CUSTOMER PARTICIPATION IN SERVICE RECOVERY: A META-ANALYSIS

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ABSTRACT

Research on customer participation in service recovery is surging, yet empirical examinations provide mixed results. A meta-analysis of 30 independent samples reported in 21 studies (N = 7,872) shows that the effect sizes for the relationships between customer participation in service recovery and customer outcomes are rather weak. We also find that customer participation in service recovery has an indirect effect on satisfaction with service recovery via distributive justice and procedural justice, but not via interactional justice. Conversely, customer participation in service recovery has an indirect effect on overall satisfaction via distributive justice and interactional justice, but not via procedural justice. Finally, the effectiveness of customer participation in service recovery is stronger when customers participate in the outcome of the recovery and for customers with an Eastern cultural background, but weaker when additional compensation is offered and in online settings.

Keywords: service failure; service recovery; customer participation; co-creation; customer complaints

1 INTRODUCTION

Customer complaints represent a critical moment of truth in the firm-customer relationship. An unsatisfactory response to the customer's complaints may fuel customers' decision to leave (Knox and Van Oest 2014) and even to retaliate against the firm (Joireman et al. 2013). Researchers show that by resolving the problem or offering compensation, apologizing for the failure and acting quickly, can help restore customer outcomes (e.g. Gelbrich and Roschk 2011). Researchers have begun to disentangle the customer's role in the service recovery process. A growing body of research examines the effects of customer participation in service recovery, defined as customers' ability to "shape or personalize the content of the service recovery through joint collaboration with the service provider" (Roggeveen et al. 2012, p. 772). For example, customers who had their flight cancelled may go through different alternative solutions together with the desk employee and finally choose which alternative suits them best.

Although prior studies provide useful insights regarding the effectiveness of customer participation in service recovery, further research is necessary because of three main reasons. First, the empirical findings regarding the effectiveness of customer participation in service recovery are, at best, mixed. Some studies indeed show customers react favorably to participation in a service recovery (e.g., Dong et al. 2008; Roggeveen et al. 2012), whereas other studies show considerable variation in terms of magnitude and significance of the effects of customer participation in service recovery on customer outcomes (e.g., Hazée et al. 2017; Heidenreich et al. 2015). These findings create doubt about the absolute strength and significance of these relationships. Secondly, researchers used a wide variety of dependent variables in their studies (e.g., Balaji et al. 2018; Dong et al. 2016). Yet no study demonstrates their relative effectiveness or conjointly analyzes the full range of relationships in an overall model. The third reason is that prior research lacks empirical consistency in its theoretical underpinning. While most studies draw on justice theory as a theoretical anchor for

understanding the effectiveness of customer participation in service recovery, some argue customer participation is related to one specific justice dimension (e.g., Karande et al. 2007) whereas others argue customer participation is related to all three justice dimensions (e.g., Gohary et al. 2016a).

The overall aim of the present study is to conduct a meta-analysis of the customer participation in service recovery literature. We attempt to answer the following research questions: (1) Is customer participation in service recovery positively and significantly related to customer outcomes? If so, what is the relative importance of customer participation in service recovery in driving these customer outcomes? (2) Which justice dimension underlies the effect of customer participation on customer outcomes? and (3) Do substantive and methodological moderators affect the strength of relationships between customer participation in service recovery and customer outcomes? In answering these research questions, we engage with Hazée et al.'s (2017, p. 107) observation that research needs "to further validate the relationships between a co-created recovery and customer outcomes, and to test moderators that might explain the mixed findings."

2 CONCEPTUAL BACKGROUND

2.1 Effectiveness of customer participation in service recovery

Firms have traditionally considered customers as passive recipients of their practices (Payne et al. 2008). This view has also been prevalent in prior research on service recovery, which is viewed as the actions taken *by* the firm *for* the customer following a service failure (Grönroos 1988). A new marketing logic sees customers as active rather than passive and value creation as a process in which the firm's and the customer's resources are integrated (Vargo and Lusch 2016). This logic has been increasingly embraced by both practitioners and marketing researchers (Dong and Sivakumar 2017), who also started to explore the effectiveness of customer participation in service recovery.

Researchers have used a wide variety of outcome variables to examine this issue. As to compare with prior meta-analyses examining the effects of service recovery practices on customer outcomes (Gelbrich and Roschk 2011; Orsingher et al. 2010), this research focuses on customer satisfaction with recovery, overall satisfaction, as well as repurchase and word-of-mouth intentions as dependent variables. Orsingher et al. (2010) suggest future research should indeed focus on these specific dependent variables and consider them separately as they produce different effects. We also consider the three justice dimensions—distributive, interactional, and procedural—as distinct variables in this meta-analysis as justice is best conceptualized as a multidimensional construct (Orsingher et al. 2010). The conceptual framework in Figure 1 displays the variables and relationships that are examined in this meta-analysis. The nomological placement of each variable reflects the causal ordering of variables in Gelbrich and Roschk's (2011) meta-analysis.

[Figure 1 here]

2.2 Moderator variables

We consider several moderator variables to gain insights into the mixed findings reported in prior literature, namely: type of service failure, type of customer participation in service recovery, whether additional compensation was offered, culture, and study context. We also added three control variables, namely: study design, sampling frame, and journal quality.

Type of service failure. Prior research distinguishes between process failures and outcome failures (Smith et al. 1999). Process failures occur when the service delivery is deficient in some way (e.g., a desk employee being impolite); in outcome failures the core service is not delivered correctly (e.g., a flight is cancelled). Customers can more easily determine the cause for process failures than for outcome failures (Chan et al. 2007), hence customers may have less need for extensive interactions with employees to find solutions to complaints about

process failures. We expect that effect sizes will be lower in studies examining process failures than in studies examining outcome failures.

Type of customer participation in service recovery. Customers can participate during multiple stages of the recovery (Dong and Sivakumar 2017). Customers may collaborate with service employees and participate in either the recovery process (e.g., a customer exchanging information and looking at different alternatives together with the employee; Roggeveen et al. 2012), the recovery outcome (e.g., a customer selecting the alternative that s/he likes best; Karande et al. 2007), or both. Customers who can select a specific recovery solution are more likely to attain an outcome that is tailored to their needs, compared with customers who can only personalize the recovery process. This higher likelihood of obtaining the most appropriate outcome in turn would create more favorable perceptions of the recovery encounter (Hazée et al. 2017). We expect that effect sizes will be lower in studies where customers can only participate in the recovery process than in studies where customers can (also) select the recovery outcome.

Additional compensation efforts. Empirical research on customer participation in service recovery can be divided into studies where the researchers only examine customer participation versus studies where the researchers examine customer participation in conjunction with a compensation (albeit a monetary compensation or a psychological compensation in the form of an apology). If respondents must rely on multiple cues when evaluating products and services, then the effect of a specific cue on customer evaluations tends to be lower than when respondents must evaluate a single cue (e.g., Völckner and Hofmann 2007). We expect that effect sizes will be lower in studies where consumers receive additional monetary or psychological compensation next to customer participation in service recovery than in studies where consumers only participate in the service recovery.

Culture refers to "the collective programming of the mind, which distinguishes the members of one group of people from others" (Hofstede 2001, p. 9). In line with previous service recovery research (e.g. Sengupta et al. 2018), this moderating variable captures whether data were collected in an Eastern or a Western country. People living in Eastern cultures typically value interdependence and tend to focus more on relationships and connectedness than Western customers (Hofstede 2001). They have a stronger desire to cooperate with others in their environment than Western customers (Sharma 2010). For these reasons, we expect lower effect sizes for studies conducted in Western consumers than for studies conducted in Eastern countries.

Study context refers to whether the study was conducted in an offline or an online context. Prior research shows customers in an online setting perceive more control over the service delivery (Rust and Lemon 2001) as well as over how to respond to service failures (Chang and Chin 2011) compared to customers in an offline setting. Hence, customers in an offline setting might be more appreciative of receiving control over the recovery outcome (through participation in the recovery, see Guo et al. 2016) compared to customers in an online setting. We expect lower effect sizes for online settings than for offline settings.

We added three control variables. *Study design* captures whether researchers used an experimental design or a survey. Because experimental designs permit more control over potential confounding factors, experiments may produce stronger effect sizes than surveys (Farley et al. 1995). *Sampling frame* captures whether the researchers used a nonstudent or a student sample to test their hypotheses. Although researchers often use students as respondents to study customer participation in service recovery, they have more limited consumption experiences and different cognitive structures, leading them to weight experiences differently (Burnett and Dune 1986). Results from student samples may differ, in terms of both magnitude and direction, from results from non-student samples (Peterson and Merunka 2014). Finally,

journal quality captures whether a paper is published in an elite journal or not. Authors may be more likely to submit strong and clear-cut results to elite journals, and editors and reviewers from elite journals may favor studies with strong and clear-cut results over studies with weak and ambiguous results (Murtaugh 2002). Given this observation, studies published in elite journals may report stronger effect sizes than studies published in non-elite journals.

3 METHODS

3.1 Literature search and coding procedure

Following established procedures, we identified papers examining customer participation in service recovery by means of a computerized bibliographic search in relevant databases (WebofKnowledge®, ScienceDirect®, SpringerLink®, Google Scholar®). We searched for articles using the keywords "customer participation", "co-production", "co-creation", "customer involvement" and "recovery voice" combined with the keywords "service recovery", "complaint management" and "complaint handling". We supplemented this search with a manual search of references of key articles. The literature search covered the period from 2007 to March 2018 and generated 27 articles. Six articles were excluded from the analysis because (1) they were conceptual papers, (2) they focus on a co-created service failure instead of customer participation in a recovery, or (3) they did not present a control group which allows for testing the net effect of customer participation in recovery.

The remaining 21 articles were coded for the effect sizes and moderator variables. The correlation coefficient was selected as effect size metric; higher coefficient values indicate stronger effects of customer participation in service recovery on customer outcomes. For studies that reported other measures, we converted the other available statistics (e.g., *F*-values or *t*-values) into correlation coefficients using the appropriate formulae (Hunter and Schmidt 2004; Peterson and Brown 2005). As non-independence of data might potentially bias the meta-analytic results (Bijmolt and Pieters 2001), we included the correlations as independent

samples if studies report results from multiple samples. After completing the search process, we had obtained a total of 86 effect sizes from 30 independent samples reported in 21 articles (cumulative N= 7,872). Two of the authors completed the coding of the moderator variables (see below Appendix 1 for information about the coding procedure). The two coders achieved a high level of consistency; the interjudge reliability score (.86), calculated using Rust and Cooil's (1994) proportional reduction in loss measure, exceeds the recommended .80 threshold. Inconsistencies were resolved through discussion.

3.2 Effect size integration

We used Hunter and Schmidt's (2004) random-effects approach to calculate averaged correlations. First, the average correlation (r) is corrected for measurement error in both dependent and independent variables by dividing the correlations by the product of the square root of the respective reliabilities of the two particular constructs (r_{rc}). When a study did not report a reliability coefficient or used a single-item measure, we used the mean sample-size weighted reliability for that construct across all studies. Second, we weigh the reliability-corrected correlations by the sample size of the study to adjust for sampling error (r_{rcsw}), after which we calculate standard errors, 95% confidence intervals, and significance tests for these reliability-corrected, sample size-weighted correlation. We do not apply a Fisher z transformation when integrating correlations: Fisher z transformed correlations overestimate the true effect size of heterogeneous correlations with 15% to 45% (Field 2001). We examined the homogeneity of the effect size distribution using several tests (i.e., a Chi^2 test and the 75% rule-of-thumb; Hunter and Schmidt 2004). We also calculated a file drawer N-statistic for each relationship (Rosenthal 1979), which refers to the number of null studies necessary to bring significant relationships to a $p = .05$ level.

Finally, we also calculated the statistical power of our meta-analysis, which refers to the probability of correctly rejecting a null hypothesis given that it is false. Significance tests with

sufficient levels of statistical power can reliably discriminate between the null hypothesis and alternative hypothesis (Faul et al. 2007). Given the relatively low number of studies included in our meta-analysis, the statistical power analysis can help determine whether the number of studies included in the meta-analysis is sufficient to derive meaningful conclusions (Valentine et al. 2010). The statistical power of a meta-analysis depends on the effect size, the alpha level (.05), the number of studies included in the meta-analysis, and the sample size across these studies. We followed Valentine et al.'s (2010) recommendations to calculate the statistical power of a random-effects meta-analysis.

3.3 Path model estimation

In addition to testing the pairwise relationships, we tested the nomological causal model as shown in Figure 1. The model includes eight variables in total; 28 off-diagonal cells need to be filled to create the input correlation matrix for meta-analytic structural equation modeling. Hence, we examined the studies for further statistical information concerning the relationship between the dependent variables. An additional 106 effect sizes were coded and integrated following the aforementioned procedures. We use the harmonic mean of cumulative sample sizes across all relationships as the sample size for the analysis (N= 1,427). Error variances of all variables were set to zero, as measurement errors are already considered when integrating effect sizes. We specified correlations among the three justice dimensions as well as between repurchase intentions and word-of-mouth intentions, as they are related yet distinct constructs (see Gelbrich and Roschk 2011).

3.4 Moderator analysis

A multivariate, multilevel meta-regression tests the moderating effects. This model accounts for a nested error structure: articles that report multiple studies with multiple measurements cannot be considered as independent from each other (Bijmolt and Pieters 2001). We discern two levels: an effect size level (i.e. correlates of customer participation in service recovery that

differ within a study) and a study level (i.e. variables that differ only between studies). As meta-regressions typically suffer from a lack of statistical power due to a limited number of observations per relationship and given that we did not propose moderating effects specific to univariate relationships, we analyze the moderators at the multivariate level (e.g., Pick and Eisend 2016; Van Vaerenbergh et al. 2014). We specify the model as follows:

(1) Level 1 model

$$ES_{ij} = \beta_{0j} + \beta_{1j} \times (distributive\ justice_{ij}) + \beta_{2j} \times (interactional\ justice_{ij}) + \beta_{3j} \times (procedural\ justice_{ij}) + \beta_{4j} \times (satisfaction\ with\ service\ recovery_{ij}) + \beta_{5j} \times (overall\ satisfaction_{ij}) + \beta_{6j} \times (repurchase\ intentions_{ij}) + \beta_{7j} \times (word-of-mouth\ intentions_{ij}) + e_{ij}$$

(2) Level 2 model

$$\beta_{0j} = \gamma_{01} \times (type\ of\ failure_j) + \gamma_{02} \times (type\ of\ participation_j: outcome\ vs.\ process) + \gamma_{03} (type\ of\ participation_j: outcome\ vs.\ outcome\ and\ process) + \gamma_{04} \times (additional\ compensation_j) + \gamma_{05} \times (culture_j) + \gamma_{06} \times (setting_j) + \gamma_{07} \times (study\ design_j) + \gamma_{08} \times (participants_j) + \gamma_{09} \times (journal\ quality_j) + u_{0j}$$

in which ES_{ij} is the i^{th} reliability-corrected effect size reported within the j^{th} sample. Equation 1 describes the effect of different correlates of customer participation in service recovery that vary within studies, equation 2 describes the impact of variables that vary between studies on the intercept of the level 1 equation. e_{ij} refers to the effect size level residual variance, u_{0j} refers to the study level residual variance. Because we included a dummy variable for each correlate of customer participation in service recovery at the effect size level, we omitted the intercept (Orsingher et al. 2010). The dummy variables included at the effect size

level thus serve as dependent variable-specific intercepts[1]. The multilevel model was estimated using an iterative generalized least squares procedure, which yields maximum likelihood estimates.

4 RESULTS

Our analysis proceeds in three steps. First, we provide some descriptive statistics regarding the pairwise relationships between customer participation in service recovery and the outcome variables. Second, we report the results of the path model estimation testing the nomological causal model in Figure 1. Third, we report the results of the moderator analysis.

4.1 Analysis of pairwise relationships

Table 1 lists the pairwise relationships between customer participation in service recovery and the outcome variables. k refers to the number of effect sizes for those particular relationships, N refers to cumulative sample size of studies examining a certain relationship, r represents the average correlation across the k studies, r_{rc} represents the reliability-corrected correlation across the k studies, whereas r_{rcsw} represents the reliability-corrected sample size-weighted correlation across the k studies. The results in Table 1 show that customer participation in service recovery is positively and significantly related to distributive justice (.28), satisfaction with service recovery (.20), overall satisfaction (.20), repurchase intentions (.22), and word-of-mouth intentions (.22). Although not significant or marginally significant, the effect sizes of customer participation in service recovery with interactional justice (.20) and procedural justice (.20) are of similar strength than the effect sizes of the other relationships.

[Table 1 here]

[1] Multilevel meta-regressions often suffer from multicollinearity (e.g. Pick and Eisend 2016). Unfortunately, multilevel models do not offer a direct diagnostic for multicollinearity. Similar to Pick and Eisend (2016), we applied the variables in a linear regression model. The variance inflation factors (maximum VIF= 3.0) fall below the recommended threshold, suggesting that multicollinearity is not an issue.

The average fail-safe N exceeds the recommended 5k+10 threshold for all relationships (Rosenthal 1979), which indicates the significant relationships are relatively robust against publication bias. These findings reveal heterogeneity among the observed effect sizes, as the χ^2-statistic is significant for all relationships (p <.001) and the sampling error variance to observed variance ratios fall below the recommended 75% cutoff (Hunter and Schmidt 2004). Finally, the statistical power of the statistical tests largely exceeds the recommended .80 threshold. These findings indicate that our sample size was large enough to derive meaningful implications.

4.2 Path model results

Similar to Hong et al. (2013), we evaluated the model fit using the chi square (χ^2), comparative fit index (CFI), normed fit index (NFI), and standardized root-mean-square residual (SRMR) indices. The model as specified in Figure 1 yields an acceptable fit ($\chi^2(10) = 288.34$, p <.001, CFI = 97, NFI = .97, SRMR = .02) and explains 7.3% of the variance in distributive justice, 3.6% of interactional justice, 3.6% of procedural justice, 56.0% of satisfaction with service recovery, 61.6% of overall satisfaction, 67.4% of repurchase intentions, and 75.9% of word-of-mouth intentions.

Customer participation in service recovery is related to distributive justice (.27), interactional justice (.19) and procedural justice (.19). Distributive justice and procedural justice are related to satisfaction with service recovery (.46 and .33, respectively), whereas interactional justice is not (.04). Distributive justice and interactional justice are related to overall satisfaction (.21 and .20, respectively), as opposed to procedural justice (.01). Finally, satisfaction with service recovery is related to overall satisfaction (.48), repurchase intentions (.05) and word-of-mouth intentions; overall satisfaction is related to repurchase intentions (.48) and word-of-mouth intentions (.71).

We computed Sobel tests for separate assessments of the indirect effects of customer participation in service recovery. Customer participation in service recovery has an indirect effect on satisfaction with service recovery via distributive justice (.12, p <.001) and procedural justice (.06, p <.001), but not via interactional justice (.01, p =.161). Customer participation in service recovery has an indirect effect on overall satisfaction via distributive justice (.06, p <.001) and interactional justice (.04, p <.001), but not via procedural justice (.00, p =.731).

4.3 Moderator analysis results

The intraclass correlation coefficient ρ derived from the between-study (.03) and within-study variance (.04) estimates is .52, indicating that 52% of the observed variance in effect sizes can be attributed to differences between studies, and that a significant amount of clustering of effect sizes occurred within studies. This observation demonstrates the appropriateness of using a multilevel model for the moderator analysis.

The proposed model explains 49.3% of the observed variance in effect sizes. The model with level 2 variables provides a significantly better fit than the model only including level 1 variables ($\Delta\chi^2(9) = 31.15$, p <.001), demonstrating the additional explanatory power of our moderator variables. Table 2 lists the relevant parameter estimates of the multilevel model[2]. Effect sizes do not differ for outcome and process failures (γ = .08, p >.05). Customer participation in the outcome of the recovery produces stronger effects on customer post-recovery evaluations than customer participation in the process of the recovery (γ = -.21, p <.01), yet this effect does not differ from participation in both the process and the outcome of the recovery (γ = .04, p >.05). Customer participation in service recovery had a weaker effect

[2] We also ran a more parsimonious model, in which we used one intercept rather than the set of dependent variable-specific intercepts at level 1. The model fit did not change significantly ($\Delta\chi^2(7)$= 3.511, p >.05). The results for the moderators did not vary substantially.

on customer outcomes when additional compensation was offered (γ = -.19, p <.05)[3] as well as in Western cultures (γ = -.22, p <.05). We also found a marginally significant effect of the setting: The effects of customer participation in service recovery on customer outcomes is less strong in online settings as compared to offline settings (γ = -.14, p =.066). Regarding the control variables, effect sizes were also less strong in studies using students as participants (γ = -.14, p <.01), but stronger in studies published in elite journals (γ = .16, p <.05). Effect sizes did not differ between studies using experiments and studies using surveys (γ = .09, p >.05).

[Table 2 here]

5 DISCUSSIONS

5.1 Theoretical and managerial implications

The overall aim of this paper was to consolidate the empirical findings regarding the relationships between customer participation in service recovery and customer outcomes. Our meta-analysis offers the following contributions.

First, this paper outlines the value of involving customers in the recovery to positively influence different customer outcomes (i.e., satisfaction with recovery, overall satisfaction, repurchase and word-of-mouth intentions). Our study complements Gelbrich and Roschk's (2011) meta-analysis, which focused on compensation, favorable employee behavior, and organizational procedures as organizational responses to customer complaints. A careful comparison of our meta-analytic findings with Gelbrich and Roschk's (2011) findings shows that customer participation in service recovery generally leads to markedly weaker effect sizes than the other organizational responses to complaints. One potential explanation for this relatively weaker effect might be that—in line with Herzberg's (1971) two-factor theory—customers perceive participation in service recovery as a hygiene factor, that is an aspect of the

[3] Additional tests show that the strength of this effect does not depend on the nature of the compensation, that is, whether additional monetary compensation or psychological compensation (i.e. an apology) is offered.

service recovery that does not necessarily make customers feel satisfied when it is provided yet might make them feel unhappy when it is *not* provided. Customers may take participation in service recovery as a requirement, making them less likely to base their post-recovery evaluations based on this aspect.

Second, our conceptual model considers the justice dimensions as intervening variables in the process through which customer participation in service recovery affects the outcome variables (e.g., Gohary et al. 2016; Karande et al. 2007). This meta-analysis shows customer participation in service recovery relates to satisfaction with service recovery through both distributive and procedural justice, and to overall satisfaction via distributive and interactional justice. Altogether, our findings show that distributive justice is of particular importance to explain the customer participation in service recovery—customer outcomes relationships. These findings signal that customers consider customer participation in service recovery not only as a fair procedure (procedural justice), as some authors expect (e.g. Karande et al. 2007), but also as a token of fair interpersonal treatment (interactional justice), and even a fair redress (distributive justice).

Third, we provide insights into the mixed findings reported in literature. Addressing the recent call for more research on the impact of customer participation over different service (recovery) stages (Dong and Sivakumar 2017), our moderator analysis reveals stronger effect sizes when customers participate in the recovery outcome (i.e. having a say in the final decision) compared to when they only participate in the recovery process. Practitioners are recommended to involve customers in the choice of the recovery outcome, rather than just in the recovery process. Moreover, the effect of customer participation in service recovery on customer evaluation decreases when other compensation is offered. This observation reinforces the notion that customers might consider participation in service recovery as a requirement that might increase their satisfaction and behavioral intentions when it is provided during the

service recovery in case other recovery options are offered. Managers should carefully combine their organizational responses to customer complaints.

Our results also suggest that inviting customers to participate in the recovery process is more recommended in an offline (versus online) setting and is more recommended for companies operating in Eastern than in Western cultures. Xu et al. (2014) show Eastern (versus Western) customers attach more importance to the employee initiating the co-recovery; we complement these findings by showing Eastern customers attach more importance to participating in the recovery *in general*. Overall, these findings offer useful insights to managers about when customer participation in service recovery is recommended.

Finally, our study shows that researchers should be cautious in interpreting and generalizing findings from studies using student samples or reported in elite journals as it might lead to an overestimation of the average effect size. To summarize, this paper provides significant insights into why the literature reports mixed findings across studies.

5.2 Limitations and suggestions for future research

This meta-analysis suffers from some intrinsic limitations. First, this study only addresses those constructs for which sufficient primary data were available. For instance, our model does not include perceived failure severity, nor customers' level of participation in failed encounters among the moderators, as these variables were only addressed in a few studies (e.g., Roggeveen et al. 2012). While such omitted variables may produce a potential bias, our framework should be considered as a summary of the most common variables investigated in the literature. Second, though our theoretical model is largely validated, it only explains a limited portion of variance in both the justice dimensions and customer outcomes (e.g., 56% of satisfaction with service recovery). We corroborate with Van Vaerenbergh and Orsingher's (2016) call for more research investigating other mediators than justice to better understand the effects of firm recovery actions on customer outcomes.

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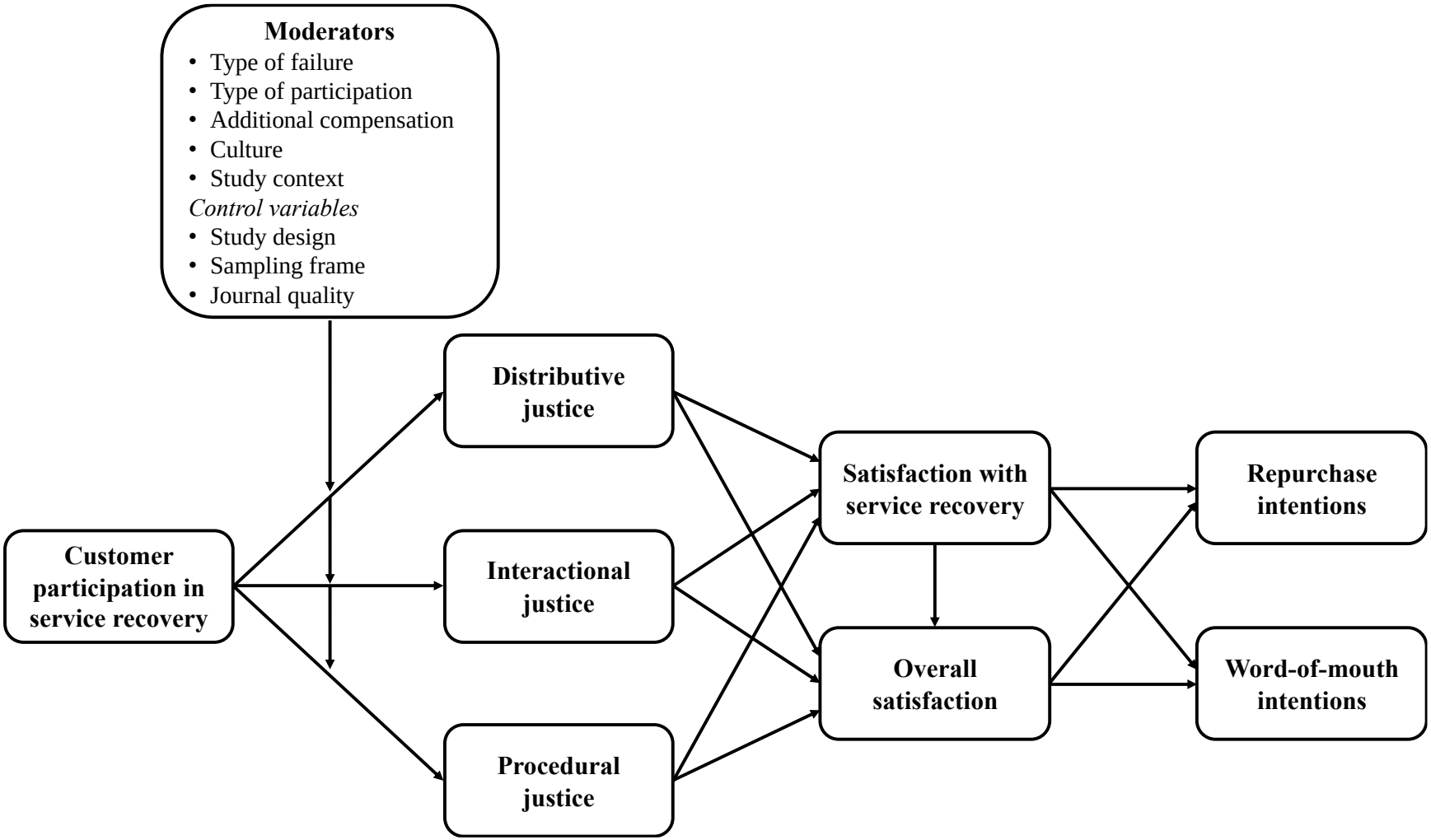
Appendix 1: Overview of studies used in the meta-analysis

Study	Type of failure[a]	Type of participation[b]	Additional compensation[c]	Study context	Culture[d]	Study design	Sample	Journal quality[e]	Sample size[f]
Armirotto (2016)	Outcome	Process	Yes	Offline	Western	Experiment	Student	Non-elite	120
Balaji et al. (2018, study 2)	Outcome	Process	Yes	Offline	Western	Experiment	Non-students	Non-elite	122
Cheung and To (2016)	Process	Process	No	Offline	Eastern	Survey	Non-students	Non-elite	594
Collier et al. (2017, study 1)	Process	Process	No	Offline	Eastern	Experiment	Student	Non-elite	158
Collier et al. (2017, study 2)	Process	Process	No	Offline	Eastern	Experiment	Student	Non-elite	150
Collier et al. (2017, study 3)	Process	Process	No	Offline	Eastern	Experiment	Non-students	Non-elite	175
Dong et al. (2008)	Process	Process	No	Online	Western	Experiment	Student	Elite	223
Dong et al. (2016, study 2)	Process	Process	No	Online	Western	Experiment	Student	Elite	92
Dong et al. (2016, study 3)	Process	Process	No	Online	Western	Experiment	Non-students	Elite	439
Gohary et al. (2016a)	Process	Process	Yes	Online	Eastern	Experiment	Non-students	Non-elite	278
Gohary et al. (2016b)	Outcome	Process	Yes	Online	Eastern	Experiment	Non-students	Non-elite	944
Guo et al. (2016, study 1)	Both[g]	Both	No	Offline	Western	Survey	Non-students	Elite	283
Hazée et al. (2017, sample 1)	Outcome	Process	Yes	Offline	Western	Experiment	Non-students	Non-elite	464
Hazée et al. (2017, sample 2)	Outcome	Process	Yes	Offline	Western	Experiment	Non-students	Non-elite	466
Heidenreich et al. (2015, study 3)	Process	Process	Yes	Online	Western	Experiment	Non-students	Elite	338
Heidenreich et al. (2015, study 4)	Outcome	Both	Yes	Offline	Western	Experiment	Non-students	Elite	265
Huang (2016)	Outcome	Outcome	Yes	Offline	Eastern	Experiment	Student	Non-elite	60
Huang et al. (2016)	Outcome	Outcome	Yes	Offline	Eastern	Experiment	Student	Non-elite	120
Joosten et al. (2017)	Outcome	Both	No	Offline	Eastern	Survey	Non-students	Non-elite	260
Karande et al. (2007, sample 1)	Outcome	Outcome	Yes	Offline	Western	Experiment	Non-students	Elite	216
Karande et al. (2007, sample 2)	Outcome	Outcome	Yes	Offline	Western	Experiment	Non-students	Elite	208
Mattila (2010)	Outcome	Outcome	Yes	Offline	Western	Experiment	Non-students	Non-elite	195
Roggeveen et al. (2012, study 1)	Outcome	Process	Yes	Offline	Western	Experiment	Student	Elite	79
Roggeveen et al. (2012, study 2)	Outcome	Process	Yes	Offline	Western	Experiment	Student	Elite	111
Roggeveen et al. (2012, study 3)	Outcome	Process	Yes	Offline	Western	Experiment	Student	Elite	87
Talgø and Rødsjø (2011)	Outcome	Process	No	Offline	Western	Experiment	Student	Non-elite	240
Vazquez et al. (2017, sample 1)	Process	Process	Yes	Offline	Western	Experiment	Non-students	Non-elite	240
Vazquez et al. (2017, sample 2)	Process	Process	Yes	Offline	Western	Experiment	Non-students	Non-elite	240
Xu et al. (2014a)	Outcome	Both	No	Offline	Eastern	Experiment	Student	Non-elite	287
Xu et al. (2014b)	Outcome	Outcome	Yes	Offline	Western	Experiment	Student	Non-elite	418

Notes: [a] Services failures were coded according to Smith et al.'s (1999) classification (outcome or process failure).

[b] Service recovery participation was similarly coded (participation in the outcome or process recovery).
[c] Additional compensation was coded as "Yes" if additional monetary and/or psychological compensation was offered by the service provider.
[d] Belgium, Germany, Spain, and the United States were classified as Western countries, whereas Hong Kong, Iran, and Taiwan were coded as Eastern countries. In case of studies in multiple countries (e.g. Xu et al., 2014b), classification was upon the location the majority of respondents came from.
[e] Elite and non-elite journals were differentiated based on the Association for Business School (ABS) Journal Ranking list; journals receiving at least a 4 on the ABS list (in our sample: *Journal of the Academy of Marketing Science* and *Journal of Service Research*) were classified as elite journals.
[f] Sample sizes reported in this table might differ from the overall sample size reported in the paper. For example, Huang et al.'s, (2016) study manipulates customer participation in service recovery in two out of three experimental conditions. We use the sample size for those two cells rather than the total sample size.
[g] Given that only one study was coded as focusing on both process and outcome failures, this value was not included in the moderator analysis.

Figure 1: Meta-analytic framework



Note: Causal ordering of the outcome variables is in line with Gelbrich and Roschk (2011).

Table 1: Analysis of pairwise relationships

	Relationships	k	N	r	r_{rc}	r_{rcsw}	95% confidence intervals	File-drawer N	Chi2 test of homogeneity	75% rule	Power
Correlates of participation in recovery	CPSR-DJ	8	2,834	.25	.27	.28	.06 | .49	929	259,29***	3%	>.99
	CPSR-IJ	7	2,594	.17	.19	.20	-.06 | .46	-	283,73***	2%	>.99
	CPSR-PJ	8	2,731	.18	.19	.20	.00 | .40	644	209,86***	4%	>.99
	CPSR-SATSR	20	5,884	.18	.19	.20	.09 | .30	2,121	310,53***	6%	>.99
	CPSR-OSAT	14	3,199	.18	.20	.20	.11 | .30	660	96,12***	15%	>.99
	CPSR-RI	20	5,513	.20	.22	.22	.13 | .31	1,422	207,7***	10%	>.99
	CPSR-WOM	9	2,376	.18	.19	.22	.05 | .38	262	145,58***	6%	>.99
Correlations among dependent variables	DJ-IJ	6	2,483	.58	.63	.63	.49 | .77	2,196	181,91***	3%	>.99
	DJ-PJ	5	2,196	.62	.66	.51	.23 | .79	1,524	299,03***	2%	>.99
	DJ-SATSR	7	2,723	.63	.70	.64	.50 | .78	3,239	219,61***	3%	>.99
	DJ-OSAT	3	620	.60	.67	.67	.59 | .75	301	25,48***	12%	>.99
	DJ-RI	5	1,842	.56	.60	.56	.46 | .66	1,071	53,66***	9%	>.99
	DJ-WOM	3	658	.64	.67	.68	.63 | .74	378	8,65**	35%	>.99
	IJ-PJ	5	2,196	.72	.77	.73	.63 | .82	2,578	115,69***	4%	>.99
	IJ-SATSR	6	2,483	.54	.58	.60	.34 | .86	2,597	590,62***	1%	>.99
	IJ-OSAT	2	380	.57	.61	.66	.48 | .84	119	20,24***	10%	>.99
	IJ-RI	4	1,602	.52	.56	.68	.44 | .93	875	216,82***	2%	>.99
	IJ-WOM	3	658	.49	.51	.52	.31 | .73	203	42,21***	7%	>.99
	PJ-SATSR	5	2,196	.62	.65	.54	.25 | .82	1,674	358,41***	1%	>.99
	PJ-OSAT	4	804	.57	.61	.63	.56 | .70	472	14,68**	27%	>.99
	PJ-RI	4	1,602	.54	.57	.49	.29 | .69	657	97,64***	4%	>.99
	PJ-WOM	3	658	.61	.64	.70	.51 | .88	399	59,21***	5%	>.99
	SATSR-OSAT	5	1,550	.66	.74	.82	.64 | 1.0	1,952	543,12***	1%	>.99
	SATSR-RI	11	3,976	.59	.63	.64	.57 | .72	6,679	212,41***	5%	>.99
	SATSR-WOM	5	1,588	.70	.73	.77	.69 | .85	2,086	69,21***	7%	>.99
	OSAT-RI	7	2,030	.75	.82	.84	.76 | .92	4,300	234,58***	3%	>.99
	OSAT-WOM	6	1,790	.79	.86	.86	.83 | .90	3,626	171,1***	4%	>.99
	RI-WOM	7	2,068	.79	.82	.84	.78 | .90	5,370	135,37***	5%	>.99

Notes: *** p <.001, ** p <.01, * p <.05, $^{n.s.}$ not significant, CPSR= customer participation in service recovery, DJ= distributive justice, IJ= interactional justice, PJ= procedural justice, SATSR= satisfaction with service recovery, OSAT= overall satisfaction, RI= repurchase intentions, WOM= word-of-mouth intentions; k= number of effect sizes, N= cumulative sample size, r= average correlation, r_{rc}= reliability-corrected correlation, r_{rcsw}= reliability-corrected sample size-weighted correlation.

Table 2: Moderator analysis results

Variables	Parameter estimate	Standard error	*p*-value
Level 1 variables			
Distributive justice (0= No, 1=Yes)	.68	.14	<.001
Interactional justice (0= No, 1=Yes)	.57	.15	<.001
Procedural justice (0= No, 1=Yes)	.56	.13	<.001
Satisfaction with service recovery (0= No, 1=Yes)	.67	.13	<.001
Overall satisfaction (0= No, 1=Yes)	.65	.12	<.001
Repurchase intentions (0= No, 1=Yes)	.66	.12	<.001
Word-of-mouth intentions (0= No, 1=Yes)	.67	.13	<.001
Level 2 variables			
Type of failure (0= Outcome failure, 1= Process failure)	.08	.07	.281
Type of participation (0= Outcome, 1= Process)	-.21	.08	.008
Type of participation (0= Outcome, 1= Outcome & Process)	.04	.14	.753
Additional compensation (0= No, 1 = Yes)	-.19	.07	.011
Culture (0= Eastern, 1= Western)	-.22	.08	.012
Setting (0 = Offline, 1= Online)	-.14	.08	.066
Level 2 control variables			
Study design (0 = Experiment, 1= Survey)	.09	.10	.363
Participants (0= Nonstudents, 1= Students)	-.13	.06	.015
Journal quality (0= Non-elite, 1= Elite)	.16	.07	.018

Notes: Unstandardized regression coefficients are reported. Level 1 variables represent customer outcome-specific intercepts.