure conditions. We used SPSS software to analyze the DCE data and for descriptives.

5.1.1 Participants and Sample Characteristics

A total of one hundred and thirty four University of Guelph students were recruited as participants in this study in exchange for course credits. Six kinds of social-demographic data were collected: gender, age, year of study, continent that comes from, frequency of hotel booking, and monthly expense. The socio-demographic characteristics of the students sampled are reported in Table 5. 46.3% of the students that participated in this study were male, 52.2% were female, and the rest 1.5% chose “other”. Most of the participants were 18-24 years old, which is 95.5%. Only 2.2% were under 18 years old and the rest 2.3% were 25 years or older. First year students as well as second year students occupied 63.4% and 28.4% respectively, followed by third year (1.5%), fourth year (3.0%), and fifth year or higher (3.7%). In terms of continent that students come from, 86.6% students were North American or European; while 11.2% were Asian and 2.2% were African. In addition, 51.5%
students indicated that they take planes frequently, and 48.5% students chose infrequently. As for the monthly expense, 52.2% participants have monthly expense less than $1000, 36.6% participants have between $1000 and $2000, and only 6.7% of them have monthly expense between $2000 and $2500, and 4.5% have more than $2500.

Table 5: Summary of the Social-demographic Characteristics in Study 1

<table>
<thead>
<tr>
<th>Socio-demographics</th>
<th>%</th>
<th>Socio-demographics</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>46.3</td>
<td>Age (years)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>52.2</td>
<td>&lt;18</td>
<td>2.2</td>
</tr>
<tr>
<td>Other</td>
<td>1.5</td>
<td>18-24</td>
<td>95.5</td>
</tr>
<tr>
<td>Monthly expense</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $1000</td>
<td>52.2</td>
<td>Year of school</td>
<td></td>
</tr>
<tr>
<td>$1000-$2000</td>
<td>36.6</td>
<td>1st year</td>
<td>63.4</td>
</tr>
<tr>
<td>$2000-$2500</td>
<td>6.7</td>
<td>2nd year</td>
<td>28.4</td>
</tr>
<tr>
<td>More than $2500</td>
<td>4.5</td>
<td>3rd year</td>
<td>1.5</td>
</tr>
<tr>
<td>Continent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Africa</td>
<td>2.2</td>
<td>4th year</td>
<td>3.0</td>
</tr>
<tr>
<td>Asia</td>
<td>11.2</td>
<td>Other</td>
<td>1.5</td>
</tr>
<tr>
<td>Europe</td>
<td>4.5</td>
<td>Flying frequency</td>
<td></td>
</tr>
<tr>
<td>North America</td>
<td>82.1</td>
<td>Frequently</td>
<td>51.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Infrequently</td>
<td>48.5</td>
</tr>
</tbody>
</table>

5.1.2 Main Effects

This section explains the main effects of the four attributes (magnitude of failure, stability, locus of responsibility and compensation) that were examined for the repurchase decisions of airline tickets after the service failure. The estimates of moderated moderation model for these four attributes are summarized in table 6.
Table 6: Study 1 Summary of Main Effects

<table>
<thead>
<tr>
<th>Attributes</th>
<th>β</th>
<th>S.E.</th>
<th>P-value</th>
<th>RI*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnitude of failure_high (Reference=low)</td>
<td>-0.733</td>
<td>0.026</td>
<td>0.001</td>
<td>42.35%</td>
</tr>
<tr>
<td>Stability_stable (Reference=unstable)</td>
<td>-0.397</td>
<td>0.025</td>
<td>0.001</td>
<td>22.93%</td>
</tr>
<tr>
<td>Locus of responsibility_responsible</td>
<td>-0.174</td>
<td>0.024</td>
<td>0.001</td>
<td>10.05%</td>
</tr>
<tr>
<td>Compensation_$100 (Reference=$20)</td>
<td>0.427</td>
<td>0.025</td>
<td>0.001</td>
<td>24.67%</td>
</tr>
</tbody>
</table>

*RI= Relative Importance

The results showed that magnitude of failure (high, reference=low), stability (stable, reference=unstable), locus of responsibility (company is responsible for the failure, reference=company is not responsible for the failure) and level of compensation ($100, reference=$20) are all statistically significant (p<0.001) and all play important roles in customers’ repurchase decisions after service failure. More specifically, participants exhibited lower repurchase likelihood when the magnitude of service failure is high (β=-0.733, p<0.001), when the service failure occurs frequently (β=-0.397, p<0.001), and when the company is responsible for that service failure (β=-0.174, p<0.001). In terms of the causal attributions, both stability and locus of responsibility have negative effects on customers’ repurchase decisions, however, participants showed higher repurchase likelihood when the company is responsible for the failure compared to when the failure is stable. Regarding the service recovery-related attribute, participants show higher repurchase likelihood when high compensation amount ($100, β=0.427, p<0.001) are provided as service
recovery. Moreover, the relative importance results (Louviere & Islam, 2008) indicate that magnitude of failure is the most important service failure-related attribute that participants care about, with a relative importance of 42.35%, and level of compensation and stability get the second and third highest relative importance among all the attributes respectively (RI\textsubscript{compensation}=24.67\%, RI\textsubscript{stability}=22.93\%).

5.1.3 Two-way Interaction Effect Findings

This section explains how magnitude of failure/causal attribution (stability or locus of responsibility), interact with compensation on customers’ repurchase likelihood. The two-way interaction effects were estimated and summarized in the following table 7.

<table>
<thead>
<tr>
<th>Table 7: Study 1 Summary of Two-way Interaction Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attributes</strong></td>
</tr>
<tr>
<td><strong>Main Effects</strong></td>
</tr>
<tr>
<td>Magnitude of failure_high (Reference=low)</td>
</tr>
<tr>
<td>Stability_stable (Reference=unstable)</td>
</tr>
<tr>
<td>Locus of responsibility_responsible (Reference=not responsible)</td>
</tr>
<tr>
<td>Compensation_$100 (Reference=$20)</td>
</tr>
<tr>
<td><strong>2-way Interaction Effects</strong></td>
</tr>
<tr>
<td>Magnitude of failure x Compensation</td>
</tr>
<tr>
<td>Stability x Compensation</td>
</tr>
<tr>
<td>Locus of responsibility x Compensation</td>
</tr>
</tbody>
</table>

\*RI= Relative Importance

The results clearly showed that the interaction effects of “Magnitude of failure x
Compensation” (β=-0.161, p<0.001) as well as “Locus of responsibility x Compensation” (β=-0.065, p<0.05) on repurchasing airline tickets from the same airline company was significant, and the relative importance (RI) of these two two-way interactions are 8.69% and 3.51% respectively. However, the results did not show a significant two-way interaction of “Stability x Compensation” (β=-0.026, p>0.05).

5.1.4 Three-way Interaction Findings

This section explains the three-way interaction effects among magnitude of failure, causal attribution (stability or locus of responsibility), and compensation. The estimated results are summarized in table 8.

**Table 8: Study 1 Summary of Three-way Interaction Effects**

<table>
<thead>
<tr>
<th>Hs</th>
<th>Attributes</th>
<th>β</th>
<th>S.E.</th>
<th>P value</th>
<th>*RI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1a</td>
<td>Magnitude of failure_high</td>
<td>-0.689</td>
<td>0.026</td>
<td>0.001</td>
<td>37.06%</td>
</tr>
<tr>
<td></td>
<td>(Reference=low)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1a</td>
<td>Stability_stable</td>
<td>-0.367</td>
<td>0.027</td>
<td>0.001</td>
<td>19.74%</td>
</tr>
<tr>
<td></td>
<td>(Reference=unstable)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1a</td>
<td>Locus of responsibility_responsible</td>
<td>-0.174</td>
<td>0.027</td>
<td>0.001</td>
<td>9.36%</td>
</tr>
<tr>
<td></td>
<td>(Reference=not responsible)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1a</td>
<td>Compensation_$100</td>
<td>0.368</td>
<td>0.028</td>
<td>0.001</td>
<td>19.80%</td>
</tr>
<tr>
<td></td>
<td>(Reference=$20)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3-way Interaction Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H2a</td>
<td>Magnitude of failure x Compensation x Stability</td>
<td>-0.047</td>
<td>0.027</td>
<td>0.08</td>
<td>2.53%</td>
</tr>
<tr>
<td>H2a</td>
<td>Magnitude of failure x Compensation x Locus of responsibility</td>
<td>0.051</td>
<td>0.026</td>
<td>0.05</td>
<td>2.74%</td>
</tr>
</tbody>
</table>

*RI= Relative Importance
Supporting evidence was found for both H1a and H2a. Specifically, the interaction of Magnitude of failure (high vs. reference=low) x Stability (stable vs. reference=unstable) x Compensation ($100 vs. reference=$20), was marginally significant ($\beta=-0.047$, $p=0.08$). And the interaction of Magnitude of failure, Locus of responsibility (responsible vs. reference=not responsible) and Compensation was significant ($\beta=0.051$, $p=0.05$) (see Table 7).

In addition, the relative importance (RI) number of Magnitude of failure x Stability x Compensation is about 2.53% while that of Magnitude of failure x Locus of responsibility x Compensation is about 2.74%. Besides, both two three-way interactions’ estimated coefficients showed the correct signs, that is, when magnitude of failure is high, compared to low compensation ($20), high compensation ($100) tends to lead to higher customers’ repurchase likelihood for an unstable failure (it occurs infrequently) than it is for a stable failure (it occurs frequently). In other words, for a high magnitude failure, the relative effect on customers’ repurchase decisions between high level of compensation ($100) and low level of compensation ($20) is greater when the service failure is unstable (it occurs infrequently) than when the service failure is stable (it occurs frequently) (see Figure 3). Comparably, for a low magnitude failure, the relative effect on customers’ repurchase decisions between high level of compensation ($100) and low level of compensation ($20) is greater when the company is not responsible for the service failure than it is when the company is responsible for the service failure (see Figure 4).
Figure 3: Study 1 Hypothesis 1a Findings

Figure 4: Study 1 Hypothesis 2a Findings
5.1.5 Marginal rates of substitution (MRS)

This section illustrates the trade-offs between one service recovery attribute: compensation, and three service failure attributes: magnitude of failure, stability and locus of responsibility. The calculated results are summarized in table 9. We used the following formula to calculate MRS: 

\[ MRS = \frac{\beta_1}{\beta_{\text{compensation}}} \]

(Note: \( \beta_{\text{compensation}} = \frac{n_{\text{high}} - n_{\text{low}}}{\text{high compensation} - \text{low compensation}} \times \frac{0.369 - (-0.369)}{100 - 20} = 0.0092 \))

<table>
<thead>
<tr>
<th>Attributes</th>
<th>( \beta )</th>
<th>MRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnitude of failure_high (Reference=low)</td>
<td>-0.689</td>
<td>149.78</td>
</tr>
<tr>
<td>Stability_stable (Reference=unstable)</td>
<td>-0.367</td>
<td>79.78</td>
</tr>
<tr>
<td>Locus of responsibility_responsible (Reference=not responsible)</td>
<td>-0.174</td>
<td>37.83</td>
</tr>
</tbody>
</table>

Note: all \( \beta \) values are from Table 8.

The results show that high magnitude failure requests higher compensation amount by customers when compared to a stable failure or a failure that the company is responsible for. It means that when a service failure happens, magnitude of failure matters most to customers and then they consider about the cause of the failure. In particularly, customers are willing to accept a compensation amount of $149.78 to put up with a failure that is high magnitude compared to a failure that is low magnitude while maintaining the same level of their repurchase likelihood. As for stability, customers are willing to accept a compensation amount of $79.78 to put up with a stable failure compared to an unstable failure.
amount of $79.78 to put up with a failure that is stable compared to a failure that is unstable while maintaining the same level of their repurchase likelihood. Similarly, customers are willing to accept a compensation amount of $37.83 to put up with a failure that the company is responsible for compared to a failure that the company is not responsible for while maintaining the same level of their repurchase likelihood.

5.1.6 Discussion

The results of Study 1 provide significant support for the hypothesis H2a that magnitude of failure moderates the moderation effect of locus of responsibility on the relationship between compensation and customers’ repurchase decisions, such that for a low magnitude service failure, high compensation will lead to higher customers’ repurchase likelihood when the company is not responsible for the failure than when the company is responsible for the failure. Although the results showed a moderately rather than statistically significant interaction effect of compensation, stability, and magnitude of failure, H1a is still supported, such that for a high magnitude service failure, high compensation will lead to higher customers’ repurchase likelihood when the failure is unstable (it happens infrequently) than when the failure is stable (it happens frequently). It may result from the insignificant two-way interaction of stability and compensation. Nevertheless, three-way interaction effects are always difficult to capture. If the sample size is larger, the results may show a significant interaction as H1a stated. Regarding MRS results, it shows that not in all high magnitude of failure conditions MRS is high, it also depends on whether the company is responsible for the failure or not. For example, if the company is not responsible for the failure, even though it is
high magnitude, the compensation amount that a customer is willing to accept to put up with this high magnitude failure is lower than it is when the company is responsible for the failure. Furthermore, it is indicated that among magnitude of failure and two causes of service failure (stability and locus of responsibility), customers request lowest compensation amount to put up with a failure that the company is responsible for, compared to a failure that the company is not responsible for. However, in the real life, when people attribute failure causes, they seem to care more about whether the company is responsible for the failure than whether the failure will occur again or not. The possible reason for this result is that the two levels of locus of responsibility we used in this study: “Airline lacks overbooking regulation” and “Third-part agents' oversold tickets”, may be perceived as the same fault of airline company by some participants since it is airline company who authorizes third-party agents to sell flight tickets. Therefore, these two levels may confuse some participants and then influence the final results.
5.2 Study 2

With the same objectives as study 1, we conducted this second study in the hotel context. Discrete Choice Experiment (DCE) was also used to test how customers made trade-off decisions in different service failure conditions. We used SPSS software to analyze the DCE data and for descriptives.

5.2.1 Participants and Sample Characteristics

A total of one hundred and twenty five University of Guelph students were recruited as participants in this study in exchange for course credits, and one hundred and seven of them completed the survey in the end. Six kinds of social-demographic data were collected: gender, age, year of study, continent that comes from, frequency of hotel booking, and monthly expense. The socio-demographic characteristics of the students sampled are reported in Table 10. 43% of the students that participated in this study were male, 56.1% were female, and the rest 0.9% chose “other”. Most of the participants were 18-24 years old, which is 97.2%. Only 0.9% of participants were under 18 years old and 1.9% of them were 25 years or older. First year students as well as second year students occupied 65.4% and 24.3% respectively, followed by third year (3.7%), fourth year (1.9%), and fifth year or higher (4.7%). In terms of continent that students come from, 80.4% students were North American or European, while 15% were Asian. In addition, 21.5% students indicated that they book hotels frequently, and 78.5% students chose infrequently. As for the monthly expense, 55.1% participants have monthly expense less than $1000, 37.4% participants have between $1000 and $2000, and only 5.6% of them have monthly expense between $2000 and $2500, and 1.9%
have more than $2500.

**Table 10: Summary of the Social-demographic Characteristics in Study 2**

<table>
<thead>
<tr>
<th>Socio-demographics</th>
<th>%</th>
<th>Socio-demographics</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td><strong>Monthly expense</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>43.0</td>
<td>Less than $1000</td>
<td>55.1</td>
</tr>
<tr>
<td>Female</td>
<td>56.1</td>
<td>$1000-$2000</td>
<td>37.4</td>
</tr>
<tr>
<td>Other</td>
<td>0.9</td>
<td>$2000-$2500</td>
<td>5.6</td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;18</td>
<td>0.9</td>
<td>More than $2500</td>
<td>1.9</td>
</tr>
<tr>
<td>18-24</td>
<td>97.2</td>
<td>Continent</td>
<td>2.8</td>
</tr>
<tr>
<td>25 or more</td>
<td>1.9</td>
<td>Asia</td>
<td>15.0</td>
</tr>
<tr>
<td><strong>Year of school</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st year</td>
<td>65.4</td>
<td>Europe</td>
<td>2.8</td>
</tr>
<tr>
<td>2nd year</td>
<td>24.3</td>
<td>North America</td>
<td>77.6</td>
</tr>
<tr>
<td>3rd year</td>
<td>3.7</td>
<td>South America</td>
<td>1.9</td>
</tr>
<tr>
<td>4th year</td>
<td>1.9</td>
<td>Flying frequency</td>
<td>21.5</td>
</tr>
<tr>
<td>5th year or higher</td>
<td>4.7</td>
<td>Infrequently</td>
<td>78.5</td>
</tr>
</tbody>
</table>

**5.2.2 Main Effects**

This section explains the main effects of the four attributes that were examined for the repurchase decisions of airline tickets after the service failure. These four attributes were divided into three service failure-related attributes and one service recovery-related attribute. The service failure-related attributes are magnitude of failure, stability and locus of responsibility. The service recovery-related attribute is compensation. The estimates of moderated moderation model for these four attributes are summarized in table 11.
Table 11: Study 2 Summary of Main Effects

<table>
<thead>
<tr>
<th>Attributes</th>
<th>β</th>
<th>S.E.</th>
<th>P-value</th>
<th>RI*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnitude of failure_high (Reference=low)</td>
<td>-0.287</td>
<td>0.026</td>
<td>0.001</td>
<td>19.11%</td>
</tr>
<tr>
<td>Stability_stable (Reference=unstable)</td>
<td>-0.538</td>
<td>0.028</td>
<td>0.001</td>
<td>35.82%</td>
</tr>
<tr>
<td>Locus of responsibility_responsible (Reference=not responsible)</td>
<td>-0.018</td>
<td>0.027</td>
<td>0.512</td>
<td>1.20%</td>
</tr>
<tr>
<td>Compensation_$100 (Reference=$20)</td>
<td>0.659</td>
<td>0.029</td>
<td>0.001</td>
<td>43.87%</td>
</tr>
</tbody>
</table>

*RI= Relative Importance

The results showed that magnitude of failure (high, reference=low), stability (stable, reference=unstable) and level of compensation ($100, reference=$20) are all statistically significant (p<0.001) and all play important roles in customers’ repurchase decisions after service failure. More specifically, participants exhibited lower repurchase likelihood when the magnitude of service failure is high (β=-0.287, p<0.001), and when the service failure occurs frequently (β=-0.538, p<0.001). However, locus of responsibility is not significant (β=-0.018, p>0.05). Even so, between “company is responsible for the failure” and “company is not responsible for the failure”, participants showed lower repurchase likelihood if the company is responsible for the failure (β=-0.018, p>0.05). In terms of the service recovery-related attribute, participants show higher repurchase likelihood when high compensation amount ($100, β=0.659, p<0.001) are provided as service recovery. Moreover, the relative importance measures (Louviere & Islam, 2008) show that compensation is the most important attribute that participants care about, with a relative importance of 43.87%,
while stability and magnitude of failure get the second and third highest relative importance among all the attributes respectively (RI_Stability =35.82%, RI_Magnitude of failure =19.11%).

5.2.3 Two-way Interaction Effect Findings

This section explains how magnitude of failure/causal attribution (stability or locus of responsibility), interact with compensation on customers’ repurchase likelihood. The two-way interaction effects were estimated and summarized in the following table 12.

Table 12: Study 2 Summary of Two-way Interaction Effects

<table>
<thead>
<tr>
<th>Attributes</th>
<th>β</th>
<th>S.E.</th>
<th>P-value</th>
<th>RI*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnitude of failure_high (Reference=low)</td>
<td>-0.273</td>
<td>0.028</td>
<td>0.000</td>
<td>17.51%</td>
</tr>
<tr>
<td>Stability_stable (Reference=unstable)</td>
<td>-0.530</td>
<td>0.030</td>
<td>0.000</td>
<td>34.00%</td>
</tr>
<tr>
<td>Locus of responsibility_responsible (Reference=not responsible)</td>
<td>-0.019</td>
<td>0.030</td>
<td>0.525</td>
<td>1.22%</td>
</tr>
<tr>
<td>Compensation_$100 (Reference=$20)</td>
<td>0.665</td>
<td>0.031</td>
<td>0.000</td>
<td>42.66%</td>
</tr>
<tr>
<td>2-way Interaction Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnitude of failure x Compensation</td>
<td>-0.025</td>
<td>0.031</td>
<td>0.419</td>
<td>1.60%</td>
</tr>
<tr>
<td>Stability x Compensation</td>
<td>-0.009</td>
<td>0.029</td>
<td>0.751</td>
<td>0.58%</td>
</tr>
<tr>
<td>Locus of responsibility x Compensation</td>
<td>-0.038</td>
<td>0.030</td>
<td>0.200</td>
<td>2.44%</td>
</tr>
</tbody>
</table>

*RI= Relative Importance

The results show that all the two-way interactions: “Magnitude of failure x Compensation”(β=-0.025, p>0.05), “Stability x Compensation” (β=-0.009, p>0.05) and
“Locus of responsibility x Compensation” ($\beta=-0.038$, $p>0.05$) were not significant in the hotel context. Besides, the relative importance (RI) of these three two-way interactions was 1.60%, 0.58% and 2.44% respectively.

### 5.2.4 Three-way Interaction Findings

This section explains the three-way interaction effects among magnitude of failure, causal attribution (stability or locus of responsibility), and compensation. The estimated results are summarized in table 13.

#### Table 13: Study 2 Summary of Three-way Interaction Effects

<table>
<thead>
<tr>
<th>Hs</th>
<th>Attributes</th>
<th>$\beta$</th>
<th>S.E.</th>
<th>P value</th>
<th>*RI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main Effects</strong></td>
<td>Magnitude of failure_high (Reference=low)</td>
<td>-0.260</td>
<td>0.029</td>
<td>0.000</td>
<td>15.90%</td>
</tr>
<tr>
<td></td>
<td>Stability_stable (Reference=unstable)</td>
<td>-0.524</td>
<td>0.030</td>
<td>0.000</td>
<td>32.05%</td>
</tr>
<tr>
<td></td>
<td>Locus of responsibility_responsible (Reference=not responsible)</td>
<td>-0.027</td>
<td>0.031</td>
<td>0.371</td>
<td>1.65%</td>
</tr>
<tr>
<td></td>
<td>Compensation_$100 (Reference=$20)</td>
<td>0.666</td>
<td>0.031</td>
<td>0.000</td>
<td>40.73%</td>
</tr>
<tr>
<td><strong>3-way Interaction Effects</strong></td>
<td>Magnitude of failure x Compensation x Stability</td>
<td>-0.056</td>
<td>0.030</td>
<td>0.060</td>
<td>3.43%</td>
</tr>
<tr>
<td>H2a</td>
<td>Magnitude of failure x Compensation x Locus of responsibility</td>
<td>0.077</td>
<td>0.028</td>
<td>0.007</td>
<td>4.71%</td>
</tr>
</tbody>
</table>

*RI= Relative Importance
Supporting evidence was also found for both H1b and H2b. Specifically, the interaction of Magnitude of failure (high vs. reference=low) x Stability (stable vs. reference=unstable) x Compensation ($100 vs. reference=$20) was marginally significant ($\beta$=-0.056, $p=0.06$). And the interaction of Magnitude of failure, Locus of responsibility (responsible vs. reference=not responsible) and Compensation was significant ($\beta$=0.077, $p=0.007$) (see Table 13).

Moreover, the relative importance (RI) number of Magnitude of failure x Stability x Compensation is about 3.43% while that of Magnitude of failure x Locus of responsibility x Compensation is about 4.71%. Additionally, both two three-way interactions’ estimated coefficients have the correct directions, that is when magnitude of failure is high, compared to low compensation ($20), high compensation ($100) tends to lead to higher customers’ repurchase likelihood for an unstable failure (it occurs infrequently) than it is for a stable failure (it occurs frequently). In other words, for a high magnitude failure, the relative effect on customers’ repurchase decisions between high level of compensation ($100) and low level of compensation ($20) is greater when the service failure is unstable (it occurs infrequently) than when the service failure is stable (it occurs frequently) (see Figure 5). Similarly, for a low magnitude failure, the relative effect on customers’ repurchase decisions between high level of compensation ($100) and low level of compensation ($20) is greater when the company is not responsible for the service failure than it is when the company is responsible for the service failure (see Figure 6).
Figure 5: Study 2 Hypothesis 1b Findings

Figure 6: Study 2 Hypothesis 2b Findings
5.2.5 Marginal Rates of Substitution (MRS)

This section illustrates the trade-offs between one service recovery attribute: compensation, and three service failure attributes: magnitude of failure, stability and locus of responsibility. The calculated results are summarized in table 14. We used the following formula to calculate MRS: \( \text{MRS} = \frac{\beta_1}{\beta_{\text{compensation}}} \)

(Note: \( \beta_{\text{compensation}} = \frac{\beta_{\text{high}} - \beta_{\text{low}}}{\text{high compensation} - \text{low compensation}} = \frac{0.666 - (-0.666)}{100 - 20} = 0.0166 \))

Table 14: Study 2 Summary of MRS

<table>
<thead>
<tr>
<th>Attributes</th>
<th>( \beta )</th>
<th>MRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnitude of failure_high</td>
<td>-0.260</td>
<td>31.23</td>
</tr>
<tr>
<td>(Reference=low)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stability_stable</td>
<td>-0.524</td>
<td>62.94</td>
</tr>
<tr>
<td>(Reference=unstable)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locus of responsibility_responsible</td>
<td>-0.027</td>
<td>3.24</td>
</tr>
<tr>
<td>(Reference=not responsible)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: all \( \beta \) values are from Table 13.

The results show that stability of the failure requests higher compensation amount by customers when compared to a high magnitude failure or a failure that the company is responsible for. It means that when a service failure happens, whether a failure occurs frequently or not matters most for a customer and then they consider about magnitude of failure and responsibility attribution. In particularly, customers are willing to accept a compensation amount of $31.23 to put up with a failure that is high magnitude compared to a failure that is low magnitude while maintaining the same level of their repurchase likelihood. As for stability, customers are willing to accept a compensation amount of $62.94 to put up
with a failure that is stable compared to a failure that is unstable while maintaining the same level of their repurchase likelihood. Similarly, customers are willing to accept a compensation amount of $3.24 to put up with a failure that the company is responsible for compared to a failure that the company is not responsible for while maintaining the same level of their repurchase likelihood.

5.2.6 Discussion

We also found a significant interaction effect of compensation, locus of responsibility, and magnitude of failure, such that for a low magnitude service failure, high compensation will lead to higher customers’ repurchase likelihood when the company is not responsible for the failure than when the company is responsible for the failure. Besides, the results showed a moderately significant interaction effect of compensation, stability, and magnitude of failure. Thus, both H1b and H2b are supported in Study 2. More importantly, in Study 2, locus of responsibility is not significant. One possible reason for that could be the levels of locus of responsibility used in the scenario. The two selected levels for locus of responsibility are: “hotel computer system bug” and “external computer hacking”. It is likely that participants regard these two reasons as one same reason, which is computer problem. Hence, the impact of locus of responsibility may be influenced. Moreover, the MRS results showed that it is stability not magnitude of failure that matters most to customers when a service failure happens. The reason why Study 2 found a less relative important role of magnitude of failure than Study 1 did may because of the selected two levels of magnitude of failure, too. Specifically, we used “Booking record missing, wait until system recovers” as high
magnitude of failure and “Room unready, wait for 2 hours” as low magnitude of failure to describe different magnitude of failure in the hotel failure scenario. Some participants might be positive and regard “wait until system recovers” as less than 2 hours, while others might be negative and regard it as more than 2 hours. Thus, different expectations of the waiting time for high magnitude failure may influence the impact of magnitude of failure.

In conclusion, this research found that magnitude of failure and causal attributions (stability and locus of responsibility) together influence the effectiveness of compensation on customers’ repurchase decisions after service failures. In other words, this research expanded on previous studies by demonstrating that the interaction effects of magnitude of failure, stability (locus of responsibility) and compensation on customers’ repurchase decisions after the service failure, such that for a high (low) magnitude service failure, high compensation will lead to higher customers’ repurchase likelihood when the failure is unstable (when the company is not responsible for the failure) than when the failure is stable (when the company is responsible for the failure). Regarding quantifying compensation, this research found that in both contexts participants tend to show more tolerance for low magnitude failure or a failure that infrequently happens or a failure that the company is not responsible for than high magnitude failure or a failure that frequently happens or a failure that the company is responsible for, and thus they require lower compensation amount for the latter ones. More importantly, the results reveal that not in all high magnitude of failure conditions MRS is high, it also depends on whether it is the company’s responsibility for the failure or not.
CHAPTER 6: GENERAL DISCUSSIONS

This research study provides insight on the effectiveness of compensation on customers’ repurchase decisions in different service failure conditions. Two experimental studies were conducted in airline context and hotel context respectively to investigate how magnitude of failure and causal attributions: stability and locus of responsibility, together influence the impact of compensation on customers’ repurchase decisions after service failures. It also provided better understanding about how customers make trade-off decisions between service failure-related attributes (magnitude of failure, stability and locus of responsibility) and compensation. The following paragraphs consist of a summary of the theoretical and managerial contributions of this research study as well as the limitations and possible future research directions.

6.1 Contributions

6.1.1 Theoretical Contributions

Previous research has found that different service failure-related factors would influence the impact of compensation on customers’ reactions toward service recovery, such as magnitude of failure, involvement and causal attributions (Smith et al., 1999; Weun et al., 2004; Grewal et al., 2008; Kim & Ulgado, 2012; Roggeveen, Tsiros, & Grewal, 2012). In terms of the impact of compensation on customers’ repurchase intentions, on the one hand, Smith et al. (1999) found that when magnitude of failure is low, compensation would lead customers to perceive higher distributive justice than it is when magnitude of failure is high. Since prior research showed a consistent result that customers’ perceived distributive justice
positively influences their repurchase intentions, we can expect that compensation would also lead to a higher customers’ repurchase likelihood when magnitude of failure is low than it is when magnitude of failure is high. On the other hand, Grewal et al. (2008) indicated that when the failure is stable, compensation results in higher repurchase intentions but compensation has no such impact when the failure is unstable. However, there is a gap about how compensation affects customers’ repurchase intentions after service failures when different service failure-related factors are taken into consideration. Therefore, there could exist some interaction effects among service failure-related attributes and compensation. Magnitude of failure, stability and locus of responsibility were tested in this research as three service failure-related attributes.

The current research aims to gain a more comprehensive understanding about the effectiveness of compensation on customers’ repurchase decisions in different service failure conditions. More specifically, by using Discrete Choice Experiment (DCE) methodology, both two studies illustrated how high/low magnitude of failure interact with stable/unstable failure or the fact that the company is responsible for the failure/ the fact that the company is not responsible for the failure and then influence the effect of compensation on customers’ repurchase decisions. In other words, both two studies examined how customers made tradeoffs between service failure-related attributes and compensation. As a result, Study 1 and Study 2 both provided support for the interaction effects of magnitude of failure, stability/locus of responsibility and compensation. Therefore, this research study sheds light on the effectiveness of compensation on customers’ repurchase decisions after service failure
by incorporating both magnitude of failure and causal attributions (stability and locus of responsibility).

6.1.2 Managerial Contributions

This research provides the following useful implications for managers to recover service failures effectively using compensation. Because the two compensation levels (low and high) we used in the two experimental studies equals to 10% and 50% of the original money values of the product/service respectively, all the following suggestions are based on these two levels. Thus, low compensation refers to compensation amount that equals to 10% of the product/service’s money value while high compensation refers to compensation amount that equals to 50% of the product/service’s money value. Firstly, when it is a low magnitude failure, managers can explain to customers in detail about service failure causes if the company is not responsible for the failure to reduce their perceived inequity and expected compensation amount. At this time, managers can provide low compensation instead of high compensation to save service recovery cost, since low compensation is enough to maintain or even increase customers’ repurchase likelihood after the failure. Similarly, when it is a low magnitude failure, managers can emphasize the frequency of the service failure when explaining to customers if the failure occurs infrequently to reduce their perceived inequity. Thus, customers tend not to anticipate too much compensation and low compensation can lead to higher repurchase likelihood after service failures. Moreover, for high magnitude failures, managers can decide whether to offer higher compensation amount (more than 50% of the original product/services values) based on whether the company is responsible for the
failure or not. In particularly, managers could save service recovery cost by providing not very high compensation (around 50%) when the company is not responsible for the failure, whereas when the company is responsible for the failure, managers need to offer higher compensation amount in order to make compensation effective. By doing so, customers are willing to accept compensation amount to retain or even increase their repurchase likelihood.

6.2 Limitations and Future Research

The paper has several limitations that could provide some ideas for future research. First and foremost is the student sample, which may not be representative enough of the general population. Furthermore, university students may not have many opportunities of staying in hotels or traveling by plane. Thus, they are less likely to encounter service failures in the hotel or airline context. Future research could use other participants who are more representative of the entire population.

In addition, all the findings are based on studies in two different contexts. Airline and hotel industries were selected as the service failure contexts because it is common to see or to hear service failures in these two industries in our real life and they are the most commonly used industries in previous studies in the service failure and recovery literature. However, it does not mean that these two contexts are the most suitable and perfect contexts. Future research could conduct experimental studies in other industries and test the generalization of the findings.
Moreover, both two studies used experimental scenarios but were not field studies. People may behave differently in hypothetical scenarios compared to real scenarios. Future research could conduct field experimental studies so that they could capture customers’ most real reactions toward service failure and get more insights about the findings. This study can be further extended to investigate consumer segments (see Bateman, Louviere, Thorp, Islam, & Satchell, 2010; Burke, Burton, Huybers, Islam, Louviere, & Wise, 2010; Marley & Islam, 2012; Meade & Islam, 2010) in the context of service failure.

Finally, this research study only focused on two service failure-related factors (that are, magnitude of failure and causal attributions) and did not look at any possible mediation effects. Future research could explore the mechanisms behind why compensation is effective to enhance customers’ repurchase likelihood in some conditions but not in other conditions.


APPENDICES

Appendix A: Service Failure Scenarios

1. In the airline context:

Imagine that you bought a domestic flight ticket ($200) for vacation. When you arrived at the airport, you were informed that your flight was overbooked and you couldn’t get on this flight. But the airline agent assures you that you would be able to take the next flight, which would depart in a few hours. The airline staff apologized for this service failure sincerely.

Like you, other travellers have also reported this type of service failure with different airlines. But the severity and other aspects of the service failure may vary.

2. In the hotel context:

Imagine that you were on a trip with your friend and you booked a room ($200) in a hotel online. You arrived at the hotel at 3:30pm with an expectation to get into your room right away (the hotel policy says that guests are guaranteed to check in any time after 3pm everyday). Unfortunately, you were told at the front desk that they couldn’t give you the room key at the moment and you had to wait at the hallway for a further notice. The hotel staff apologized for this service failure sincerely.

Like you, others travellers have also reported this type of service failure with different hotels. But the reasons for, the severity and other aspects of the service failure may vary.
Appendix B: Instructions for Airline Context

In the following part, you will be provided with a service failure scenario in the airline context. After reading the scenario, there are 20 choice set questions, each consists of 4 different options described by the following attributes and their levels. Please imagine these are the only options available to you and then indicate:

1) Which of the four service failure would make Least Negative Impact in subsequent booking in the same airline?
2) Which of the four service failure would make Most Negative Impact in subsequent booking in the same airline?

These are the attributes:
1) Severity of Service Failure: what is the failure and how severe it is
2) Failure Frequency: whether the failure occurs frequently or not
3) Failure Cause: the failure occurs due to what reasons
4) Compensation Amount for Failure: the amount of money that company provides as compensation
Appendix C: Instructions for Hotel Context

In the following part, you will be provided with a service failure scenario in the hotel context. After reading the scenario, there are 20 choice set questions, each consists of 4 different options described by the following attributes and their levels. Please imagine these are the only options available to you and then indicate:

1) Which of the four service failure would make Least Negative Impact in subsequent booking in the same hotel? 
2) Which of the four service failure would make Most Negative Impact in subsequent booking in the same hotel? 

These are the attributes:
1) Severity of Service Failure: what is the failure and how severe it is
2) Failure Frequency: whether the failure occurs frequently or not
3) Failure Cause: the failure occurs due to what reasons
4) Compensation Amount for Failure: the amount of money that company provides as compensation
**Appendix D: Sample Choice Set Question---Airline**

Please think seriously about the following failure and recovery related options, and answer the questions below.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
<th>Option 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity of Service Failure</td>
<td>Fight overbooked, take next flight 2hrs later</td>
<td>Fight overbooked, take next flight 6hrs later</td>
<td>Fight overbooked, take next flight 6hrs later</td>
<td>Fight overbooked, take next flight 2hrs later</td>
</tr>
<tr>
<td>Failure Frequency</td>
<td>Reviews show it occurs infrequently</td>
<td>Reviews show it occurs frequently</td>
<td>Reviews show it occurs frequently</td>
<td>Reviews show it occurs frequently</td>
</tr>
<tr>
<td>Failure Cause</td>
<td>Third party oversold tickets</td>
<td>Third party oversold tickets</td>
<td>Airline lacks overbooking regulation</td>
<td>Airline lacks overbooking regulation</td>
</tr>
<tr>
<td>Compensation Amount for Failure</td>
<td>$100</td>
<td>$100</td>
<td>$20</td>
<td>$20</td>
</tr>
</tbody>
</table>

Which of the four service failure would make **Least Negative Impact** in subsequent booking in the same airline?

Which of the four service failure would make **Most Negative Impact** in subsequent booking in the same airline?
## Appendix E: Sample Choice Set Question—Hotel

Please think seriously about the following failure and recovery related options, and answer the questions below.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
<th>Option 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity of Service Failure</td>
<td>Booking record missing, wait until system recovers</td>
<td>Booking record missing, wait until system recovers</td>
<td>Due to computer failure, room will be ready in 2hrs</td>
<td>Due to computer failure, room will be ready in 2hrs</td>
</tr>
<tr>
<td>Failure Frequency</td>
<td>Reviews show it occurs frequently</td>
<td>Reviews show it occurs infrequently</td>
<td>Reviews show it occurs frequently</td>
<td>Reviews show it occurs frequently</td>
</tr>
<tr>
<td>Failure Cause</td>
<td>External computer hacking</td>
<td>External computer hacking</td>
<td>Hotel computer system bug</td>
<td>Hotel computer system bug</td>
</tr>
<tr>
<td>Compensation Amount for Failure</td>
<td>$20</td>
<td>$20</td>
<td>$20</td>
<td>$100</td>
</tr>
</tbody>
</table>

Which of the four service failure would make **Least Negative Impact** in subsequent booking in the same hotel? 

Which of the four service failure would make **Most Negative Impact** in subsequent booking in the same hotel?