

# Frustration and Anger Mitigation After Service Failure: The Effect of Other Consumer's Explanation and Employee's Explanation on Frustration and Anger After the Service Failure

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**Purpose:** Based on the attribution and appraisal theories of emotion, this study investigates whether a consumer's frustration and anger after a service failure reduces in different ways after hearing explanations from different sources (other customer vs employee vs none) under different blame attribution circumstances (situational vs service provider), and its subsequent influence on complaining intention.

**Methods:** In Study 1, valid data from 239 participants (46.9% female,  $M_{age}=35.6$  years) were used to test the interaction effect of the explanation source and blame attribution on frustration and anger. In Study 2, using valid answers from 253 students at Korea University (57.9% female,  $M_{age}=20.9$  years), Study 1 was replicated and, in addition, tested the moderated mediating impact on complaining intention. The overall theoretical model was tested with ANOVA and Hayes process model 8.

**Results:** When blame attribution was situational, the employee's explanation did not mitigate either frustration or anger, whereas the other customer's explanation mitigated frustration but not anger. In contrast, when blame attribution was towards the service provider, the employee's explanation mitigated both frustration and anger, whereas the other customer's explanation mitigated only frustration. In addition, the mitigation of frustration and anger by other customers subsequently led to a decrease in complaining intention, which was stronger and only significant when blame attribution was situational. However, only anger acted as a mediator between the employee's explanation and complaining intention, which did not vary according to blame attribution.

**Conclusion:** The results of the study advance the current knowledge on informational support as a service recovery process by suggesting the crucial role of other consumers in mitigating the target customer's frustration, especially under situational service failure, which successively leads to a decrease in complaining intention, whereas the employee's explanation decreases complaining intention only through the mitigation of anger.

**Keywords:** service recovery, other consumer's explanation, employee's explanation, frustration, anger

## Introduction

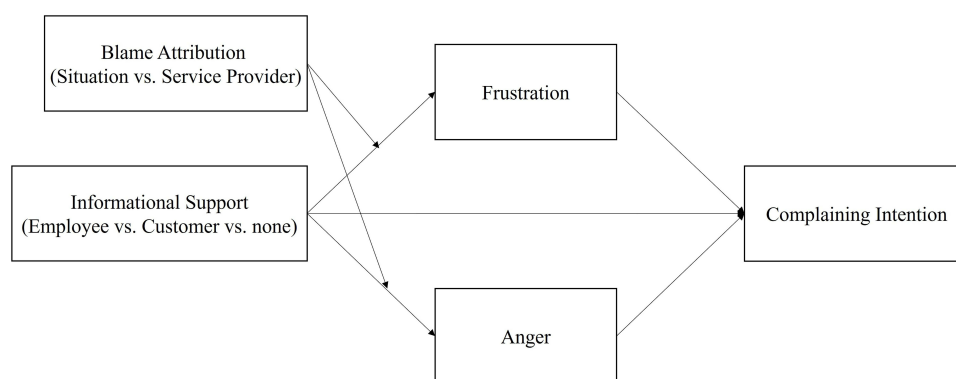
After a service failure, consumers experience negative emotions such as frustration and anger,<sup>1,2</sup> which, in turn, may have an impact on coping responses such as complaining intention.<sup>3,4</sup> Recently, a server breakdown occurred on a major online messenger platform, KakaoTalk, in South Korea. Since 45.6 million people out of a population of 52 million use the KakaoTalk application to communicate, shop, and do ride-hailing, this server outage resulted in millions of angry and frustrated consumers.<sup>5</sup> After the immense service failure, some people expressed their anger directly to Kakao as a complaint and Kakao made a public apology for service disruptions and promised the immediate restoration of full services. Some other app users shared their frustrating experiences on various online forums (eg, Twitter, Instagram) and other app users replied to their comments by giving information about updates on the current situation or recommending temporary messengers to use as alternatives to Kakao messenger.

Frustration and anger are two distinct and dominant emotions that arise from service failure. According to the attribution and appraisal theories of emotion, frustration is usually evoked when customers blame situational factors, whereas anger is elicited when customers blame the service provider.<sup>1</sup> Mitigation of pre-complaining emotional responses such as frustration and anger is crucial since it is known to have an impact on complaining intention and the harm caused to the firm–customer relationship.<sup>3</sup>

Thus, service recovery is necessary after a service failure because it mitigates customers' negative emotions (ie, frustration and anger) and helps to maintain positive relationships with them.<sup>4,6</sup> Service recovery through monetary compensation or informational support (ie, explanation) is generally regarded as the employee's duty.<sup>4,7</sup> However, with the advent of and increase in internet and online applications usage, customers encounter not only the employees but also millions of others (ie, digital influencers, other customers) who have the potential to influence their decision-making process.<sup>8–11</sup> For instance, after a service failure, customers sometimes share their disappointing experience on online forums (eg, Reddit, Quora, Final thoughts) and other customers reply to their comments and answer their questions. As such, because consumers nowadays are regarded as a “transient employees” in service industries,<sup>12</sup> they can have a potential influence on other consumers in terms of the service recovery process. Despite their potential impact, consumers having an influence on the other consumers in terms of the service recovery process have received relatively little attention and the current service recovery literature mostly focuses on the informational support and monetary support provided by employees as a service recovery process.<sup>4</sup> Moreover, most previous research on the service recovery process has been conducted by employees in the travel and hospitality sector.<sup>13,14</sup>

In terms of filling this gap and considering the potential for consumers to have an influence on other customers, we additionally consider other customers' explanations as a service recovery source and compare the effect of explanation from the employees and the other customers on the target customer's frustration and anger under different blame attribution circumstances, and its subsequent influence on complaining intention (Figure 1), particularly in the context of an online service failure. Specifically, we start by addressing two important objectives: 1) to examine whether frustration and anger mitigate differently after hearing explanations from different sources (other customer vs employee vs none) depending on distinct blame attribution situations (situational vs service provider); and 2) to investigate whether this mitigation of negative emotions by different sources under distinct blame attribution situations subsequently leads to a decrease in complaining intention in different ways.

This study makes several novel theoretical contributions. First, drawing on the attribution and appraisal theories of emotion, this study provides insights into the effective service recovery process which mitigate negative emotions resulting from the service failure depending on who the consumers are blaming for the problem. Throughout the study, we investigate the moderating effect of blame attribution (situational vs service provider) and explanation source (other customer vs employee vs none) on negative emotions that arise from the service failure (ie, frustration and anger) and determine which explanation source is more effective in reducing negative emotions. Second, this study contributes to the customer citizenship behavior (CCB) and service recovery literature by examining the mitigating effect of another



**Figure 1** Research framework.

**Notes:** The details of the moderated mediation model are depicted in Figures 7 and 8.

customer's explanation on the frustration and anger of the target consumer (who experienced the service failure), which has subsequent effects on their complaining intention. A previous study investigated the crucial role of an employee's explanation in terms of mitigating the consumer's anger, which had a successive influence on complaining intention,<sup>4</sup> but the point of view in terms of service recovery in this study additionally examines the other consumer's explanation as voluntary assistance and provides a solution to reduce not only the target customer's anger but also their frustration. Lastly, from a practical perspective, this research provides managerial guidelines for firms engaging in online services to effectively manage service failures by training their internal employees as well as securing their loyal customers (as external employees performing CCB).

## Theoretical Background

### Consumers' Emotional Response After Service Failure

Service failure is known to be detrimental to firms because it usually results in negative coping responses such as negative word of mouth (nWOM), switching providers, and complaining intention or behavior.<sup>3,15</sup> However, service failure does not directly lead to these negative coping strategies. Instead, after the service failure, consumers usually experience various kinds of negative emotions as a response, which further foster coping responses such as complaining behavior or nWOM.<sup>3,4,15</sup> Among the various kinds of negative emotions (ie, anger, regret, frustration, helplessness, etc) that are evoked among consumers after the service failure, the most dominant emotional responses are known to be anger and frustration.<sup>1,2</sup> Appraisal theorists argue that anger usually occurs when customers blame the service provider, whereas frustration is evoked when customers blame situational factors.<sup>1</sup> In other words, depending on who consumers are blaming for the service failure, different emotional responses are evoked. Hence, in the next section, we investigate each of the emotions that are evoked after a service failure separately in accordance with blame attribution.

#### Frustration After Service Failure

According to the attribution and appraisal theories of emotion, frustration tends to occur when people attribute a goal-incongruent event (ie, service failure) to situational factors, blaming no particular person.<sup>1</sup> Because the situation seems uncontrollable and there is no one to blame for a service failure that occurs owing to a situational factor, people feel frustrated about the situation rather than angry towards the service provider. For instance, suppose that a person booked a flight for a trip online and that person received a flight cancellation email due to bad weather; the consumer cannot blame the airline representatives for the canceled flight because they could not have controlled for the bad weather. Instead, consumers would be frustrated about the uncontrollable situation that their flights are delayed due to the bad weather, rather than feeling angry towards the airline representatives.

#### Anger After Service Failure

Anger, which is considered one of the dominant reactions to service failure, occurs when people blame someone else (ie, service failure) for an adverse event.<sup>16</sup> Drawing on the appraisal theories of emotion, research shows that consumers feel anger more than frustration when the blame attribution is towards the service provider compared to when the blame attribution is situational, because the service provider should have been able to control the adverse event.<sup>1</sup> For instance, in a case where a consumer ordered his food through a delivery application but did not get the food he ordered because the restaurant employee placed a wrong order, the consumer would blame the service provider (ie, the restaurant employee) and feel angry towards them. In this case, consumers would feel angry towards the employee who placed the wrong order rather than frustrated about the situation, because there is a person who provided the reason for the service failure and that person could have controlled for the situation.

### Explanation as Service Recovery

As service failure evokes negative pre-complaining emotional responses such as frustration and anger, which we have discussed previously, the service recovery process, with the aim of mitigating such negative emotions, is imperative because it could otherwise have a subsequent detrimental impact on the firm through customer dissatisfaction and complaining intention.<sup>3</sup> Informational support (ie, explanation) as a service recovery strategy, which refers to providing

information as an explanation to help deal with the problem,<sup>17</sup> is known to reduce negative emotions derived from service failure.<sup>7</sup> Although this service recovery process by informational support is usually performed by the firm's employees,<sup>4</sup> consumers nowadays are regarded as transient employees who can potentially perform this role as well.<sup>12</sup> Thus, we aim to examine and compare the mitigating impact of explanations from different sources (ie, other customer and employee) on negative emotions after the service failure (frustration and anger) under different blame attribution circumstances (situational vs service provider), and introduce our hypotheses in next section.

## Mitigation of Frustration After the Explanation

### Mitigation of Frustration Under Situational Service Failure

Mitigation of frustration is known to be a difficult task for employees when consumers blame the situation for the service failure, because people recognize the employees' inability to change the situation.<sup>4</sup> However, the biggest question is that if this task (ie, service recovery process by explanation) were performed by other customers instead of the employees under situational service failure, would the target customer's frustration be mitigated? Nowadays, along with the firm's employees, customers are regarded as transient employees when they sometimes voluntarily help other consumers by offering an explanation for the service failure situation currently facing the target consumer. This assistance is categorized as CCB, which is defined as being a partial employee of the company by performing a voluntary extra role that is not required for the successful service outcome.<sup>18</sup> According to a previous study, interaction with someone who is emotionally similar can cushion individuals from heightened stress.<sup>19</sup> We believe that this emotional buffer will be intensive for customers experiencing frustration under situational service failure. For instance, when another consumer offer an explanation to the target customer, based on a similar past experience (ie, why the situation happened and that the company could not avoid it), even though the other customer's explanation does not practically change or improve the situation, it will mitigate the target customer's frustration because interaction with someone who is emotionally similar can buffer individuals from increased stress. Hence, we propose that the other customer's explanation will reduce the target customer's frustration under situational service failure, thus providing a service that employees could not perform. We believe that employees cannot perform this same role because they do not share emotional similarity with the target customer, especially when blaming situational sources. Thus, we propose the following hypotheses:

Hypothesis 1: Blame attribution (situational vs service provider) moderates the relationship between explanation source (other customer vs employee vs none) and frustration.

Hypothesis 1a: When blame attribution is situational, the employee's explanation does not mitigate frustration, but the other customer's explanation will mitigate frustration.

### Mitigation of Frustration Under External Service Failure

Even though the target customer's frustration level is lower under external service failure (ie, when blame attribution is towards the service provider) compared to situational service failure, this does not mean that they do not feel any frustration at all.<sup>4</sup> Frustration is defined as the feeling of being upset and annoyed owing to an inability to achieve something, which is known as a milder form of anger.<sup>20</sup> Hence, even though the intensity of frustration is more trivial than anger under external service failure compared to situational service failure, consumers feel frustration to some point. Prior research shows that under external service failure, because the blame is towards the service provider, customers want to hear an explanation from the employees.<sup>4</sup> Thus, we propose that when customers hear an explanation from the employees under external service failure, frustration, which is a milder form of anger, will be reduced to some degree. One should note from this that frustration will be mitigated after receiving an explanation from the employees only under external service failure because consumers want to hear an explanation from the service provider to relieve their negative emotions under such conditions. On the other hand, when the other customers offer an explanation to the target customer under external service failure, the target customer's frustration will be reduced, because customers share emotional similarity with each other, which will buffer negative emotions.<sup>19</sup> Hence, we postulate the following hypothesis:

Hypothesis 1b: When blame attribution is towards the service provider/external, the employee's explanation as well as the other customer's explanation will mitigate frustration.

## Mitigation of Anger After the Explanation

### Mitigation of Anger Under Situational Service Failure

We further propose that the employee's explanation as well as the other customer's explanation cannot mitigate anger when it comes to consumers blaming the situation for the service failure. We have posited previously that it will be a difficult task for employees to mitigate the target customer's negative emotions because consumers recognize that the situational service failure is beyond anyone's control. In a similar vein, we postulate that the mitigation of frustration as well as anger is especially difficult for the employees under situational service failure because people realize that the employees cannot improve or fix such uncontrollable situations. Also, we posit the other customer's explanation will not reduce anger significantly under situational service failure owing to the attribution of blame. According to the attribution and appraisal theories of emotion, consumers feel frustration more than anger when they blame the service failure on the situation compared to when the blame attribution is towards the service provider.<sup>1</sup> Because consumers are more frustrated with an unfixable situation rather than angry with the service provider in the first place, the target consumer's anger will not mitigate significantly after hearing another customer's explanation under situational service failure. Hence, we postulate the following hypotheses:

Hypothesis 2: Blame attribution (situational vs service provider) moderates the relationship between the explanation source (other customer vs employee vs none) and anger.

Hypothesis 2a: When blame attribution is situational, the employee's explanation as well as the other customer's explanation will not mitigate anger.

### Mitigation of Anger Under External Service Failure

Even though the employee's explanation after external service failure could mitigate the target consumer's anger,<sup>4</sup> we propose that the other customer's explanation could not mitigate anger under external service failure owing to the attribution of blame. For instance, when the blame attribution is towards the service provider, the consumer would feel anger towards the employees rather than being frustrated by the situation, compared to when the blame attribution is situational.<sup>4</sup> Hence, the target consumer's anger would not be reduced after hearing an explanation from the other customer because their anger is directed towards the service provider; they want to hear some explanation from the employee (since the service provider provided the reason for the service failure). Thus, we propose that even though the employee's explanation will mitigate the client's anger under external service failure, the other customer's explanation will not reduce their anger because the target customer's anger is directed towards the employee who provided the reason for the service failure. Hence, we propose the following hypothesis:

Hypothesis 2b: When blame attribution is towards the service provider, the employee's explanation will mitigate anger, but the other customer's explanation will not mitigate anger.

## Complaining Intention: The Moderated Mediation Model

Service recovery process by providing an explanation is crucial because a negative emotional response to the service failure could further lead to coping responses such as nWOM, switching providers, and complaining intention or behavior.<sup>3,4,15</sup> Among the various kinds of negative coping responses after a service failure, this study focuses on complaining intention. Previous research shows that when people feel frustrated and angry after the service failure, they generally tend to complain directly to the company about the service failure (vindictive complaining) or complain by discussing the failure constructively (problem-solving complaining).<sup>3,4,21</sup> However, as we have postulated previously, frustration and anger may be reduced differently depending on the explanation source and blame attribution, which could have a subsequent influence on complaining intention in different ways. In the moderated mediation model of this research, we investigate the effect of explanation source separately (by comparing the other customer's and the



employee's explanations with a no-explanation condition) to assess the effects of explanation and blame attribution on complaining intention mediated by negative emotions (ie, frustration and anger).

### Effect of Other Customer's Explanation on Complaining Intention

We postulate that the mitigation of frustration through the other customer's explanation (vs no explanation) will subsequently lead to a decrease in complaining intention, and that this indirect effect will be stronger when blame attribution is situational than when blame attribution is towards the service provider. First, when the level of frustration is relieved by the other customer's explanation, the target consumer will be less likely to feel the need to complain. One of the motivations behind a customer's complaining behavior is their belief that their complaint will lead to a desired remedy or outcome.<sup>22</sup> In particular, when another customer provides an explanation under situational service failure, the emotional buffer will not only decrease the target consumer's frustration but also re-emphasize the unfixable nature of the situation, which will lead them to feel less need to complain. However, this effect will be weaker when blame attribution is towards the service provider because even though mitigation of their frustration through the emotional buffer will decrease their complaining intention, there is still someone to blame for the problem.

When anger is introduced as a mediator, we posit that the mediating effect of anger between the other customer's explanation (vs no explanation) and complaining intention will only be present when blame attribution is situational. We have proposed that the other customer's explanation will not mitigate anger when blame attribution is towards the service provider because the target consumer wants to hear an explanation from the employee (H2b). In a similar vein, we propose that when blame attribution is towards the service provider, the target consumer's anger will not be reduced after hearing an explanation from the other customer (vs no explanation), which will not have a significant effect on complaining intention. On the other hand, when blame attribution is situational, we posit that compared to the no-explanation condition, the other customer's explanation will reduce the target consumer's anger to a point that positively influences their intention to complain. We believe that this is because under situational service failure, the mere sharing of emotions with someone in the same shoes buffers negative emotions (ie, frustration and anger) and this emotional buffer will only occur when there is no one to blame for the problem (ie, situational service failure). Under external service failure circumstances, when there is someone to blame (ie, employees), consumers will strongly want to hear an explanation from the service provider and their anger will not be reduced unless they hear explanation from a company employee. Thus, we postulate the following hypotheses:

Hypothesis 3: The other customer's explanation (vs no explanation) on complaining intention will be mediated by frustration and anger, and this indirect effect will be moderated by blame attribution.

Hypothesis 3a: The mediating effect of frustration between the customer's explanation and complaining intention will be stronger when blame attribution is situational than when blame attribution is towards the service provider.

Hypothesis 3b: The mediating effect of anger between the customer's explanation and complaining intention will be only present when blame attribution is situational.

### Effect of Employee's Explanation on Complaining Intention

We posit that the employee's explanation (vs no explanation) on mitigating complaining intention will not be mediated by frustration, whereas such an effect will be mediated by anger. In addition, we posit that this indirect effect of anger will not be moderated by blame attribution (situational vs service provider). A previous study showed that the employee's explanation for a past service failure (why the service failure occurred and why they could not avoid it) decreases anger regardless of blame attribution, because it helps consumers to understand the service provider's position, but not frustration, because frustrated consumers do not blame the service provider.<sup>4</sup> Moreover, anger after a service failure is known to have an intimate relationship with complaining intention.<sup>7</sup> Following this logic, we postulate that the effect of the employee's explanation on complaining intention will be mediated through anger, which will not vary with blame attribution.

On the other hand, we posit that the mitigation of frustration by the employee's explanation will not lead to a decrease in complaining intention. We have proposed that frustration will not be reduced when blame attribution is situational (H1a) but it will be reduced under external service failure after hearing an explanation from an employee (H1b). Because the mitigation of frustration through the employee's explanation will occur mostly under external service failure (ie, when the client blames the service provider), consumers would still want to complain in this situation because they think that the employees could have controlled for the service failure. Therefore, we postulate the following hypothesis:

Hypothesis 4: The employee's explanation (vs no explanation) on complaining intention will not be mediated by frustration. However, it will be mediated by anger, yet this indirect effect will not be moderated by blame attribution.

## Study 1: Online Delivery Service Failure

Study 1 tests the influence of blame attribution (situational vs service provider) of a service failure and the explanation source (employee vs other customer vs no explanation) on the target consumer's frustration and anger. It is predicted that when the blame attribution is situational, only the other customer's explanation will mitigate the frustration level (H1a). On the other hand, when the blame attribution is towards the service provider, the employee's explanation and the other customer's explanation will mitigate the frustration level (H1b). In terms of anger, we have postulated that neither the employee's explanation nor the other customer's explanation will mitigate anger when blame attribution is situational (H2a), and only the employee's explanation will mitigate the anger level when blame attribution is towards the service provider (H2b). Considering the prevalence of e-retail service failure with the emergence of internet and online applications, we test our hypotheses under online service failure circumstances throughout the studies.

## Method

### Participants and Procedure

A total of 250 participants were recruited from Amazon Mechanical Turk. The responses of the participants who gave incomplete and careless responses were not included in the analysis. Hence, the responses of 239 people (46.9% female,  $M_{\text{age}}=35.6$  years) were analyzed in a 2 (blame attribution: situational vs service provider)  $\times$  3 (explanation source: employee vs other customer vs no explanation) between-subjects design survey. As a priori power analysis for the sample size determination, the effect size of  $d=0.65$  (Cohen's  $d$ ) with a statistical power over 80% was used, considering a previous study which had a similar research setting to our study (approximately 30 participants in each cell).<sup>4</sup> Also, it is known that given a medium to large effect size, a minimum of 30 participants per cell should lead to about 80% power. Thus, considering prior research and the relatively high attrition rate in online surveys, we decided that recruiting approximately 40 participants per cell would be adequate. All participants provided their consent for inclusion in this research before they participated in the survey, which was approved by the Institutional Review Board of Korea University. The participants were given a hypothetical situation in which they experienced a service failure (ie, delivery mistake) in the context of ordering a pizza through an online application, and later received an explanation about the reason for the service failure. The levels of frustration and anger were measured before and after receiving the explanation about the service failure, as adopted from the previous study.<sup>4</sup> Details of the scenario and measures are provided in the next section.

### Scenario and Measures

In section 1 of the study, participants were presented with a hypothetical situation in which they ordered a pizza for dinner through an online application called "Deliver food", but the food was delivered to the wrong address. The blame attribution was manipulated by providing the reason for the delivery service failure. In the situational attribution condition, the participants were informed that the delivery driver was responsible for the delivery mistake because "Deliver food" outsources their delivery drivers, over whom they have no control. In this case, the service provider was not the one to blame because the service failure occurred as a consequence of an unfavorable situation that the service provider could not control. On the other hand, in the service provider attribution condition, the participants were

**Table 1** Cronbach's  $\alpha$  Value of the Constructs, Square Root of the Average Variance Extracted (AVE) in Bold, and Correlations Between Constructs (Off-Diagonal) in Study 1

Constructs Before Explanation	$\alpha$	(A)	(B)	Constructs After Explanation	$\alpha$	(A)	(B)
Frustration (A)	0.84	<b>0.885</b>		Frustration (A)	0.92	<b>0.929</b>	
Anger (B)	0.95	0.457	<b>0.956</b>	Anger (B)	0.96	0.654	<b>0.958</b>

**Notes:** In this table, the square roots of AVEs on the diagonal are greater than the correlation estimates on the off-diagonal, which provides support for sufficient discriminant validity.

informed that the reason for the delivery to the wrong address was because of one of the employees of “Deliver food” wrote down the wrong address.

After reading the service failure scenario, we measured frustration and anger, as adopted from the previous study.<sup>4</sup> The measurements used in this study were assessed in terms of their reliability (Cronbach's  $\alpha$ ) and discriminant validity. Frustration was measured with three questions, asking how much the participants were frustrated and annoyed about the situation ( $\alpha=0.84$ ), and anger was measured with three questions, asking how much they were angry and mad with the situation ( $\alpha=0.95$ ). In terms of discriminant validity, we constructed the Fornell–Larcker criterion table in Table 1. The results provide sufficient support for discriminant validity across measurements since the square roots of the average variance extracted (AVE) values are greater than the correlation estimates.<sup>23</sup> All of the questionnaires were rated on seven-point scales (1=strongly disagree/very unlikely, 7=strongly agree/very likely).

In section 2, the source of the explanation about the service failure was manipulated. In the employee's explanation condition, when the blame attribution was situational, a “Deliver food” employee replied to the inquiry of the customers who experienced a service failure using a Q&A comment on the “Deliver food” application forum, and explained that the misdelivery was the fault of the outsourced delivery driver, over whom they have no control. In the other customer's explanation condition, the explanation subject replying to the Q&A comment was changed from the “Deliver food” employee to another customer (“Deliver food” application user) who had experienced such a service failure previously. When the blame attribution was towards the service provider, under the employee's explanation condition, the “Deliver food” employee replied to the Q&A comment by explaining that the pizza was delivered to the wrong address because one of their employees wrote down the wrong address by mistake. In a similar vein, in the other customer's explanation condition, the explanation subject replying to the Q&A comment was changed from the “Deliver food” employee to the other customer. Lastly, in the no-explanation condition, participants did not receive any replies to their Q&A comment. We then measured the participants' level of frustration ( $\alpha=0.92$ ) and anger ( $\alpha=0.96$ ) again after receiving an explanation, using the same scales used in section 1. Finally, we assessed the common method bias (CMB) using the correlation matrix procedure suggested by Bagozzi et al,<sup>24</sup> which concludes that CMB is evident when a substantially large correlation is found among the principal constructs ( $r>0.9$ ). CMB is not considered to be an issue in this study because the correlation among all the constructs was found to be less than 0.9.

We first report the participants' emotions (ie, frustration and anger) from a service failure separately for before and after the explanation to determine whether there was a significant difference in emotions across the conditions. Then, we investigate in which condition there was a significant mitigation of emotions by comparing the emotion before and after the explanation to examine our hypotheses H1 and H2.

## Frustration Results

### Frustration Before Explanation

First, we conducted a 2 (blame attribution) by 3 (explanation source) ANOVA on frustration level from the service failure (ie, delivery mistake) before receiving an explanation. As a result, we could not observe any significant main effect of explanation source ( $F(2,233)=1.54$ ,  $p=0.217$ ) or blame attribution ( $F(1,233)=0.57$ ,  $p=0.450$ ). Also, the interaction effect was not significant ( $F(2,233)=1.72$ ,  $p=0.182$ ), which makes it clear that the baseline frustration level was not significantly different among all conditions before receiving the explanation.



## Frustration After Explanation

When we conducted a 2 (blame attribution) by 3 (explanation source) ANOVA on the frustration level after receiving the explanation, there was a significant main effect of blame attribution ( $F(1,233)=12.40, p=0.001$ ). Frustration level was significantly higher when the blame attribution was situational ( $M=5.68, SD=1.31$ ) than when customers blamed the service provider ( $M=5.10, SD=1.58$ ). Also, there was significant main effect of explanation subject ( $F(2,233)=18.28, p<0.001$ ;  $M_{\text{employee}}=4.85, SD=1.67$  vs  $M_{\text{other customer}}=5.23, SD=1.44$  vs  $M_{\text{no explanation}}=6.09, SD=0.95$ ). Frustration level was significantly lower when receiving an explanation from the employee ( $F(1,233)=32.26, p<0.001$ ) as well as after the other customer's explanation ( $F(1,233)=15.24, p<0.001$ ) compared to the no-explanation condition. However, the frustration level did not significantly differ between the employee's explanation and the other customer's explanation conditions ( $F(1,233)=3.05, p=0.082$ ). The interaction effect was significant as well ( $F(2,233)=5.70, p=0.004$ ), which means that the effect of explanation differed for different blame attribution and explanation sources. Particularly under the situational blame condition, frustration level was significantly lower when receiving an explanation from the other customer ( $M=5.47, SD=1.44$ ) than in the no-explanation condition ( $M=6.08, SD=0.95$ ;  $F(1,233)=4.32, p=0.040$ ). The frustration level did not significantly differ between the employee's explanation condition ( $M=5.54, SD=1.39$ ) and the no-explanation condition ( $F(1,233)=3.44, p=0.066$ ) or between the employee's explanation condition and the customer's explanation condition ( $F(1,233)=0.06, p=0.808$ ). When the blame attribution was towards the service provider, the frustration level was significantly higher in the no-explanation condition ( $M=6.11, SD=0.96$ ) than after receiving an explanation from the other customer ( $M=4.99, SD=1.42$ ;  $F(1,233)=13.54, p<0.001$ ) or from the employee ( $M=4.16, SD=1.65$ ;  $F(1,233)=42.08, p<0.001$ ). Also, the frustration level was significantly lower in the employee's explanation condition than in the customer's explanation condition ( $F(1,233)=7.34, p=0.008$ ). We further examined the detailed effects and our hypotheses in the next analyses.

## Frustration Before and After Explanation

Next, to determine whether the frustration level changes with explanation and blame attribution, a 2 (blame attribution)  $\times$  3 (explanation source)  $\times$  2 (explanation period: before the explanation vs after the explanation) repeated-measures ANOVA was conducted, with explanation period as a within-subject factor. We observed a significant main effect of explanation source ( $F(2,230)=11.02, p<0.001$ ), blame attribution ( $F(1,230)=7.21, p=0.008$ ), and explanation period ( $F(1,230)=62.29, p<0.001$ ). Also, there was a significant interaction effect of explanation period and explanation source ( $F(2,230)=13.37, p<0.001$ ) as well as explanation period and blame attribution ( $F(1,230)=11.58, p=0.001$ ). The 3-way interaction effect was also significant ( $F(2,230)=10.80, p<0.001$ ), indicating that the frustration level changes before and after the explanation according to explanation source and blame attribution. We conducted planned contrast to further examine the difference in frustration level by period. Except for the above effects, the 2-way interaction effects of explanation source and blame attribution were not significant ( $F(2,230)=2.19, p=0.114$ ).

When the blame attribution was situational (ie, service failure was due to the outsourced delivery driver), the participant's frustration level mitigated significantly when receiving an explanation from the other customer ( $M_{\text{before}}=6.19, SD=0.95$  vs  $M_{\text{after}}=5.44, SD=1.45$ ;  $F(1,38)=14.10, p=0.001$ ). However, the frustration level did not differ significantly either when receiving an explanation from the employee ( $M_{\text{before}}=5.82, SD=1.50$  vs  $M_{\text{after}}=5.57, SD=1.39$ ;  $F(1,39)=1.88, p=0.178$ ) or under the no-explanation condition ( $M_{\text{before}}=6.15, SD=0.86$  vs  $M_{\text{after}}=6.08, SD=0.95$ ;  $F(1,35)=0.23, p=0.635$ ). The results supported H1a, indicating that when blame attribution is situational, the employee's explanation does not mitigate frustration, but the other customer's explanation mitigates frustration.

When the participant's blame attribution was towards the service provider (ie, service failure was due to the "Deliver food" employee), the frustration level significantly mitigated when receiving an explanation from the employee ( $M_{\text{before}}=5.95, SD=1.02$  vs  $M_{\text{after}}=4.16, SD=1.65$ ;  $F(1,40)=52.61, p<0.001$ ) and from the other customer ( $M_{\text{before}}=5.73, SD=1.82$  vs  $M_{\text{after}}=4.94, SD=1.40$ ;  $F(1,37)=11.66, p=0.002$ ). However, when the participants did not receive any informational support, the frustration level did not change significantly ( $M_{\text{before}}=6.17, SD=0.79$  vs  $M_{\text{after}}=6.11, SD=0.96$ ;  $F(1,41)=0.28, p=0.597$ ). Therefore, H1b was supported. The overall results are presented in Figure 2.



**Figure 2** Frustration levels by condition (Study 1).

## Anger Results

### Anger Before Explanation

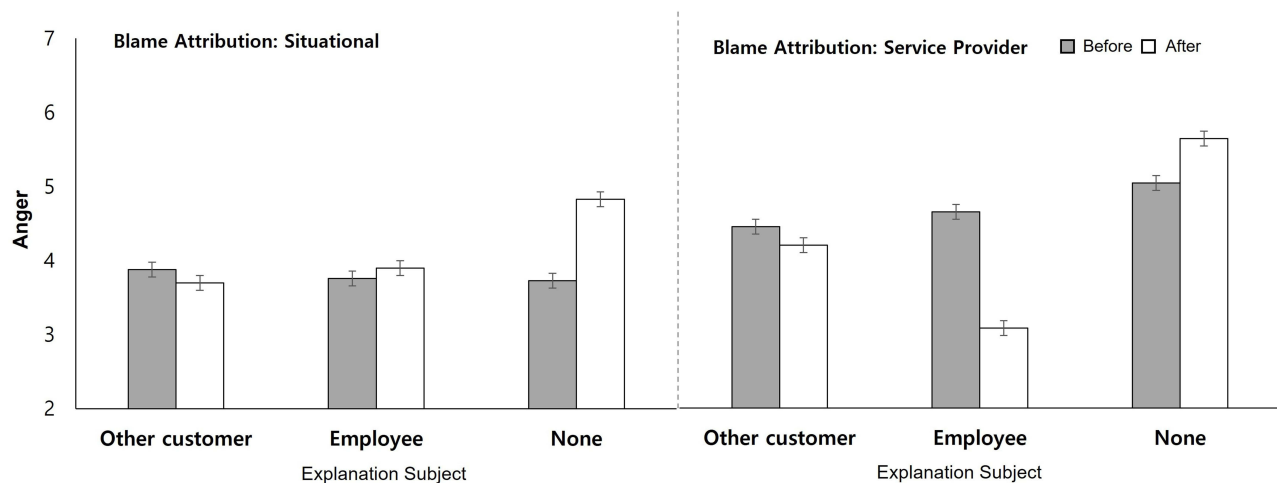
A 2 (blame attribution)  $\times$  3 (explanation source) ANOVA was conducted to test the level of anger arising from the service failure before receiving an explanation. The results did not show a significant main effect of explanation source ( $F(2,233) = 0.21, p = 0.807$ ), but we did observe a significant main effect of blame attribution ( $F(1,233) = 15.89, p < 0.001$ ). In particular, the participants felt more anger when the blame attribution was directed towards the service provider ( $M = 4.72, SD = 1.66$ ) than when the service failure was due to the situation ( $M = 3.79, SD = 1.90$ ). The interaction effect was not significant ( $F(2,233) = 1.10, p = 0.334$ ).

### Anger After Explanation

We tested the level of anger after the explanation by conducting a 2  $\times$  3 ANOVA. The results showed that the main effect of blame attribution was not significant ( $F(1,233) = 0.51, p = 0.478$ ) but the main effect of explanation source was significant ( $F(2,233) = 22.82, p < 0.001$ ). In particular, the anger level was significantly higher when the customer did not receive any explanation ( $M = 5.27, SD = 1.44$ ) than in the other customer's explanation condition ( $M = 3.94, SD = 1.76; F(1,233) = 23.41, p < 0.001$ ) or when receiving an explanation from the employee ( $M = 3.49, SD = 1.91; F(1,233) = 42.92, p < 0.001$ ). However, the anger level did not differ significantly between the last two conditions ( $F(1,233) = 2.73, p = 0.100$ ). The interaction effect was also significant ( $F(2,233) = 5.24, p = 0.006$ ). Under the situational blame condition, the anger level was significantly lower in the other customer's explanation condition ( $M = 3.70, SD = 1.71$ ) than in the no-explanation condition ( $M = 4.83, SD = 1.55; F(1,233) = 7.54, p = 0.007$ ) as well as in the employee's explanation condition ( $M = 3.90, SD = 2.03$ ) than the no-explanation condition ( $F(1,233) = 5.22, p = 0.024$ ). The anger level did not differ significantly between the employee's explanation and the other customer's explanation conditions ( $F(1,233) = 0.25, p = 0.615$ ). When the blame attribution was towards the service provider, the anger level was significantly higher in the no-explanation condition ( $M = 5.64, SD = 1.24$ ) than after receiving an explanation from the other customer ( $M = 4.18, SD = 1.79; F(1,233) = 17.14, p < 0.001$ ) or from the employee ( $M = 3.08, SD = 1.70; F(1,233) = 53.88, p < 0.001$ ). Also, the anger level was significantly lower in the employee's explanation than in the customer's explanation condition ( $F(1,233) = 9.54, p = 0.003$ ).

### Anger Before and After Explanation

We conducted a 2 (blame attribution) by 3 (explanation source) by 2 (explanation period: within subject) repeated-measures ANOVA, to find out whether the anger level varies before and after receiving the explanation, according to the effect of explanation source and blame attribution. The results showed significant main effects of explanation source ( $F(2,230) = 7.47, p = 0.001$ ) and blame attribution ( $F(1,230) = 6.40, p = 0.012$ ). The 2-way interaction effect of explanation period and explanation source ( $F(2,230) = 40.19, p < 0.001$ ) was statistically significant, as well as that of explanation



**Figure 3** Anger levels by condition (Study 1).

period and blame attribution ( $F(1,230)=27.16$ ,  $p<0.001$ ). We also observed a significant 3-way interaction effect ( $F(2,230)=11.56$ ,  $p<0.001$ ), which means that explanation source and blame attribution have an influence on the change in anger level. The main effect of explanation period ( $F(1,230)=0.10$ ,  $p=0.752$ ) and the interaction effect of explanation subject and blame attribution were not significant ( $F(2,230)=1.92$ ,  $p=0.149$ ).

Planned contrast was conducted to compare the anger levels before and after the explanation. When the blame attribution was a situational factor, the participant's anger level did not differ significantly between before and after receiving an explanation from the other customer ( $M_{\text{before}}=3.88$ ,  $SD=1.79$  vs  $M_{\text{after}}=3.70$ ,  $SD=1.73$ ;  $F(1,37)=2.37$ ,  $p=0.122$ ) or when they received an explanation from the employee ( $M_{\text{before}}=3.76$ ,  $SD=2.15$  vs  $M_{\text{after}}=3.90$ ,  $SD=2.03$ ;  $F(1,40)=0.95$ ,  $p=0.335$ ). When the participants did not receive any explanation, their anger level increased significantly ( $M_{\text{before}}=3.73$ ,  $SD=1.75$  vs  $M_{\text{after}}=4.83$ ,  $SD=1.55$ ;  $F(1,35)=36.46$ ,  $p<0.001$ ). Hence, the overall results supported H2a, showing that when blame attribution was situational, receiving an explanation from the employee as well as from the other customer could not mitigate anger.

When blame attribution was targeted towards the service provider, the participant's anger level did not mitigate significantly under the other customer's explanation condition ( $M_{\text{before}}=4.45$ ,  $SD=1.85$  vs  $M_{\text{after}}=4.20$ ,  $SD=1.81$ ;  $F(1,37)=3.06$ ,  $p=0.088$ ) but the anger level mitigated significantly when receiving an explanation from the employee ( $M_{\text{before}}=4.65$ ,  $SD=1.50$  vs  $M_{\text{after}}=3.08$ ,  $SD=1.70$ ;  $F(1,40)=35.75$ ,  $p<0.001$ ). When the participants did not receive any explanation, their anger level increased significantly ( $M_{\text{before}}=5.04$ ,  $SD=1.60$  vs  $M_{\text{after}}=5.64$ ,  $SD=1.24$ ;  $F(1,41)=12.03$ ,  $p=0.001$ ). The results provided support to H2b, indicating that when blame attribution is towards the service provider, only an explanation from the service provider could decrease anger. The overall results of anger levels according to conditions are presented in Figure 3.

## Study I Discussion

In Study 1, we examined our proposed hypotheses H1 and H2 by manipulating the explanation source and the blame attribution to examine their impact on frustration and anger arising from the service failure. In particular, under situational service failure, since people realize that there is nothing that employees can do to improve or fix the situation, mitigation of frustration was a difficult task for the employees. However, even though the other customer's explanation could not change or improve the situation, sharing an emotional similarity buffered frustration. Hence, when blame attribution was situational, the employee's explanation could not mitigate frustration, yet the other customer's explanation reduced frustration, supporting H1a. Also, the results showed that when blame attribution was towards the service provider, the employee's explanation as well as the other customer's explanation reduced frustration, supporting H1b. On the other hand, mitigation of anger was not significant under situational service failure after hearing the employee's explanation as well as the other customer's explanation, which supported H2a. Finally, when blame attribution was

towards the service provider, the employee's explanation could mitigate anger, whereas the other customer's explanation could not, supporting H2b.

If the employee's explanation could mitigate anger and the other customer's explanation could mitigate frustration in different blame circumstances, would these mitigated emotions after a service failure lead to a decrease in complaining intention? And would this moderated mediation effect on complaining intention differ according to who is providing an explanation for the service failure? In the next study, we investigate the moderated mediating effect of the explanation source and blame attribution on complaining intention through frustration and anger.

## Study 2: Online Payment Failure

The goals of Study 2 are twofold. First, we intend to conceptually replicate the results of Study 1 and examine H1 and H2 using a slightly different scenario in which the customer receives an explanation after experiencing an online payment failure using an application. Second, Study 2 tests the mediating roles of emotions (ie, frustration and anger) in the influence of blame attribution and explanation source on the complaining intention, as suggested by H3 and H4.

## Method

### Participants and Procedure

A total of 260 students were recruited from Korea University, with one extra course credit as a reward. Students who gave incomplete and careless responses were not included in the analysis. Hence, a total of 253 participants (57.9% female,  $M_{\text{age}}=20.9$  years) were considered for our analysis. The sample size determination in Study 2 was identical to that in Study 1, based on the effect size of  $d=0.65$  and statistical power of 80% (targeted to recruit approximately 40 participants in each cell). The study was a 2 (blame attribution: situational vs service provider)  $\times$  3 (explanation source: employee vs other customer vs no explanation) between-subjects design. All participants provided their consent for inclusion in this research before they participated in the survey, which was approved by the Institutional Review Board of Korea University. The participants were presented with a hypothetical scenario in which they experienced a service failure, and later were given explanations about the reason. The participants were presented with one of six different scenarios that varied in terms of the cause of the service failure (situation or service provider) and the source who gave an explanation about the reason for the service failure (employee, other customer, or no explanation).

### Scenario and Measures

All participants were provided with a hypothetical situation regarding a major service failure when using an online delivery application. The scenario consisted of two sections. Section 1 presented the participants with a service failure situation and its cause, and measured frustration and anger. Specifically, the participants were provided with a situation of not being able to process their pizza order from the "Pizza guys" through an online delivery application called "Deliver food" owing to payment failure. The blame attribution was manipulated by the cause of the service failure. In the situational attribution scenario, the participants were informed that the service failure was due to the situation where the entire "Deliver food" application server went down at the moment they were trying to place their pizza order from the "Pizza guys". In contrast, in the service provider attribution scenario, the participants were informed that the service failure was due to one of the employees of "Pizza guys" not properly managing the website. We measured the participants' frustration and anger after experiencing the service failure. Frustration was measured with two questions asking how much they were frustrated and annoyed about the situation ( $\alpha=0.72$ ), and anger was measured with two questions asking how much they were angry and mad with the situation ( $\alpha=0.96$ ). Frustration and anger measures were adopted from a previous study.<sup>4</sup> In addition, we measured the intention to complain about the service failure with two questions that asked about the intention to complain to the online shopping mall, to give the representative(s) a hard time, and to discuss about the problem constructively ( $\alpha=0.88$ ), which were also adopted from Gelbrich.<sup>4</sup> All of the items were translated into Korean using double back-translation, and the participants rated them on seven-point scales (1=strongly disagree/very unlikely, 7=strongly agree/very likely).

Section 2 of the scenario presented the participants with a situation in which they were provided with an explanation about why the service failure had occurred, and measured their frustration and anger after the explanation. In particular,

**Table 2** Cronbach's  $\alpha$  Value of the Constructs, Square Root of the Average Variance Extracted (AVE) in Bold, and Correlations Between Constructs (Off-Diagonal) in Study 2

Constructs Before Explanation	$\alpha$	(A)	(B)	(C)	Constructs After Explanation	$\alpha$	(A)	(B)	(C)
Frustration (A)	0.72	<b>0.885</b>			Frustration (A)	0.72	<b>0.884</b>		
Anger (B)	0.96	0.358	<b>0.982</b>		Anger (B)	0.97	0.661	<b>0.984</b>	
Complain (C)	0.88	0.197	0.569	<b>0.947</b>	Complain (C)	0.97	0.524	0.700	<b>0.986</b>

we manipulated the explanation source (ie, who explained the service failure) in section 2. Under the situational blame attribution condition, where the employee gives an explanation for the service failure, participants imagined posting a comment and then the employee from “Pizza guys” replying to the inquiry of the customers who experienced service failure through Q&A comments on the “Deliver food” application forum. In particular, the employee explained that the pizza order had been unsuccessful because the “Deliver food” server went down at the moment the participant was trying to process his or her pizza order, over which “Pizza guys” had no control. In the other customer’s explanation condition, the subject providing an explanation for the service failure was changed to the other customer (“Deliver food” application user). When the blame attribution was towards the service provider, under the employee’s explanation condition, a “Pizza guys” employee replied to the Q&A comment by explaining that the pizza order was unsuccessful because one of their employees did not properly manage the website. In the other customer’s explanation condition, the other customer explained the same situation (one of the “Pizza guys” employees did not properly manage the website). Under the no-explanation condition, the participants did not receive any explanation. We then measured the participants’ frustration ( $\alpha=0.72$ ), anger ( $\alpha=0.97$ ), and intention to complain ( $\alpha=0.97$ ) after the explanation manipulation, using the same scale used in section 1. We asked two questions in each measurement in Study 2 owing to the length of the survey upon adding complaining intention. The reliability (Cronbach’s  $\alpha$ ) of the measurements and the discriminant validity (Fornell–Larcker criterion table) are provided in Table 2. CMB is not considered to be an issue in this study because the correlation among all the constructs was found to be less than 0.9.

## Frustration Results

### Frustration Before Explanation

We tested the level of frustration before receiving an explanation using a 2 (blame attribution: situational vs service provider)  $\times$  3 (explanation source: employee vs other customer vs no explanation) ANOVA. The main effect of blame attribution ( $F(1,247)=5.64$ ,  $p=0.018$ ) was significant. Frustration level was significantly higher when blame attribution was situational ( $M=5.26$ ,  $SD=1.21$ ) rather than towards the service provider ( $M=4.88$ ,  $SD=1.40$ ;  $F(1,247)=5.64$ ,  $p=0.018$ ). However, the interaction effect was not significant ( $F(2,247)=0.98$ ,  $p=0.376$ ). These results indicate that the baseline frustration level before receiving an explanation (after section 1 of scenario) did not vary across the six conditions.

### Frustration After Explanation

We tested the frustration level after the explanation using a 2 (blame attribution)  $\times$  3 (explanation) ANOVA. The main effect of blame attribution ( $F(1,247)=6.31$ ,  $p=0.013$ ) was significant, with higher frustration level in the situational ( $M=4.58$ ,  $SD=1.42$ ) than in the service provider ( $M=4.14$ ,  $SD=1.63$ ) blame condition. The main effect of explanation was also significant ( $F(2,247)=19.32$ ,  $p<0.001$ ;  $M_{\text{employee}}=3.88$ ,  $SD=1.54$  vs  $M_{\text{other customer}}=4.09$ ,  $SD=1.45$  vs  $M_{\text{no explanation}}=5.08$ ,  $SD=1.38$ ). In addition, the interaction between blame attribution and explanation was significant ( $F(2,247)=18.73$ ,  $p<0.001$ ). In the situational blame condition, the frustration level in the other customer explanation condition ( $M=3.65$ ,  $SD=1.32$ ) was significantly lower than in the employee’s explanation ( $M=4.74$ ,  $SD=1.08$ ;  $F(1,247)=15.37$ ,  $p<0.001$ ) or the no-explanation ( $M=5.29$ ,  $SD=1.37$ ;  $F(1,247)=35.02$ ,  $p<0.001$ ) condition. Also, frustration level was significantly lower in the employee’s explanation than in the no-explanation condition ( $F(1,247)=4.07$ ,  $p=0.046$ ). When the service failure was due to the service provider, the frustration level in the employee’s explanation condition ( $M=3.02$ ,  $SD=1.47$ ) was significantly lower than in the



other customer's explanation ( $M=4.50$ ,  $SD=1.47$ ;  $F(1,247)=22.43$ ,  $p<0.001$ ) and no-explanation ( $M=4.87$ ,  $SD=1.37$ ;  $F(1,247)=35.16$ ,  $p<0.001$ ) conditions. The frustration levels of the last two conditions were not significantly different ( $F(1,247)=1.44$ ,  $p=0.232$ ). The results indicate that the influence of the explanation varied depending on the blame attribution and the explanation source. These effects are further examined in the following analyses.

### Frustration Before and After Explanation

We tested the influence of the explanation on the changes in frustration level using a 2 (blame attribution)  $\times$  3 (explanation source)  $\times$  2 (explanation period: before the explanation vs after the explanation) repeated-measures ANOVA, where explanation period was a within-subjects factor. The results showed the main effects of explanation source ( $F(2,247)=11.29$ ,  $p<0.001$ ), blame attribution ( $F(1,247)=7.48$ ,  $p=0.007$ ), and explanation period ( $F(2,247)=93.63$ ,  $p<0.001$ ). The 2-way interaction between explanation source and explanation period ( $F(2,247)=14.55$ ,  $p<0.001$ ) and explanation source and blame attribution ( $F(1,247)=9.01$ ,  $p=0.007$ ), and the 3-way interaction ( $F(2,247)=15.18$ ,  $p<0.001$ ) were significant. The 2-way interaction between blame attribution and explanation period was not significant ( $F(1,247)=0.08$ ,  $p=0.782$ ). From the results, the significant 3-way interaction effect indicates that the extent to which the frustration level changed (ie, before vs after explanation) varied depending on the blame attribution and explanation source. We further investigated the effects using a series of planned contrasts that compared the frustration levels before and after the explanation.

First, when the service failure was due to situational factors, the frustration level decreased significantly when the explanation was provided by the other customer ( $M_{\text{before}}=5.24$ ,  $SD=1.24$  vs  $M_{\text{after}}=3.65$ ,  $SD=1.32$ ;  $F(1,39)=57.44$ ,  $p<0.001$ ). However, the change in the frustration level was not significant when the participants received an explanation from the employee ( $M_{\text{before}}=5.06$ ,  $SD=1.12$  vs  $M_{\text{after}}=4.74$ ,  $SD=1.08$ ;  $F(1,40)=4.01$ ,  $p=0.052$ ) or when no explanation was provided ( $M_{\text{before}}=5.49$ ,  $SD=1.25$  vs  $M_{\text{after}}=5.29$ ,  $SD=1.37$ ;  $F(1,42)=2.01$ ,  $p=0.163$ ). Hence, the results supported H1a.

Second, we tested the changes in frustration in the service provider attribution conditions. The decrease in the frustration level between before and after the explanation was significant in the other customer's explanation ( $M_{\text{before}}=5.16$ ,  $SD=1.38$  vs  $M_{\text{after}}=4.50$ ,  $SD=1.47$ ;  $F(1,42)=14.59$ ,  $p<0.001$ ) and in the employee's explanation ( $M_{\text{before}}=4.44$ ,  $SD=1.38$  vs  $M_{\text{after}}=3.02$ ,  $SD=1.47$ ;  $F(1,41)=49.41$ ,  $p<0.001$ ) conditions. The change in frustration level was not significant when the participants did not receive any explanation ( $M_{\text{before}}=5.02$ ,  $SD=1.36$  vs  $M_{\text{after}}=4.87$ ,  $SD=1.37$ ;  $F(1,42)=0.54$ ,  $p=0.466$ ). The overall results support H1b, and these results are presented in Figure 4.

## Anger Results

### Anger Before Explanation

A 2 (blame attribution)  $\times$  3 (explanation source) ANOVA on the level of anger before the explanation showed that the main effect of blame attribution was significant ( $F(1,247)=47.64$ ,  $p<0.001$ ), showing a higher anger level when blame

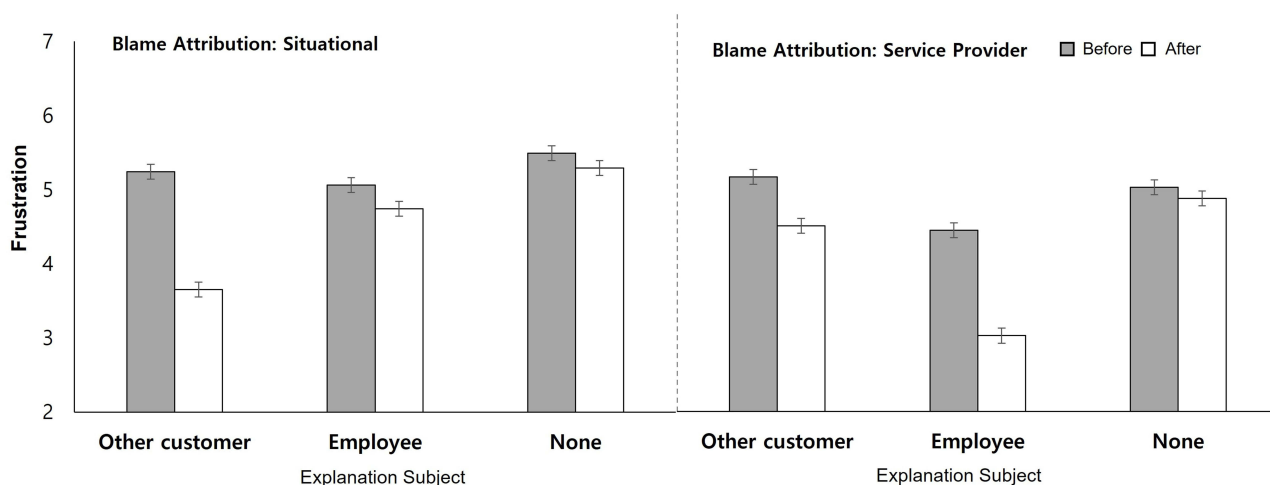


Figure 4 Frustration levels by condition (Study 2).

attribution is towards the service provider ( $M=4.38$ ,  $SD=1.68$ ) than when it is situational ( $M=2.94$ ,  $SD=1.64$ ). The main effect of explanation source was significant as well ( $F(1,247)=83.46$ ,  $p<0.001$ ), showing lower anger level under the employee's explanation ( $M=3.27$ ,  $SD=1.58$ ) than the no-explanation condition ( $M=3.92$ ,  $SD=1.88$ ;  $F(1,247)=5.50$ ,  $p=0.020$ ), yet other comparisons were not significantly different ( $F<3.65$ ,  $p>0.057$ ). We believe that this main effect of explanation source is due to the extremely lower level of anger when blame attribution is situational even before the employee explains the service failure ( $M=2.63$ ,  $SD=1.40$ ). However, the interaction between blame attribution and explanation source ( $F(2,247)=0.34$ ,  $p=0.706$ ) was not significant.

### Anger After Explanation

A  $2 \times 3$  ANOVA on anger after the explanation showed that the main effects of blame attribution ( $F(1,247)=13.35$ ,  $p<0.013$ ) and explanation source ( $F(2,247)=45.26$ ,  $p<0.001$ ) were significant. In particular, the anger level was significantly higher when the blame attribution was towards the service provider ( $M=4.04$ ,  $SD=1.84$ ) than situational ( $M=3.36$ ,  $SD=1.78$ ). Also, the participant's anger level was significantly lower in the employee's explanation condition ( $M=2.68$ ,  $SD=1.33$ ) than in the other customer's explanation ( $M=3.53$ ,  $SD=1.75$ ;  $F(1,247)=11.81$ ,  $p=0.001$ ) and no-explanation ( $M=4.87$ ,  $SD=1.69$ ;  $F(1,247)=79.80$ ,  $p<0.001$ ) conditions. The anger level was significantly lower in the other customer's explanation than in the no-explanation condition ( $F(1,247)=29.68$ ,  $p<0.001$ ).

Also, there was a significant blame attribution and explanation source interaction effect ( $F(2,247)=8.58$ ,  $p<0.001$ ). When the blame attribution was towards the service provider, the anger level in the employee's explanation condition ( $M=2.64$ ,  $SD=1.44$ ) was significantly lower than in the other customer's explanation condition ( $M=4.40$ ,  $SD=1.74$ ;  $F(1,247)=27.55$ ,  $p<0.001$ ) and the no-explanation condition ( $M=5.06$ ,  $SD=1.41$ ;  $F(1,247)=52.33$ ,  $p<0.001$ ), with a significantly lower anger level in the customer's explanation than in the no-explanation condition ( $F(1,247)=3.99$ ,  $p=0.048$ ). On the other hand, when the blame attribution was situational, the customer's level of anger was significantly higher in the no-explanation ( $M=4.69$ ,  $SD=1.94$ ) than in the employee's explanation ( $M=2.71$ ,  $SD=1.22$ ;  $F(1,247)=36.69$ ,  $p<0.001$ ) and the other customer's explanation ( $M=2.60$ ,  $SD=1.20$ ;  $F(1,247)=40.06$ ,  $p<0.001$ ) conditions. The anger levels of the last two conditions were not significantly different ( $F(1,247)=0.12$ ,  $p=0.731$ ). Similarly to frustration, detailed effects were tested in the following analyses.

### Anger Before and After Explanation

A  $2$  (blame attribution)  $\times 3$  (explanation source)  $\times 2$  (explanation period: within-subjects factor) repeated-measures ANOVA showed that the main effects of blame attribution ( $F(1,247)=36.75$ ,  $p<0.001$ ) and explanation source ( $F(2,247)=22.32$ ,  $p<0.001$ ) were significant. Also, the 2-way interaction of blame attribution and explanation period ( $F(1,247)=14.91$ ,  $p<0.001$ ) and explanation source and explanation period ( $F(2,247)=23.86$ ,  $p<0.001$ ) was significant. The 3-way interaction effect was significant ( $F(2,247)=8.90$ ,  $p<0.001$ ) as well. The main effect of explanation period and the 2-way interaction effect of explanation source and blame attribution were not significant ( $F<2.39$ ,  $p>0.094$ ).

First, when the blame attribution was situational, the anger level did not mitigate significantly after the other customer's explanation ( $M_{\text{before}}=3.10$ ,  $SD=1.74$  vs  $M_{\text{after}}=2.64$ ,  $SD=1.19$ ;  $F(1,38)=3.27$ ,  $p=0.079$ ) or after the employee's explanation ( $M_{\text{before}}=2.63$ ,  $SD=1.40$  vs  $M_{\text{after}}=2.71$ ,  $SD=1.22$ ;  $F(1,41)=0.15$ ,  $p=0.697$ ). The anger level significantly increased when the participants did not receive any explanation ( $M_{\text{before}}=3.08$ ,  $SD=1.76$  vs  $M_{\text{after}}=4.69$ ,  $SD=1.94$ ;  $F(1,42)=26.08$ ,  $p<0.001$ ). The results provide support for H2a.

Next, when the cause of the service failure was due to the service provider, the participant's anger level did not mitigate significantly when receiving an explanation from the other customer ( $M_{\text{before}}=4.44$ ,  $SD=1.83$ ,  $M_{\text{after}}=4.40$ ,  $SD=1.74$ ;  $F(1,42)=0.08$ ,  $p=0.773$ ), which supports hypothesis H1b. In contrast, the anger level significantly decreased when the participants received an explanation from the employee ( $M_{\text{before}}=3.92$ ,  $SD=1.49$  vs  $M_{\text{after}}=2.64$ ,  $SD=1.44$ ;  $F(1,41)=32.08$ ,  $p<0.001$ ). The difference was not significant when they did not receive any information ( $M_{\text{before}}=4.76$ ,  $SD=1.62$  vs  $M_{\text{after}}=5.06$ ,  $SD=1.41$ ;  $F(1,42)=1.75$ ,  $p=0.194$ ). Hence, the above results support H2b. The overall results for anger level are presented in Figure 5.



**Figure 5** Anger levels by condition (Study 2).

## Complaining Intention Results

### Complaining Intention Before Explanation

A 2 (blame attribution) by 3 (explanation source) ANOVA on complaining intention before the participants received an explanation showed a significant main effect of blame attribution ( $F(1,247)=19.08$ ,  $p<0.001$ ). Complaining intention was higher when the blame attribution was towards the service provider ( $M=3.16$ ,  $SD=1.76$ ) than situational attribution ( $M=2.30$ ,  $SD=1.37$ ). However, neither the main effect of explanation ( $F(2,247)=1.81$ ,  $p=0.166$ ) nor the interaction effect ( $F(2,247)=0.34$ ,  $p=0.709$ ) was significant.

### Complaining Intention After Explanation

We then conducted a 2 (blame attribution) by 3 (explanation source) ANOVA on complaining intention after the explanation. The main effect of blame attribution ( $F(1,247)=0.59$ ,  $p=0.443$ ) was significant, showing a higher level of anger when blame attribution was towards the service provider ( $M=3.09$ ,  $SD=1.91$ ) compared to when blame attribution was situational ( $M=2.68$ ,  $SD=1.64$ ). The main effect of explanation source was significant as well ( $F(2,247)=21.87$ ,  $p<0.001$ ). In particular, the participant's complaining intention was significantly higher in the no-explanation condition ( $M=3.76$ ,  $SD=1.86$ ) compared to the other customer's explanation ( $M=2.72$ ,  $SD=1.85$ ;  $F(1,247)=16.82$ ,  $p<0.001$ ) and employee's explanation ( $M=2.16$ ,  $SD=1.19$ ;  $F(1,247)=39.63$ ,  $p<0.001$ ) conditions. The intention to complain was significantly lower when the participants received an explanation from the employees than from the other customers ( $F(1,247)=4.62$ ,  $p=0.033$ ). The interaction effect was significant ( $F(2,247)=7.17$ ,  $p=0.001$ ) as well. When the blame attribution was towards the service provider, the complaining intention was significantly lower in the employee's explanation condition ( $M=2.64$ ,  $SD=1.44$ ) than in the other customer's explanation ( $M=4.40$ ,  $SD=1.74$ ;  $F(1,247)=27.55$ ,  $p<0.001$ ) and no-explanation ( $M=5.06$ ,  $SD=1.41$ ;  $F(1,247)=52.33$ ,  $p<0.001$ ) conditions, with the last two conditions not being significantly different ( $F(1,247)=0.32$ ,  $p=0.572$ ). When the blame attribution was situational, complaining intention was significantly higher in the no-explanation condition ( $M=3.87$ ,  $SD=1.88$ ) than in the employee's explanation ( $M=2.19$ ,  $SD=1.10$ ;  $F(1,247)=31.30$ ,  $p<0.001$ ) and the other customer's explanation ( $M=1.94$ ,  $SD=1.03$ ;  $F(1,247)=39.73$ ,  $p<0.001$ ) conditions. The complaining intention levels of the last two conditions were not significantly different ( $F(1,247)=0.66$ ,  $p=0.420$ ).

### Complaining Intention Before and After Explanation

We conducted a 2 (blame attribution) by 3 (explanation source) by 2 (explanation period: before the explanation vs after the explanation) repeated-measures ANOVA, where the explanation period was a within-subject variable, to determine whether the complaining intention varies with the effect of blame attribution and explanation source. There were significant main effects of blame attribution ( $F(1,247)=11.86$ ,  $p=0.001$ ) and explanation source ( $F(2,247)=10.87$ ,

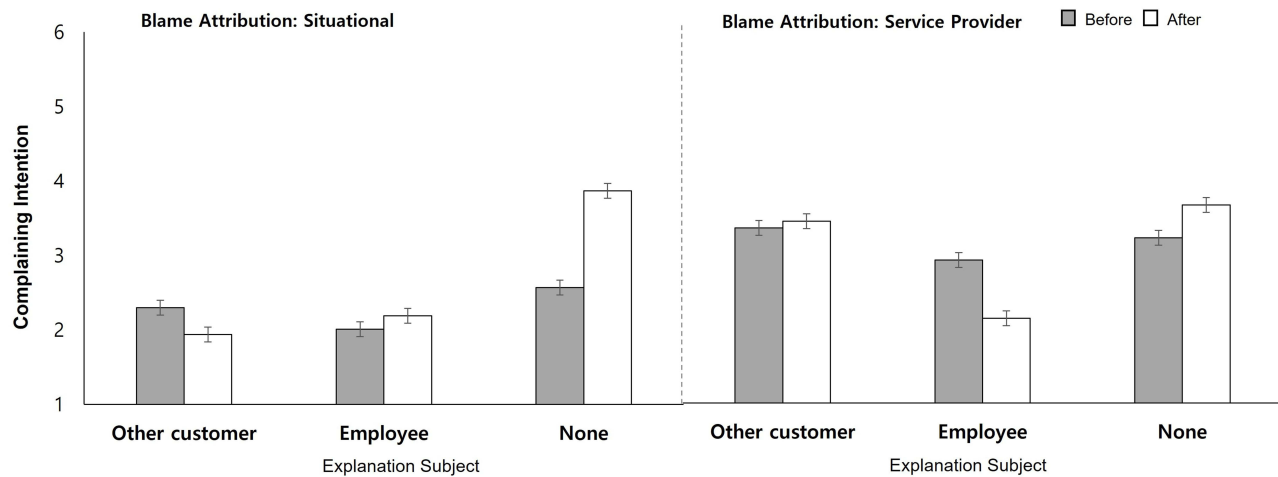


Figure 6 Complaining intention levels by condition.

$p < 0.001$ ). The interaction effects of explanation period and explanation source ( $F(2,247) = 23.51$ ,  $p < 0.001$ ) and explanation period and blame attribution ( $F(1,247) = 8.90$ ,  $p = 0.003$ ) were significant as well. Most importantly, there was a significant 3-way interaction effect ( $F(2,247) = 8.91$ ,  $p < 0.001$ ), which means that complaining intention changed with the influence of blame attribution and explanation source. The main effect of explanation period and the interaction effect of explanation source and blame attribution were not significant ( $F < 3.73$ ,  $p > 0.054$ ). Next, we will compare complaining intention before and after the explanation by planned contrast.

When the blame attribution was a situational factor, the participant's complaining intention significantly decreased when receiving an explanation from the other customer ( $M_{\text{before}} = 2.30$ ,  $SD = 1.42$  vs  $M_{\text{after}} = 1.94$ ,  $SD = 1.03$ ;  $F(1,39) = 4.77$ ,  $p = 0.035$ ). However, complaining intention was not significantly different before and after receiving an explanation from the employee ( $M_{\text{before}} = 2.01$ ,  $SD = 1.08$  vs  $M_{\text{after}} = 2.19$ ,  $SD = 1.11$ ;  $F(1,41) = 3.07$ ,  $p = 0.087$ ). Intention to complain significantly increased when participants did not receive any explanation ( $M_{\text{before}} = 2.57$ ,  $SD = 1.55$  vs  $M_{\text{after}} = 3.87$ ,  $SD = 1.88$ ;  $F(1,42) = 23.11$ ,  $p < 0.001$ ).

When the service failure was due to the service provider, complaining intention was not significantly different between before and after receiving the explanation from the other customer ( $M_{\text{before}} = 3.35$ ,  $SD = 2.04$  vs  $M_{\text{after}} = 3.44$ ,  $SD = 2.14$ ;  $F(1,42) = 0.35$ ,  $p = 0.559$ ) as well as when the participant did not receive any explanation ( $M_{\text{before}} = 3.22$ ,  $SD = 1.57$  vs  $M_{\text{after}} = 3.66$ ,  $SD = 1.86$ ;  $F(1,42) = 3.96$ ,  $p = 0.053$ ). On the other hand, the participant's complaining intention significantly decreased when they received an explanation from the employee ( $M_{\text{before}} = 2.92$ ,  $SD = 1.65$  vs  $M_{\text{after}} = 2.14$ ,  $SD = 1.29$ ;  $F(1,41) = 32.63$ ,  $p < 0.001$ ). The overall results are presented in Figure 6.

## Moderated Mediation Analysis

We tested the moderated mediation model using Hayes Model 8,<sup>25</sup> by comparing the control (no explanation) condition with each explanation condition, separately (0=control, 1=other customer vs 0=control, 1=employee), to test hypotheses H3 and H4. In particular, we attempted to determine whether different explanation sources would mitigate complaining intention through the emotions of frustration and anger, and whether this indirect effect varies with blame attribution. Under each moderated mediation analysis, blame attribution (situational vs service provider) was included as a moderator, and frustration and anger levels as the mediators. Complaining intention was included as a dependent variable. Frustration and anger, as well as complaining intention, were operationalized as the difference (ie, subtracted score) in the emotional levels before and after the explanation, and then the total subtracted frustration scores were averaged. The results of the indirect effects and moderated mediation were considered statistically significant if the 90% confidence interval (CI), estimated by using bootstrapping method, did not include zero.

### Customer's Explanation vs No Explanation

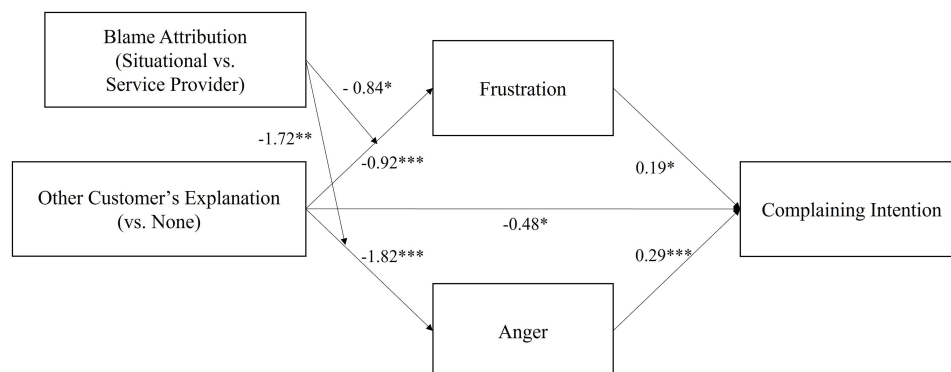
First, we designated the independent variable as 0=none vs 1=other customer, to assess whether the other customer's explanation on mitigation of complaining intention is mediated by frustration or anger, and whether this indirect effect varies with blame attribution (situational vs service provider). As a result, the overall moderated mediation model was supported with the index of moderated mediation when frustration was the mediator (index=-0.16, SE=0.12, 90% CI=[-0.39, -0.01]), indicating that the indirect effect of the other customer's explanation on complaining intention through frustration was stronger when blame attribution was situational (effect=-0.26, SE=0.14, 90% CI=[-0.52, -0.05]) compared to when blame attribution was towards the service provider (effect=-0.10, SE=0.07, 90% CI=[-0.22, -0.03]), providing support for H3a. In addition, the overall moderated mediation model was supported when anger was the mediator (index=-0.49, SE=0.24, 90% CI=[-0.94, -0.16]), yet the indirect effect of the other customer's explanation on complaining intention through anger was only significant when blame attribution was situational (effect=-0.58, SE=0.24, 90% CI=[-1.03, -0.23]), which provides support for H3b. Hence, the overall result supports hypothesis H3, that the other customer's explanation on complaining intention will be mediated by frustration and anger, and that this indirect effect will vary with blame attribution.

### Employee's Explanation vs No Explanation

Next, the moderated mediation model was tested again by designating the independent variable as 0=none vs 1=employee. This time, the overall moderated mediation model was not significant when frustration was the mediator (index=0.05, SE=0.05, 90% CI=[-0.03, 0.13]), which means that frustration could not explain the relationship between the employee's explanation under different blame attribution situations. We could not observe the moderated mediation either when we included anger as the mediator (index=0.01, SE=0.06, 90% CI=[-0.09, 0.11]). However, there were significant indirect effects of the employee's explanation on complaining intention through anger, when blame attribution was situational (effect=-0.10, SE=0.07, 90% CI=[-0.22, -0.03]) and when blame attribution was towards the service provider (effect=-0.10, SE=0.07, 90% CI=[-0.22, -0.03]). This indicates that even though we could not observe a significant moderating effect of blame attribution between the employee's explanation and complaining intention through anger, the employee's explanation could reduce anger regardless of the blame attribution, which subsequently led to complaining intention. The results support hypothesis H4, that the employee's explanation could reduce the target customer's complaining intention through anger, yet this indirect effect will not vary by blame attribution. The overall results of the moderated mediation model are depicted in Figures 7 and 8 and Table 3.

## Study 2 Discussion

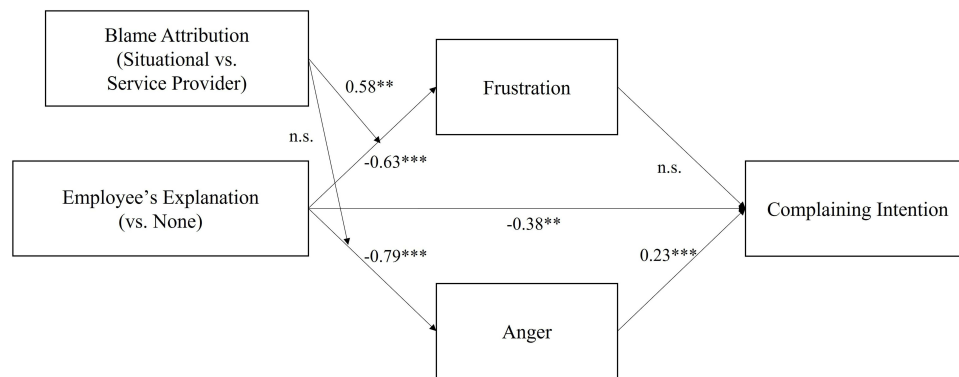
Study 2 revisited the influence of blame attribution of a service failure and the explanation source on the target customer's frustration and anger. The results were identical to those of Study 1, confirming our proposed hypotheses H1 and H2. Study 2 additionally examined the moderated mediation model, where complaining intention was included as



**Figure 7** Moderated mediation model of relationship between the other customer's explanation on complaining intention through frustration and anger, with blame attribution (situational vs service provider) as a moderator.

**Notes:** \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .





**Figure 8** Moderated mediation model of relationship between the employee's explanation on complaining intention through frustration and anger, with blame attribution (situational vs service provider) as a moderator.

**Notes:** \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

a dependent variable and the effect of explanation source was examined separately. As a result, we could observe that the indirect effect of the other customer's explanation on complaining intention through frustration was stronger when blame attribution was situational (H3a) and the indirect effect of anger between the customer's explanation and complaining intention was only significant when blame attribution was situational (H3b). We believe that this is because when the

**Table 3** Moderated Mediation Results

Other Customer's Explanation (X)	$\beta$	SE	t	p	LLCI	ULCI
X → M1	-0.92*	0.18	-5.02	<0.001	-1.23	-0.62
X → M2	-1.19*	0.25	-4.83	<0.001	-1.59	-0.78
X*W → M1	-0.84*	0.37	-2.29	0.023	-1.45	-0.23
X*W → M2	-1.72*	0.49	-3.49	<0.001	-2.53	-0.90
M1 → Y	0.19*	0.09	2.19	0.030	0.05	0.33
M2 → Y	0.29*	0.07	4.39	<0.001	0.18	0.39
X → Y	-0.48*	0.22	-2.24	0.027	-0.84	-0.13
Conditional Indirect Effects (M1)	$\beta$	SE			LLCI	ULCI
Situational	-0.26*	0.14			-0.52	-0.05
Service provider	-0.10*	0.07			-0.22	-0.003
Index of moderated mediation	-0.16*	0.12			-0.39	-0.01
Conditional Indirect Effects (M2)	$\beta$	SE			LLCI	ULCI
Situational	-0.59*	0.24			-1.03	-0.23
Service provider	-0.10	0.08			-0.24	0.03
Index of moderated mediation	-0.49*	0.24			-0.94	-0.16
Employee's Explanation (X)	$\beta$	SE	t	p	LLCI	ULCI
X → M1	-0.63*	0.18	7.87	<0.001	1.12	1.71
X → M2	-0.79*	0.18	-4.48	<0.001	-1.08	-0.50

(Continued)

**Table 3** (Continued).

Other Customer's Explanation (X)	$\beta$	SE	t	p	LLCI	ULCI
X*W $\rightarrow$ M1	0.59*	0.18	3.26	0.001	0.29	0.88
X*W $\rightarrow$ M2	0.05	0.25	0.21	0.833	-0.36	0.47
M1 $\rightarrow$ Y	0.08	0.09	0.90	0.369	-0.07	0.23
M2 $\rightarrow$ Y	0.23*	0.06	3.48	<0.001	0.12	0.33
X $\rightarrow$ Y	-0.38*	0.14	-2.62	0.009	-0.62	-0.14
Conditional Indirect Effects (M1)	$\beta$	SE			LLCI	ULCI
Situational	-0.004	0.01			-0.03	0.02
Service provider	-0.05	0.05			-0.14	0.03
Index of moderated mediation	0.05	0.05			-0.03	0.13
Conditional Indirect Effects (M2)	$\beta$	SE			LLCI	ULCI
Situational	-0.17*	0.08			-0.31	-0.04
Service provider	-0.18*	0.08			-0.31	-0.05
Index of moderated mediation	0.01	0.06			-0.09	0.11

**Notes:** X=explanation (other customer vs employee); Y=complaining intention; M1=frustration; M2=anger [mediator]; W=blame attribution (situational vs service provider) [moderator]; \* $p < 0.05$ .

target consumer's frustration and anger are relieved by the other customer's explanation, especially under situational service failure, this strongly mitigates their intention to complain because it readdresses the unfixable nature of the situation by the employees. On the other hand, we have shown that the effect of an employee's explanation on complaining intention was only mediated by anger, and this indirect effect did not vary with blame attribution (H4). This result indicates the employee's crucial role in explanation as a service recovery strategy, which mitigates the target consumer's anger when blame attribution is directed towards the service provider.

## General Discussion

### Conclusion

Service failure is prevalent and inevitable nowadays. Thus, firms should focus more on what would be the most effective recovery strategy by mitigating negative emotions derived from service failure. This paper is meaningful in that it found out the significant mitigating impact of another consumer's explanation on the target consumer's frustration after a service failure, which had a subsequent influence on complaining intention. The employee's explanation could reduce frustration only when blame attribution was towards the service provider, which did not significantly lead to complaining intention. Considering the prevalence of situational service failures that service providers cannot control (eg, flight delay due to bad weather, delivery delay due to delivery drivers' strike), the mitigation of frustration derived from such service failures is crucial. We should especially focus on the mitigation of frustration through the other customer's explanation under situational service failure because the employee's explanation could not reduce frustration in the same situation. Even though other consumers may not be able to solve the current situation, they may understand the target consumer's circumstances and relieve their frustration, simply by sharing similar emotions. We also conclude that mitigation of anger is the employee's duty indeed, yet the other customer could also reduce anger to a point that has a significant influence on complaining intention, particularly under situational service failure. However, the point is that the mitigation of both emotions (ie, frustration and anger) is crucial because mitigation of those emotions evoked by the service failure could significantly reduce the intention to complain, depending on who is providing an explanation for the service failure.

## Theoretical Implications

This study makes several novel contributions. First, based on the attribution and appraisal theories of emotion, the current study enriches the service recovery literature in broader terms. A previous study focused on the crucial service recovery role of the employee's informational support in reducing the anger evoked by a service failure.<sup>4</sup> This study additionally considers the other consumer's informational support (ie, explanation) as a service recovery source. By comparing the mitigating effect of negative emotions (ie, frustration and anger) under different service failure circumstances, the current study presents the important service recovery role of other customers by showing that the target consumer's frustration can be reduced after hearing the other customer's explanation, especially under situational service failure, which employees could not achieve.

Second, the current study contributes to the CCB literature by examining the effect of voluntary help (ie, explanation) from the customers in mitigating frustration, which had a subsequent impact on complaining intention. Previous CCB studies mostly focused on the antecedents of CCB.<sup>26,27</sup> One should note that the voluntary informational support from other customers could be considered as CCB among various types of help (ie, making recommendations or giving feedback based on one's previous experiences). This study investigates the consequent effects of voluntary explanations from the other customers on the target customer's frustration after the service failure and provides solution to reduce not only the target customer's anger but also their frustration.

Third, throughout the studies, we investigated the interactive effect between blame attribution (situational vs service provider) and explanation source (other customer vs employee vs none) on negative emotions that arise from the service failure (ie, frustration and anger), and determine which explanation source is better in reducing negative emotions, depending on the different service failure situations. Previous research did not examine the moderating effect of blame attribution and explanation, yet concluded from the pretest that anger is evoked more under external service failure circumstances, whereas frustration is elicited strongly under situational blame circumstances.<sup>4</sup> This study revealed the interaction effect between blame attribution (situational vs service provider) and explanation source (other customer vs employee vs none) on negative emotions (ie, frustration and anger), and found that only the other customer's explanation could mitigate frustration when blame attribution was situational and the employee's explanation could mitigate anger when blame attribution was towards the service provider.

## Managerial Implications

The findings from this article have several implications for managers and firms currently engaging in various kinds of service industries. The most important issue that can be inferred from the results of this study is that companies should not only train their employees, but also pay more attention to encouraging CCB in their existing consumers (external employees). This could be done by creating an active online forum that encourages customers to communicate with each other or by providing a reward to consumers who give appropriate informational support to other consumers experiencing service failure.

Although monetary compensation is thought to be the most effective service recovery strategy,<sup>28</sup> service firms should recognize that other customers may be an alternative source of instrumental support and make concerted efforts to retain existing customers. Considering the prevalence of situational service failure nowadays, other customers helping the target customer who is facing an issue, by explaining the current situation, could be extremely helpful to firms because an employee's explanation may not relieve frustrated customers under certain situations. Maintaining a positive relationship with existing customers may potentially be a very useful marketing strategy for small firms that are currently engaging in the online business service industry, since they do not have enough capital to hire many employees or to provide sufficient monetary compensation, unlike the major companies.

Lastly, firms should realize that there are certain service failures that only employees can recover, and should train their internal employees appropriately in terms of successful service recovery. The results of the current study have shown that the mitigation of frustration after a service failure was possible by the other customers, yet the mitigation of anger could be only achieved by the employee's explanation, especially under external service failure (ie, when blame attribution is towards the service provider). Hence, firms should properly train their employees to acknowledge their

mistakes and to provide clear communications with the customers under external service failure circumstances, in order to perform a successful service recovery process.

## Limitations and Future Research

The current study has some limitations which can provide avenues for future research. First of all, this research particularly examines the impact of another consumer's retrospective explanation (eg, why the service failure occurred) on the target consumer's frustration (retrospective emotion). Along a similar line, further research could also investigate the effects of another consumer's prospective explanation (eg, what will happen in the future) on the target consumer's prospective emotions (ie, helplessness or doubt about the future service). In that case, the research could contribute to the service recovery and CCB literature in a more comprehensive way.

Second, according to Nielsen, 92% of consumers believe recommendations from friends and family over all forms of advertising.<sup>29</sup> We can infer from the statistics that when it comes to other consumers explaining the service failure (rather than the employees), target consumers trust their fellow consumers' explanation more than the employees' explanation. Future research may investigate the role of trust between the explanation source (employee vs other customer) on aversive emotions after a service failure.

Moreover, further research could examine whether an artificial intelligence (AI)-powered chatbot which provides a virtual chat service and product recommendations could replace the employee's role as well as the other customer's role in providing informational support after the service failure. Previous research investigated customers' reactions towards AI-based e-commerce platforms such as Alibaba and Tencent based on customer resistance to change behavior and risk theory, and found no significant relationship between product quality (of Alibaba and Tencent), trust, and satisfaction.<sup>30</sup> The current research found that the emotional similarity with other customers mitigates the target consumer's frustration, which subsequently leads to a decrease in complaining intention. Considering that AI chatbots can have various personalities (eg, employee, secretary, and other consumer), whether the AI chatbot could replace the employee's role as well as the other customer's role as CCB, and whether this change in personality could have a positive influence on trust and satisfaction is questionable and worthy of investigation in future research.

Finally, this research only considers and examines the customer's frustration and anger and the service recovery process after the service failure. Previous research investigated the emotions displayed by employees (ie, anger and happiness) during the service recovery process and their interaction effect with the quality of solution on the customer's satisfaction with service recovery.<sup>31</sup> From the employee's point of view, anger is considered to be a contagious and aggressive emotion that can derive from the stress of service recovery, whereas frustration can be evoked by the employee's inability to control the service failure. Further research could be conducted in terms of comparing anger and frustration displayed by employees during the service failure and their subsequent effects on customer's complaining intention with the recovery process.

## Disclosure

The author reports no conflicts of interest in this work.

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