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Impacts of the COVID-19 pandemic on airline passengers’ recovery satisfaction: An experimental study

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ARTICLE INFO
Keywords:
Customer participation
Service failure
Recovery
Satisfaction
COVID-19

ABSTRACT
The COVID-19 pandemic has impacted nearly every country in the world and affected numerous industries. Many businesses stopped or restricted their operations, resulting in service failures. This study aims to investigate the effect of customer participation and service failure on customer recovery satisfaction in the airline industry. The research employed a scenario-based experiment with 180 respondents as the samples. Convenience sampling was adopted. The responses of customer recovery satisfaction were measured on a 7-point Likert scale. Exploratory factor analysis was then used to validate the measurement and a general linear model was carried out to examine the impacts of customer participation and service failure on customer recovery satisfaction. The results showed that when the failure was due to the COVID-19, the highest customer satisfaction occurred when customers jointly participated in service recovery. This study also revealed that increasing customer participation during the service failure due to pilots on strike resulted in decreased customer recovery satisfaction. The current study contributes to the existing literature related to customer participation in service recovery. This research also provides a practical contribution for service managers when designing the level of customer participation in service recovery.

Introduction
The COVID-19 pandemic has spread to almost every country in the world and produced a downturn in numerous industries. To suppress the spread of the coronavirus, many countries have enacted lockdowns at different levels: national lockdown (e.g., the UK, Switzerland, Croatia, Argentina, Iran, Pakistan, New Zealand, Kenya), localized lockdown (e.g., the US, Brazil, Chile, China, Australia), national/localized recommendations (e.g., Indonesia, Japan, South Korea, Singapore, Sweden, Mexico, Cameroon) (Dunford et al., 2020). Furthermore, many countries have enforced their lockdowns not just for a single period of time, but instead for several periods following a surge of new COVID-19 cases. For example, before January 2021, the UK enacted a third lockdown, as cases there continued to rise (BBC, 2021). Germany, Denmark, Netherlands, Wales, the Czech Republic, and others imposed lockdowns once again before Christmas 2020 (Business Insider, 2020). In 2021, after a new variant of coronavirus was found, some countries like Singapore reinstituted the lockdowns they had imposed in 2020 (Park, 2021). The COVID-19 pandemic has thus disrupted people’s lives and created many different changes (Thomas et al., 2021). There remain uncertainties for the future for various aspects including businesses.

One of the industries affected severely by the COVID-19 pandemic is the airline industry (Pallini, 2020). From the consumer side, passengers avoided flying to avoid exposure to the coronavirus. Further still, the lockdown policies implemented by many countries forced the airline companies to stop services. Taken together, a substantial reduction in travel occurred due to the COVID-19 pandemic (Ozbilen et al., 2021).

In the early days of the pandemic when a country re-imposed a lockdown, many airline companies simply cancelled their flights abruptly. For example, an Indonesian airport operator reported that as many as 12,703 flights with a total number of passengers estimated at 1.67 million were cancelled from January to February 2020 at 15 airports across Indonesia (Mufti, 2020). The number of passengers in Indonesia thus decreased by 89.62% from April 2020 to May 2020 (Soelasih and Sumani, 2020). Similar cancellations also occurred in other countries worldwide. That policy meant that there was no service delivery for customers who had already purchased tickets. As a result, the expected services did not fulfill customer expectations (Andreassen, 2000) and thus produced service failures.

Service failure can be attributable to various factors, such as controllable failure (Weiner, 2000). Based on it, service failures due to the COVID-19 lockdown are categorized as uncontrollable failures.
Lockdowns were also sometimes imposed suddenly in many countries, and almost all airline companies stopped operations without prior planning, as they could not control the failure. On the other hand, some service failures can be relatively controlled by companies. For example, in the case of a pilot strike, British Airways announced the cancellation of almost all its flights in the UK that affected 195,000 passengers (Gorainoff, 2019). These two different types of failures affect a customer’s tolerance level when accepting service failures.

In previous decades, it was common for service providers to have sole responsibility for recovering from failure (Weber and Sparks, 2004). In that case, customers who experienced the negative consequences of a service failure just hoped the companies would address them. However, today companies can also encourage their customers to become involved in co-creation of the service recovery process (Ajitha et al., 2019; Vázquez-Casielles et al., 2017). For example, the internet now enables customers to deliver efficient service recovery through online channels such as online rebooking.

Several studies have been carried out on the extent of customer participation in service recovery. Previous research showed that customer participation enhanced customer satisfaction with recovery (e.g., Bagherzadeh et al. (2020), Vázquez-Casielles et al. (2017)). However, Van Vaerenbergh et al. (2018) pointed out that the previous research produced inconsistent findings on the effectiveness of customer participation in actual service recovery. Chen (2018) also argued some mixed findings on the correlation between customer participation and the causal attribution of a particular service failure. Furthermore, several prior research efforts also showed that future studies could expand the type of failure attribution such as controllability (Dong et al., 2008; Roggeveen et al., 2012; Abbasi, 2020). In addition, there has been a call to extend the research focus on the airline industry (Zhang and Shao, 2018; Abbasi, 2020).

The current study attempted to fill the research gap and investigated the airline context, since the airline industry suffers from various service failures (Nikbin et al., 2012), such as flight cancellations, delays, employee attitudes, problems with reservations, problems with luggage, overbooking of aircraft, pilots on strike, and most recently, the COVID-19 lockdowns. In the event of a flight cancellation or international border closures caused by the COVID-19, airline companies offered a variety of recovery strategies such as rebooking via websites, mobile apps, phone numbers or use of travel agents. Service failure due to the COVID-19 pandemic, therefore, is a current empirical issue offering different levels of customer participation in the recovery process and customer response to it.

For this purpose, the current research compares the effect of service failure due to the COVID-19 lockdown (as an uncontrollable attribution) to the pilot strike (as a controllable attribution). Hence, the objective of the study is to examine the effects of customer participation levels on customer recovery satisfaction when the service failures are caused by uncontrollable circumstances vs. controllable attributions. Three levels of customer participation were thus investigated in this study: No customer participation, joint recovery between customer and the company, and customer recovery.

This study is important because the value that customers receive from their participation in service recovery can be offset by the loss created by the actual failure. The research is also crucial for both managers and policy makers who must deal with service failure and the related service recovery, as they need to develop effective recovery strategies. This study also contributes to the existing literature related to customer participation in service recovery, especially when the service failure is due to the COVID-19 pandemic, a unique type of service failure in this instance.

Theoretical background

A service failure arises when customers perceive that the service delivered to them is lower than their expectations (Zeithaml et al., 1993). Service failures can be defined as “any service-related mishaps or problems (real and/or perceived) that occur during a consumer’s experience with a firm” (Maxham III, 2001:11). When a service failure occurs, generally companies offer some kind of service recovery to their customers. Gronroos (1988) defined service recovery as the solutions that service providers offer in order to defuse consumer complaints caused by service failures. Hence, a service recovery represents an exchange wherein consumers who experience a loss due to service failure obtain solutions from the companies as a recovery effort (Smith and Bolton, 1998). Thus, the recovery effort offered by companies must provide benefits that are equitable to the customers’ loss (Grewal et al., 2008). This action means that the effectiveness of service recovery should be a function that produces some kind of equity via the exchange process (Oliver and Swan, 1989).

Prior research has examined the influence of service recovery on customer evaluation from the perspective of equity theory (Adams, 1963) and attribution theory (Heider, 1958). Equity theory proposes that consumers evaluate the service recovery by comparing the balance between service input and output (Greenberg, 1990) or between what the customers have received and what they expected (Folkes, 1984; Patterson et al., 2006). Equity theory works well in exchange situations where outputs and inputs of two parties are compared (Van Raaij and Pruyn, 1998). Therefore, service recovery evaluation outcome depends on whether the input that customers give regarding the service is equitable with the output they receive. Furthermore, customers also evaluate whether the ratio of their outcomes to the level of their inputs is equal to the ratio of the service provider and/or other customers (Van Raaij and Pruyn, 1998). Previous studies found a strong relationship between equity perceptions and customer satisfaction with service recovery (Goodwin and Ross, 1992; Liao, 2007; Sparks and McColl-Kennedy, 2001).

In addition, when customers experience a service failure, they commonly look for the reasons for the failures to gain more clarification (Anderson, 1983; Bitner, 1990). Attribution is the cognitive process of inferring the underlying causes of the events or behaviors that people observe (Kelley and Michela, 1980). Customers thus make attributions for these failures. Attribution theory has offered meaningful insights into the service failure studies (Swanson and Kelly, 2001) and can predict consumers’ responses to a service failure (Folkes, 1984). One type of failure attribution is controllability (Weiner, 2000). It refers to customer evaluation on whether the causes of failure can be prevented by companies or cannot (Hess et al., 2003). Thus, if customers experienced a service failure, the attribution process can cause a positive evaluation (the failure was not the company’s fault) or negative attributions (the company contributed to the failure).

Meanwhile, the role of customer participation in service delivery has received greater attention today than before. Customer participation can be defined as “the degree to which the customer is involved in producing and delivering the service” (Dabholkar, 1990:484). This definition is also developed for service recovery, since customers can participate more actively in that process (Dong et al., 2008). In the extant research, Dong and Sivakumar (2017) defined the domains, scopes, and boundaries related to customer participation, including in a recovery process. Further still, there has been a call to the research focus on catastrophic failure (Sivakumar et al., 2014) such as the COVID-19 pandemic. This study attempted to address it.

Research hypotheses

The combination of differences in the customer participation level and the types of controllability of service failures can produce different effects on customer evaluation. One of the outcomes that customers are concerned about is satisfaction (Ajitha et al., 2019). Flight cancellation due to the COVID-19 lockdown was considered an uncontrollable attribution. In this case, the service failure could not be controlled by any of the flight companies. When the failure is perceived as beyond the
company’s control, consumers will be less likely to question the failure, a viewpoint that reduces the need to restore equity (Bitner, 1990). Customers more readily forgive the service provider when the company has no or only limited control over the service failure incidence (Maxham III and Netemeyer, 2002). Therefore, customers will react positively when they can join with the companies to solve the problem. Joint recovery lets customers customize their experience using the service recovery process (Roggeveen et al., 2012). Previous research also has shown that customer satisfaction increases when the level of customer participation is greater and moves from company recovery to joint recovery in cases of uncontrollable service failure (Roggeveen et al., 2012).

However, in terms of customer recovery, customers solve 100 percent of failures by themselves. They should give more input than occurs for joint recovery. Since customers evaluate their own input, they also expect the companies’ inputs or outputs they receive. Therefore, in this condition, consumers will perceive a discrepancy between their expectations and the realization (Oliver, 1980). Thus, this study proposes the following hypotheses:

- **H1a**: When lockdown during the COVID-19 pandemic (uncontrollable cause) is the source of the service failure, the increasing level of customer participation from company recovery to joint recovery results in increased customer recovery satisfaction.
- **H1b**: When lockdown during the COVID-19 pandemic (uncontrollable cause) is the source of the service failure, the increasing level of customer participation from joint recovery to customer recovery leads to decreased customer recovery satisfaction.

The differences in the service failure attributions can have different impacts on customer response. If a service provider can prevent the failures but does not do so, consumers might blame the firm (Swanson and Kelly, 2001) and feel angry (Folkes, 1984). Choi and Mattila (2008) also found that customer satisfaction was lower when customers perceived that the failure could be controlled by the company rather than by the customers. In such a situation, customers hope for more input from the service providers as a sign of their responsibility. The customers do not expect to give more input in the recovery process, no matter the value that they receive from participation. This is because the positive value gained from customer participation is now offset by the negative consequences, such as the negative emotion created by the controllable failure. This study used the pilot strike as a controllable service failure and therefore proposed the following hypotheses:

- **H2a**: When the pilot strike (controllable cause) is the service failure, the increasing level of customer participation from company recovery to joint recovery results in decreased customer recovery satisfaction.
- **H2b**: When the pilot strike (controllable cause) is the service failure, the increasing level of customer participation from joint recovery to customer recovery results in decreased customer recovery satisfaction.

When a service failure occurs, first, the customers will judge the cause of that failure. This judgment will determine whether they participate in the recovery process or not. This is understandable, since the service providers have the first opportunity to take responsibility for a service failure (Weber and Sparks, 2004). Secondly, customers will evaluate the benefits and costs that they will receive if they participate in the service recovery. Therefore, this current study proposed the following hypothesis:

- **H3**: The effect of controllability of service failure on customer recovery satisfaction is greater than that of the level of customer participation.

### Methodology

#### Research design

This study used a scenario-based experiment with full factorial design: 2 (service failure controllability: COVID-19 lockdown vs. pilots on strike) \(\times\) 3 (customer participation level: company vs. joint vs. customer recovery) between-subjects. The method was widely used in prior research related to service failure and recovery. An experiment also has more advantages compared to the observation, which requires ethical consideration, and the survey, which can produce recall bias from memory lapses (Smith et al., 1999; Grewal et al., 2008). An experiment method also enables researchers to predict and explain the phenomena without waiting for a real case to arise.

#### Sample

As recommended by Hair et al. (2014:679), the minimum sample in each cell or group was 20 participants. Since this research also considered and reviewed similar experimental studies (e.g. Ruth and Simonin, 2003; Shevchenko et al., 2014; Vanvoschis and Morgan, 2007), the number of participants for each cell was 30 participants, more than the requirement suggested by Hair et al. (2014). Therefore, the sample size was six cells multiplied by 30 participants (180 participants in all).

Samples were drawn by convenience. The use of convenience sampling is relatively common in experimental studies. As stated by Singh and Grisafulli (2016), the use of a convenience sample is appropriate when the sampling frame for the population under investigation is inaccessible and the study sets several specific criteria regarding the suitability of the respondents. Therefore, the current study used two screening questions: Have you ever traveled by plane? Have you ever bought an online ticket? The purpose of these questions was to ensure the eligibility of the subjects. If the respondents did not meet the criteria, they were rejected.

#### Procedure

Six written scenarios were created and modified from the previous research conducted by Roggeveen et al. (2012). Since this study was carried out during the COVID-19 pandemic, the data were collected online via the internet. The participants were sent a link via a Google form. Next, the respondents read the scenario for the service failure and the recovery process. Then they completed the questionnaire related to their recovery satisfaction, manipulation check, and demographics.

Each participant was randomly assigned to one of the six types of scenarios as showed in Table 1. Each cell or group had 30 participants respectively. The manipulation included two main variables: customer participation and attribution of the service failure. Customer participation in service recovery was defined as “the degree to which the customer is involved in taking actions to respond to a service failure” (Dong et al., 2008:126). Dong et al. (2008) classified three levels of customer participation, company recovery (zero level of customer participation or 100% of recovery was performed by the company), joint recovery (50:50 participation between customer and service provider), and customer recovery (100% of customer participation in the recovery without any company participation). Therefore, a higher level of customer participation requires higher inputs from customers than from

| Table 1 |
| --- |
| Six types of scenario or cell. |
| Attribute of service failure | Level of customer participation |
| | Company recovery | Joint recovery | Customer recovery |
| COVID-19 lockdown | Scenario 1-A | Scenario 1-B | Scenario 1-C |
| Pilots on strike | Scenario 2-A | Scenario 2-B | Scenario 2-C |
the companies.

The scenario depicted that the respondents had made online booking for a flight. However, on the day of departure, when arriving at the airport to leave on vacation, the passengers were informed by the airline that their flight had been cancelled due to the COVID-19 lockdown (uncontrollable failure). The second version of failure was due to pilots on strike (controllable service failure). Then, the airline counter apologized for the service failure and offered the most feasible solution: rebooking. Participants agreed to rebook. Hence, each participant was assigned randomly to one of the three levels of participation: Company recovery, joint recovery, and customer recovery. This recovery scenario was developed close to the real condition. As reported by Pallini (2020), when the COVID-19 lockdown occurred, travelers who had purchased a ticket could rebook or cancel their flights on the airline website. Therefore, respondents could easily imagine it. The participants in this study received exclusive souvenirs as a reward. The detailed scenario is attached in the Appendix.

Measurement and analysis

All the measurement items in this study used a 7-point Likert scale and were borrowed from Dong et al. (2008). There were four items measuring customer recovery satisfaction as presented in Table 2. The author also carried out a pilot test. The test was conducted by distributing the six different scenarios and a questionnaire to 36 participants. Based on their feedback, only minor changes were made to ensure that the scenario worked appropriately.

The author used descriptive statistics, exploratory factor analysis (EFA), and a general linear model (GLM) to analyze the data. Descriptive statistics were used to analyze the mean value of customer recovery satisfaction. The EFA was employed to identify the underlying dimension (Malhotra, 2020) and confirm the validity of the measurement (Akturan and Tezcan, 2012). The GLM was run to estimate the analysis of variance and examine the main and interaction effects of each treatment on the dependent variables (Hair et al., 2014). This aspect meant that the GLM was used to measure the effects of the customer participation level, controllability of failure, and those interactions on customer recovery satisfaction. Therefore, all the hypotheses (H1-H2) were tested by the GLM. The current study used the statistical package SPSS version 26.0 to perform that statistical analysis (Garson, 2012; Field, 2017).

Results

Respondents

Participants included 190 air passengers in Indonesia. All of the respondents in this study have traveled by plane and bought their tickets online. The screening was useful, so that the respondents could easily imagine the scenario for the experiment. In addition, respondents also answered the manipulation checks. Ten respondents out of 190 subjects were unable to answer the manipulation checks correctly. Therefore, deletion of these unusable questionnaires resulted in a final sample size of 180. These consisted of 99 (55.0%) men and 81 (45%) women. Respondents’ ages ranged from 18 to 23 years old (mean = 19.8).

Manipulation checks

The manipulation check worked as expected. Firstly, the study involved the manipulation of the controllability of service failure. Participants indicated that the lockdown due to the COVID-19 pandemic was a more uncontrollable failure than the pilots going on strike (1.751 vs. 5.733, composite scale with 1 = uncontrollable, 7 = controllable, t = -51.461, df = 178, p < 0.05). Secondly, the study considered the manipulation of the level of customer participation. The participants agreed that the company recovery required less participation (2.133) than joint recovery (4.916) and customer recovery (7.783), on a scale of 1 = very low to 10 = very high customer participation, t(2, 177) = 817.361, p < 0.05. Therefore, all the manipulations worked successfully as intended.

Test of validity and reliability

The four scale items, as shown in Table 2, were tested for their validity using factor analysis. Factor analysis was employed to determine the factor or dimension of the variables in the proposed framework (Hair et al., 2014). The result showed that the Kaiser-Meyer-Olkin (KMO) was 0.779, exceeding 0.5 as the cut-off point (Malhotra, 2020). The value for the Bartlett’s test of sphericity was significant at 0.00, which was < 0.05 as the threshold (Malhotra, 2020). Moreover, the result also showed that the factor analysis returned one factor as expected, accounting for an aggregate 66.687% of the variance with an Eigenvalue of 2.667. The factor loading ranged from 0.648 to 0.871, which was greater than the minimum acceptable measure of 0.5 (Hair et al., 2014). Meanwhile, the reliability test revealed that Cronbach’s α for the construct was 0.828. This value was above 0.70 as the minimum requirement for internal consistency (Nunnally, 1978). Therefore, the reliability and validity of the measurement were both acceptable.

Findings

The author ran the General Linear Model to test the model and the hypotheses. The model was statistically significant with F = 25.231, p < 0.01, and adjusted R² = 0.404. This finding means that the independent variables, customer participation and controllability failure, explained 40.4 percent of the total variance of customer recovery satisfaction. Table 3 presents the descriptive statistics and testing of the hypotheses.

The results show that when the service failure was the COVID-19 lockdown, increased customer participation in service recovery from company recovery (non-customer participation at all) to joint recovery to increased customer recovery satisfaction (M_company recovery = 5.291, M_joint recovery = 5.691, t = -2.640, p < 0.05). This result means H1a was supported by the data. Next, given the same service failure attribution (the COVID-19 lockdown), when the customer participation increased from joint recovery to customer recovery, customer satisfaction dropped (M_joint recovery = 5.691, M_customer recovery = 4.958, t = 4.576, p < 0.05). Therefore, H1b was also supported by the data.

However, when the service failure was due to pilots on strike, the increasing level of customer participation from company recovery to joint recovery decreased customer recovery satisfaction (M_company recovery = 4.891, M_joint recovery = 4.633, t = 2.151, p < 0.05). This finding proves that H2a was supported by the data. Next, if the customer participation increased from joint recovery to customer recovery, the
Table 3
Descriptive statistics and testing of the hypotheses.

| Attribute of service failure | Level of customer participation | Mean difference | P-value | Results |
|-----------------------------|--------------------------------|-----------------|---------|---------|
| Lockdown during COVID-19 pandemic (uncontrollable) | From company recovery (5.291) to joint recovery (5.691) | 0.400 | 0.011** | H₁₆ supported |
|                             | From joint recovery (5.691) to customer recovery (4.958) | -0.733 | 0.000** | H₂₆ supported |
| Pilots on strike (controllable) | From customer recovery (4.891) to joint recovery (4.633) | -0.258 | 0.036** | H₃₆ supported |
|                             | From joint recovery (4.633) to customer recovery (4.291) | -0.342 | 0.008** | H₃₉ supported |

Note: * number in the bracket is the mean value for customer recovery satisfaction, **p < 0.05.

Table 4
GLM results and testing of the hypotheses.

| Parameter                                      | F     | p-value | η²   | Results |
|------------------------------------------------|-------|---------|------|---------|
| Main effect: Controllability of attribution    | 78.897| 0.000   | 0.312| H₃ supported |
| Main effect: Level of customer participation   | 17.881| 0.000   | 0.170|         |
| Interaction effect: Controllability × Level of customer participation | 5.748 | 0.004   | 0.062|         |

customer satisfaction also dropped (Mjoint recovery = 4.633, Mcustomer recovery = 4.291, t = 2.758, p < 0.05). Therefore, H₂₆ was also supported by the data.

Furthermore, there was a significant two-way interaction between the customer participation and controllability (F = 5.748, p < 0.05) on customer recovery satisfaction. This study used eta squared (η²) to estimate the magnitude of the main effects and their interactions (Goffaux et al., 2015). Eta squared measures the percentage of variance explained by a given factor (Levine and Hullett, 2002). The effect of the controllability of failure on customer satisfaction (η² = 0.312) was higher than that for customer participation (η² = 0.170). The H₃ was also supported by the data. The main and interaction effects of the customer participation and the controllability of failures on customer recovery satisfaction are shown in Table 4 and plotted in Fig. 1.

Discussion and implications

Results of this study showed that customer recovery satisfaction is formed through an assessment of the level of customer participation and the controllability of the service failure. This provides clear evidence that customers have more tolerance for uncontrollable service failure, like the lockdown during the COVID-19 pandemic, than any controllable failure attribution, like pilots on strike. Therefore, in joint recovery, customers receive value and perceive the service provider as the responsible entity for solving the problem. This finding was supported by Roggeveen et al. (2012) that investigated service failure because of bad weather as another kind of uncontrollable attribution.

However, asking customers to solve the service failure fully by themselves (customer recovery) puts them in an inequitable circumstance. Customers still demand the company’s input to solve the service failure to a certain extent, such as staff attention or accompaniment. This finding is supported by Collier et al. (2017), who found that the more employees took over the recovery actions, the higher was the resulting customer satisfaction. Further, it appears that self-serving bias still exists in customers, even in an uncontrollable attribution. As stated by Bendapudi and Leone (2003), customers were less likely to take responsibility by themselves because of the self-serving bias. This explains why customer recovery does not create higher customer satisfaction compared the satisfaction obtained using joint recovery.

This study also sheds light on when an increasing level of customer participation does not enhance customer recovery satisfaction. In a controllable service failure, pilots on strike, customers felt that the company was fully responsible for the failure, because the firm could control that situation. Therefore, to make equity for customers, companies should deliver more or all of the input for recovery than their customers. In summary, in a controllable service failure, asking customers to give their input will put them in an unbalanced position, which then leads to their dissatisfaction.

This study contributes to the existing literature on customer participation in service recovery. The results corroborate the view that equity theory and attribution theory work well as a foundation for the explanation of customers’ responses to service recovery, including in the context of COVID-19 pandemic. The result also found that the controllability of failure has a greater effect on customer satisfaction than do the customer benefits gained from their participation in that recovery.

The findings of the current research also contribute to managerial implications. First, service providers cannot fully surrender their service recovery to customers. Customers still demand the company’s input to solve the service failure as its responsibility. Second, joint recovery is proven to enhance customer satisfaction for an uncontrollable service failure like the COVID-19 lockdown. Therefore, encouraging customers to join in recovery with the company is advisable in this condition. In contrast, service providers should select company recovery if the service failure is controllable. In that situation, service providers should show their efforts clearly to customers, as customers want the companies to give more input during the recovery process.

Limitation and future research

This study is subject to some limitations. First, the current research used a scenario-based experiment. This method lacks external validity (Malhotra, 2020). Therefore, future research could examine the case in a real-world context, such as using a survey. Second, the classical limitation is related to the samples like most studies. Therefore, the results of this study should be interpreted with caution because of the limited sample size and limited demographic profile of the respondents. The majority of the respondents in the current research was a young generation. Future research can be based on samples drawn from different groups of respondents, such as older respondents and various occupations. This change can enhance the generalizability of results or even produce new findings related to the different responses obtained from each group.

Third, this study explored customer participation with the participation initiative coming from the service provider. Xu et al. (2014) investigated the different impacts of such initiation, i.e., employee-initiated vs. customer-initiated in co-recovery on customer evaluations. Future studies can investigate customer-initiated recovery. Fourth, this study used a type of replaceable customer participation. Dong and Sivakumar (2017) categorized three types of customer participation: Mandatory, replaceable, and voluntary. Future studies can examine voluntary customer participation to enrich the findings of this study. Lastly, several studies have examined the presence of others during failure and recovery (Yi and Kim, 2017). The current research used the presence of employees and the absence of other customers in the self-service technology context. Therefore, future research can investigate the role of a combination of the presence or absence of others in the service recovery process to enrich the findings.
CRediT authorship contribution statement

Istijanto: Conceptualization, Methodology, Software, Writing - review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

The author thanks Kantor Riset SBE Universitas Prasetiya Mulya for proofreading the manuscript and Dr. Adilla Anggraeni for valuable comments on an early version of the manuscript. The author is also grateful for the precious suggestions made by the blind reviewers and feedbacks from the Transportation Research Interdisciplinary Perspectives editorial team.

Appendix

Service failure manipulation scenario

Uncontrollable attribution: Sudden COVID-19 lockdown (Scenario 1)

Imagine that you have been planning a vacation trip to Singapore. You successfully booked an airline ticket a month ago. Today is the day of the trip.

At 8:00 a.m., you arrive at the airport and go to the airline counter to check in. At the counter, you give your confirmation number to the airline staff. Then, the staff apologizes and informs you that the flight is cancelled because of a sudden COVID-19 lockdown. The staff explains that Singapore has suddenly applied a lockdown to prevent the spread of the coronavirus. The staff acknowledges the inconvenience and informs you that you can rebook your flight without additional payment.

Controllable attribution: Pilots on strike (Scenario 2)

Imagine that you have been planning a vacation trip to Singapore. You successfully booked an airline ticket a month ago. Today is the day of the trip.

At 8:00 a.m., you arrive at the airport and go to the airline counter to check in. At the counter, you give your confirmation number to the airline staff. Then, the staff apologizes and informs you that the flight is cancelled because of a sudden pilot strike. The staff explains that the pilots went on strike to demand the wage increases as the company had promised them. The staff acknowledges the inconvenience and informs you that you can rebook your flight without additional payment.

Level of customer participation manipulation

Company recovery (Scenario A)

The airline staff member respectfully asks you to wait in the lounge while rebooking for you on a new flight. You take a seat on the sofa, and the staff tries to rebook you for a new flight. After 10 min, the airline staff member calls you and explains politely that the staff was able to rebook a new schedule. Finally, due to the inconvenience that you experienced, the airline gives you free voucher for food and beverage as compensation.

Joint recovery (Scenario B)

The airline staff member respectfully changes the direction of the computer monitor so that you can see the available schedules of new flight. You stand with the staff and look at these alternatives together. You also use your smartphone to explore the new available schedule. Both of you discuss the best alternatives for yourself. After 10 min, you and the airline staff member rebook a new schedule that you requested. Finally, due to the inconvenience that you experienced, the airline gives you free voucher for food and beverage as compensation.

Customer recovery (Scenario C)

The airline staff member respectfully tells you that you can rebook a new flight by yourself if you want to. You agree and decide to open your smartphone, as you are very familiar with the applications. By using your smart phone, you can see the available schedules of new flights. You look at these alternatives. You think about the best alternative for yourself. After 10 min, you are able to rebook a new schedule that you like. Finally, due to the inconvenience that you experienced, the airline gives you free voucher for food and beverage as compensation.

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