

## The Role of Emotions and Trust in Service Recovery in Business-to-Consumer Electronic Commerce

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### Abstract

This study proposes a service recovery model to describe how cumulative satisfaction, loyalty and word-of-mouth are affected by complaints. The model is based on the role of positive and negative emotions in satisfaction with service recovery processes, with trust acting as a mediator of the relationship between satisfaction with service recovery and cumulative satisfaction, and between positive and negative emotions, satisfaction with service recovery and loyalty. The sample for this study consists of 303 business-to-consumer e-commerce users who made a complaint after an electronic transaction. The results show that positive emotions are a key factor in satisfaction with service recovery processes; this is in contrast to the major role that negative emotions have traditionally played in these models. Furthermore, trust mediates the relationship between satisfaction with service recovery and cumulative satisfaction, and between positive emotions and loyalty. Trust has an important influence on loyalty, and cumulative satisfaction is a strong predictor of word-of-mouth. While prior satisfaction with service recovery studies usually investigated only negative emotions and satisfaction with a specific transaction, this research considers both positive and negative emotions, as well as the mediating effect of trust on the relationship between satisfaction with a specific transaction and cumulative satisfaction.

**Keywords:** Service recovery, E-commerce, Business-to-consumer, Emotions, Trust, Satisfaction

## 1 Introduction

Despite the big efforts companies make to provide high quality services, providing an error-free service is impossible. Errors may frequently cause customer dissatisfaction, which in turn may lead to complaints. The actions which a service provider takes in response to service failures and the process by which the company attempts to rectify the failure, known as service recovery (SR) [34], are therefore a critical aspect of the interaction between customer and company. Service recovery offers a chance to reduce dissatisfaction and re-build the damaged relationship with the complaining customer, thus making it possible to achieve a positive outcome from a mistake [26].

Business-to-consumer electronic commerce (B2C-EC) refers to the use of the global Internet for purchase of goods and services sold by companies to end consumers, including service and support after the sale [66]. In 2010 business-to-consumer e-commerce (B2C-EC) sales in Spain reached €9,114 billion, with an average expenditure per customer of €831 [67]. Of the individuals who made online purchases-digital and physical goods and services- in 2009 and 2010, 6.8% of purchasers reported problems with their online purchases; customers also made more complaints: almost four out of five users (78.3%) who experienced a problem with their online purchases chose to lodge a complaint, mainly through the selling company's customer care service, a 14% rise on the previous year. The trend is that consumers are reporting more problems every year, and more of these consumers are also issuing complaints after they experience a problem with their online purchase.

Service recovery processes are therefore more and more important for B2C-EC companies, as each service recovery may be the only opportunity for the company to react to a service failure. Service recovery is not an isolated action: management of complaint behavior has also socio-cognitive and emotional long-term implications which may affect positively or negatively trust in the firm, its reputation and customer satisfaction. In an environment as competitive as B2C-EC understanding how to make an adequate response to customers' emotions in complaint scenarios and how to obtain sustained advantage from positive service recovery-in terms of customer retention and satisfaction- becomes a critical issue for e-tailers.

This study explores in greater depth factors which have an impact on service recovery, including classic constructs in service recovery theory such as satisfaction with service recovery (SSR), as well as the changes in behavior and attitudes which follow: cumulative satisfaction, word-of-mouth and loyalty. Most of the extant literature on service recovery is grounded on justice theory, with SSR as a result of perceived justice e.g. [63], but this approach only appraises the cognitive antecedents of SSR. However, the actions that companies carry out in a SR also have an emotional effect in complaining customers, and research on the influence of such affective responses in SSR is scant. This investigation adds to the existing literature in SR by studying the effect of both positive and negative emotions on satisfaction with service recovery, trust and loyalty building in SR processes. Additionally, this study introduces an element with considerable relevance in service failure situations-trust- and investigates its role as a mediator of the relationship between emotions and loyalty, and-simultaneously- between SSR and cumulative satisfaction.

The remainder of this paper has the following structure: the next section presents the research framework used to analyze the contribution of these factors, this is followed by an explanation of the methodology used in the empirical work, then discussion of the main findings; the main conclusions of this research are presented in the final section.

## 2 Development of Hypotheses

Río-Lanza, Vázquez-Casielles and Díaz-Martín [55] made a significant contribution to the field of service recovery with their analysis of the indirect effects of negative emotions in SSR; but [18] warned that omission of positive emotions from the study of service recovery processes might be problematic as a service provider with good service recovery may generate positive emotions e.g. pleasure or happiness, as well as diminishing the intensity of negative emotions. The independence of positive and negative emotions has been accepted [11], so this research adopted a hierarchical definition of emotions, clearly differentiating positive and negative emotions.

In the model proposed by Río-Lanza et al. [55], SSR was measured as a result of a concrete action, so their research does not provide any information on attitudinal and behavioral changes (in factors such as loyalty, word-of-mouth or cumulative satisfaction) which occur when there is positive service recovery and complaint behavior is managed successfully. These changes provide very important information for companies as they are important indicators in their mid- and long-term customer relationship knowledge base [21], [31], [51].

Figure 1 provides a summary of the hypotheses and relationships that will be presented in this section.

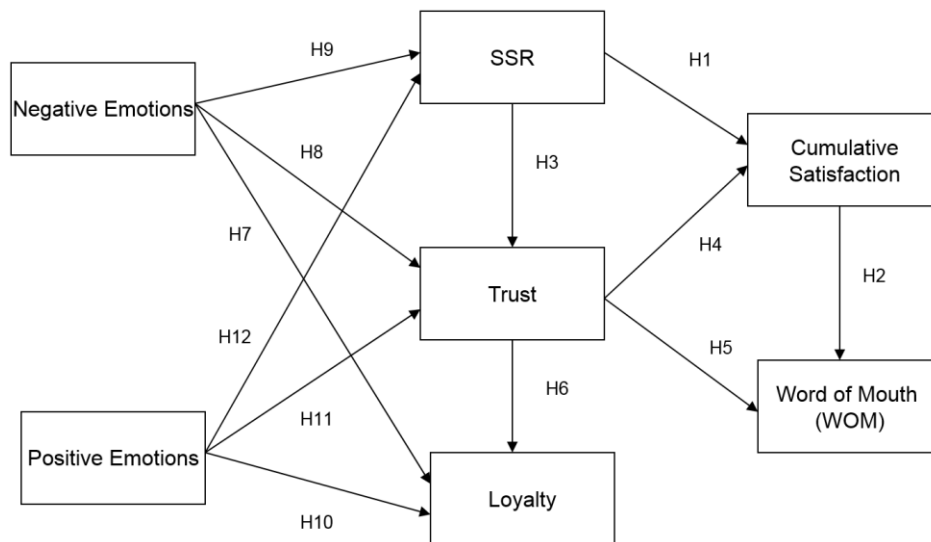


Figure 1: Research model.

## 2.1 Satisfaction: Cumulative, Satisfaction and Satisfaction with Service Recovery (SSR)

Satisfaction is the result of customers' ex-post assessment based on their experience with the service as a user, which may be indifferent, positive or negative [46]. Satisfaction results when the global experience of using a product or service surpasses the expectations held prior to use; i.e. when there is a positive disconfirmation of expectations [49]-[50].

There are two types of satisfaction described in the scientific literature: satisfaction with a specific transaction and cumulative satisfaction [31]. Transaction-specific satisfaction refers to satisfaction with a discrete encounter, whilst cumulative satisfaction refers to a customer's satisfaction with multiple interactions with the company over time [9]. In the case of service recovery processes—an example of transaction-specific satisfaction—SSR may be defined as “the customer's overall affective feeling about the company as a result of the company's handle of the complaint” [17] p. 72.

Many research studies have focused on satisfaction after a specific process e.g. a service recovery [32], [55], [71]. However, it is essential to take cumulative satisfaction into account in a SSR model intended to provide information about customer attitudes and behaviors. Although the result of a specific transaction (for example, a service recovery) may not be completely satisfactory, the accumulated experience of transactions might increase overall, or cumulative, satisfaction and thus provide a broader perspective on customer behavior [43]. Satisfaction with a service recovery necessarily affects overall, cumulative satisfaction; cumulative satisfaction is the sum of accumulated transaction experiences, and therefore:

*H1: Satisfaction with service recovery positively predicts cumulative satisfaction.*

## 2.2 Cumulative Satisfaction and Word-of-Mouth

When the provision of services satisfies customers, they have a motivation to transmit their experience to others via word-of-mouth [41]. There is empirical proof of the relationship between cumulative satisfaction and word-of-mouth [30]. Positive word-of-mouth makes it easier to retain customers, and at the same time positions the company as an attractive one, creating incentives for new customers to purchase the services offered [5]. Therefore:

*H2: Cumulative satisfaction positively predicts word-of-mouth.*

## 2.3 Trust, Loyalty and Word-of-Mouth in Service Recovery Processes

Trust is as a set of beliefs about the benevolence, competence and integrity of another party [19]. Relationships between customers and providers are largely determined by trust [10].

Trust develops over time as the customer perceives that the provider is reliable and behaves in an upright and honest manner [47]; it is an essential ingredient for creating satisfied and loyal customers in e-commerce [53]. Satisfactory experiences with service providers generate greater levels of trust, which influences long-term relationships [24].

In a service recovery context, customer trust reflects how willing customers are to accept their vulnerability, and their expectation of a positive resolution of any service failure [20]. When customers receive an unsatisfactory response to their complaint, they lose trust in the organization [18]; likewise, satisfactory resolution of complaints may contribute to an increase of trust in the organization, and hence:

*H3: Satisfaction with service recovery positively predicts customer trust.*

Customers perceive online retailers as riskier than traditional retailers in terms of delivery, payment medium and terms, information disclosure, etc. B2C-EC customers may therefore prefer to buy from online retailers they can trust [59]. Previous studies have not only confirmed the positive relationship between SSR and trust [36], but have also shown that trust is a strong predictor of satisfaction in online environments [25], [28]. Therefore:

*H4: Trust positively predicts cumulative satisfaction.*

Trust has a positive influence on the purchaser-vendor relationship even if trust is already high [57]. If the customer is satisfied with a service recovery, his or her trust in the company may generate positive word-of-mouth for the company [36], and thus:

*H5: Trust positively predicts word-of-mouth.*

Loyalty is defined as the intention to have repeated dealings with a provider over a period of time, and a favorable attitude on the part of the purchaser [33]. Loyalty entails a reluctance to change provider and a willingness to pay more [58]. Trust plays a fundamental role in the development of loyalty, and this is also true in online environments [35], [52]. Trust is the most important factor in customers' decision to make a purchase from an online vendor. If a company wants to gain customers' loyalty, it must first gain their trust [54]. The spatial and temporal separation between purchasers and sellers in B2C-EC means that trust is important to continuing loyalty [15]. Therefore:

*H6: Trust positively predicts loyalty.*

## 2.4 Positive and Negative Emotions

Although early research studies dealing with the characterization of service recovery after a complaint behavior focused on applying the theory of justice to service recovery e.g. [43], other authors argued for the relevance of affective and emotional-in addition to cognitive- factors following a complaint behavior [45], [56], [61]. Nevertheless, research on the influence of emotions on service recovery is scarce [55], although the role of emotions in service encounters is attracting growing interest from the service research community [29].

The affect control theory (ACT) describes the influence of emotions on loyalty. It states that when customers experience inadequate service recovery, they will express their emotions and act in a way which enables them to regain their own identity [11]. When a service recovery achieves a positive result, the customer will be more likely to remain loyal to the provider, but if negative emotions arise from the service recovery the customer may become disloyal or may unsubscribe from the service [18]: interactions between people involve emotional responses which will influence whether relationships are maintained.

It is only recently that researchers have begun to explore the influence of emotions on trust in service recovery contexts [35]. Emotions with highly negative valence (such as anger) can play a significant moderating role in service recovery processes and may damage trust. It is very likely that actions aimed at mitigating highly negative emotions would help to re-establish trust in the provider [35]. Emotions play an important role in building trust, and positive emotions enable individuals to make the *leap of faith*: to move from feelings to beliefs [4].

Emotions also influence satisfaction with service recovery: [55] demonstrated the influence of negative emotions on SSR, and [56] suggested that emotions directly influence customer satisfaction. Following this rationale, we posit that:

*H7: Negative emotions negatively predict loyalty.*

*H8: Negative emotions negatively predict trust.*

*H9: Negative emotions negatively predict satisfaction with service recovery.*

And:

*H10: Positive emotions positively predict loyalty.*

*H11: Positive emotions positively predict trust.*

*H12: Positive emotions positively predict satisfaction with service recovery.*

## 2.5 The Mediating Role of Trust

Building on H1, H3 and H4, and H6-H8, H10 and H11, and the work of [15] on the putative central role of trust as an antecedent of the variables that influence repurchase, this study investigates trust as mediator in service recovery processes. In order to do so, we consider trust as a mediator of the influence of SSR on cumulative satisfaction, and in the relationship between emotions and loyalty. Aside from the direct relationship between SSR and cumulative satisfaction, we predict that there is an indirect influence of SSR on cumulative satisfaction mediated by trust; similarly we predict that there is an additional indirect influence of positive and negative emotions on loyalty, mediated by trust.

Trust is a critical antecedent of a positive relationship between purchaser and vendor [60], [68]. In any purchaser-vendor relationship the purchaser's trust in the vendor before a specific transaction has a direct influence on his or her post-purchase satisfaction [59]. In the context of electronic commerce, when trust may be the trigger for a transaction, this relationship may also hold, and so we posit that:

*H1a: Trust has a mediating role in the relationship between satisfaction with service recovery and cumulative satisfaction.*

Likewise, variations in customers' perceptions of a company's trustworthiness during a service recovery have an effect on loyalty [18]. It therefore follows that changes in perceived trustworthiness derived from emotional states may increase or erode depending on the emotional valence- the likelihood of future patronage from customers, and hence:

*H7a: Trust has a mediating role in the relationship between negative emotions and loyalty.*

*H10a: Trust has a mediating role in the relationship between positive emotions and loyalty.*

## 3 Materials and Methods

Research on service recovery has often taken the form of laboratory studies, but our empirical setting, following other studies e.g. [11], was a field study of users who have had service problems during the last year. This section presents the research design by describing the selection of participants, methodology of the study and the measurement instrument.

### 3.1 Participants and Procedure

The proposed research model was validated using an online questionnaire including a Computer-Assisted Web Interview (CAWI). Respondents were selected from an official national database of 5000 people representative of Spanish Internet users. The response rate was 6.7%, a figure considered normal for service recovery studies. After the elimination of 32 questionnaires with incomplete data, the final sample consisted of 303 respondents who had issued at least one complaint after a B2C transaction in the last year and had experienced service recovery actions from vendors after their complaint. In order to incentivize participation, respondents were entered into a draw for a €200 gift card from one of Spain's most well-known department stores. The average completion time for the questionnaire was 9 minutes.

The average respondent profile was a male between 35 and 49 years old, employed and with higher education; this is similar to the profile of a typical Spanish e-shopper [67].

The detailed socio-demographic characteristics of the sample were as follows: 66.7% male and 33.3% female; 13.9% aged 16-24 years, 26.4% aged 25-34 years, 49.8% aged 35-49 years, 9.2% aged 50-64 years and 0.7% aged 65-74 years. With regard to their employment status, 13.2% were self-employed, 60.4% worked for a company, 7.9% were unemployed, 3% were retired and 10.9% were students; the remaining 4.7% belonged to other categories. The educational level of respondents was as follows: 4.3% had only completed primary education, 38.3% had completed secondary education, 46.9% had a higher education qualification and 10.6% had completed postgraduate studies.

Sample selection started with multiple filtering questions. The concept of service recovery was explained to respondents, and they were then asked whether they had purchased goods or services over the Internet in the past year. If the answer was affirmative, respondents were asked whether they had encountered any problem with their online purchase and, if so, whether they had experienced any attempt at service recovery on the part of the vendor. We did not ask for specific vendor names. This method has the advantage of reducing biases due to memory lapses, although it may complicate generalization from results [55].

Respondents were also asked the main reason for their complaint. The main causes of complaints were product delivery delays (41.6%), delivery of damaged or defective products (38.9%), differences between the advertised and

the delivered product (29.4%) and differences in the price at the time of purchase and final price (1.9%). This pattern is similar to that reported in other reports of Spanish B2C e-commerce [67].

### 3.2 Measures

The items in the final survey were extracted and adapted from previous studies. Prior to the distribution of the final questionnaire, a survey pre-test was conducted with the help of professors from different public universities, as well as PhD candidates and a small sample of potential respondents. Results from the pre-test validated the measurement instrument.

The five items in the SSR subscale were an adaptation of the scales developed by [36], [43], [63]; the trust subscale consisted of two items, which were derived from [15], [18], [36], [47], [63]; loyalty was assessed using 3 items adapted from [11], [18]; the word-of-mouth subscale was adapted from scales developed by [36], [42], and cumulative satisfaction was assessed using the scale developed by [8], which consisted of 3 items. All of these items were measured using a seven-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). Finally, the items measuring emotional factors were adapted from scales developed by [11], [18], [55]. Respondents were asked how they felt (on a scale ranging from 1 to 7) about the solution to the problem offered by the company. Three items assessed positive emotions (happiness, pleasure and joy), and three items assessed negative emotions (anger, offense and disappointment).

## 4 Results

Data were analyzed using Partial Least Squares (PLS), a technique suitable for the analysis of small samples of non-normal data. Methods such as PLS, which are based on partial components, are recommended for prediction of the dependent variable and for exploratory research, when theoretical knowledge is not in an advanced state [6]. We used the software PLS-Graph version 3.00 build 1130 to perform the analyses. These were (1) measurement model testing: single-item reliability, scale reliability, convergent validity, average variance extracted (AVE) and discriminant validity; and (2) structural model testing: explained variance of the endogenous variables ( $R^2$ ), path coefficients or standardized linear regression weights ( $\beta$ ) and their respective levels of significance, and a Stone-Geisser test ( $Q^2$ ) to test the predictive ability of the model. This sequence of analysis ensured that measurements were valid and reliable before attempts were made to draw conclusions about the relationships between the constructs.

### 4.1 Measurement Model

In order to analyze the measurement model, it is a requirement that single-item reliability for reflective indicators is tested, measuring the factor loadings of the latent variable indicators, which should have factor loading  $> .707$  i.e. more than 50% of the observed variance is shared by the construct [27], although loadings of .5 or .6 may be acceptable in preliminary stages [13]. In this case, all the factor loadings exceeded .9, except one of the loyalty indicators whose factor loading (.79) still exceeded the lower limit by a wide margin [48]. These results confirmed that all the indicators were valid at this stage.

The next step was a composite reliability analysis and an analysis of the average variance extracted from the constructs, which should be  $> .7$  [27] and  $> .5$  [22], respectively. In this case, the composite reliability values were all  $> .92$  and AVE values were all  $> .8$  (see Table 1).

Table 1: Descriptive statistics and correlation matrix

	Composite reliability	AVE	Mean (Std. Dev)	SSR	TRST	WOM	LOY	SAT	P_Em	N_Em
Satisfaction with service recovery (SSR)	.98	.89	4.05 (1.94)	<b>.95</b>						
Trust (TRST)	.96	.92	4.39 (1.60)	.65	<b>.96</b>					
Word-of-mouth (WOM)	.97	.93	4.89 (1.47)	.41	.53	<b>.96</b>				
Loyalty (LOY)	.92	.80	4.07 (1.74)	.70	.64	.48	<b>.89</b>			
Cumulative satisfaction (SAT)	.98	.87	5.10 (1.44)	.37	.52	.70	.47	<b>.93</b>		
Positive emotions (P_Em)	.96	.92	3.64 (1.92)	.78	.59	.31	.61	.22	<b>.96</b>	
Negative emotions (N_Em)	.97	.91	3.97 (2.05)	-.63	-.47	-.28	-.50	-.25	-.58	<b>.95</b>

A discriminant validity test (Table 1) was conducted on the basis of the AVE analysis i.e. the average shared variance between a construct and its measurement scales, which must be greater than the bivariate correlation between two constructs (the shared variance between the specified construct and the other constructs in the model). In this case, the square root of the AVE was higher than the correlations between the constructs and  $> .7$  [22], and the correlations between the different constructs were  $< .78$ , which confirmed that every construct measured was dissimilar from the rest of constructs [37].

Table 2 shows the results of the construct-to-item loadings and cross-loadings of the reflective measures, with all items > .91, except for LOY1 (= .79). In addition, the loading of the items over their latent variable were much higher than the loading over the rest of the constructs [14].

Table 2: Sample factor loadings, cross-loadings and common method bias assessment (reflective factors)

Construct		Constructs: loadings and cross-loadings							Common Method Bias Assessment			
		SSR	N_Em	P_Em	TRST	LOY	WOM	SAT	Subst. factor loading	Var. Expl.	Method Factor Loading	Var. Expl.
SSR	SOL1	<b>.92</b>	-.54	.69	.60	.62	.40	.35	.90**	.81	.04	.00
	SOL2	<b>.96</b>	-.61	.75	.61	.66	.40	.35	.98**	.96	.00	.00
	SOL3	<b>.96</b>	-.61	.73	.65	.69	.40	.37	.95**	.91	.01	.00
	SOL4	<b>.96</b>	-.63	.76	.62	.67	.37	.36	.96**	.92	.00	.00
	SOL5	<b>.92</b>	-.57	.75	.58	.67	.36	.31	.93**	.87	-.03	.00
Negative emotions	EMOC1	-.59	<b>.97</b>	-.57	-.45	-.48	-.26	-.21	.98**	.97	.05*	.00
	EMOC2	-.56	<b>.94</b>	-.50	-.45	-.47	-.32	-.30	.96**	.91	-.05	.00
	EMOC3	-.64	<b>.95</b>	-.58	-.43	-.47	-.23	-.20	.89**	.79	.04	.00
Positive emotions	EMOC4	.78	-.60	<b>.95</b>	.58	.62	.34	.23	.95**	.92	.03	.00
	EMOC5	.73	-.55	<b>.98</b>	.56	.57	.28	.20	.97**	.94	-.02	.00
	EMOC6	.73	-.52	<b>.96</b>	.55	.55	.26	.19	.96**	.91	-.03	.00
Trust	TRU1	.61	-.42	.56	<b>.96</b>	.61	.50	.50	.96**	.92	.00	.00
	TRU2	.64	-.47	.57	<b>.96</b>	.62	.51	.50	.96**	.91	.00	.00
Loyalty	LOY1	.49	-.30	.42	.47	<b>.79</b>	.33	.37	.84**	.70	-.06	.00
	LOY2	.67	-.46	.61	.60	<b>.94</b>	.44	.42	.95**	.90	-.02	.00
	LOY3	.69	-.54	.57	.63	<b>.93</b>	.49	.47	.89**	.79	.06*	.00
Word-of-mouth	WOM1	.40	-.26	.29	.50	.47	<b>.95</b>	.66	.91**	.82	.05	.00
	WOM2	.37	-.28	.28	.49	.44	<b>.97</b>	.68	.99**	.99	-.03	.00
	WOM3	.40	-.27	.31	.53	.47	<b>.97</b>	.68	.99**	.97	-.02	.00
Cumulative Satisfaction	SAT11	.27	-.12	.13	.46	.37	.63	<b>.91</b>	.85**	.72	.07	.01
	SAT12	.42	-.32	.28	.52	.49	.66	<b>.93</b>	.99**	.99	.07	.01
	SAT13	.34	-.25	.19	.48	.46	.67	<b>.96</b>	.95**	.91	.00	.00
Average								.94	.89	.00	.00	

## 4.2 Common Method Bias Assessment

As the data for all the variables in this study were self-reported and collected from individual respondents, common method bias was possible. We therefore used statistical analysis to assess the severity of common method bias in these data. We used the procedure followed by [39] to assess the magnitude of common method bias in the data, via the introduction of a new factor called *method* to the model. The common method factor indicators included all the principal constructs' indicators. Then we calculated each indicator's variances substantively explained by the principal construct and by the method, examined the statistical significance of factor loadings of the method factor, and compared the variances of each observed indicator explained by its substantive construct and the method factor (see Table 2).

The indicator variances explained by their principal constructs (average = .888) were much larger than those predicted by the method factor (average = .001). These results confirmed that the method did not contribute substantially to the variance in the indicators and therefore common method bias was unlikely to be a serious concern for this study.

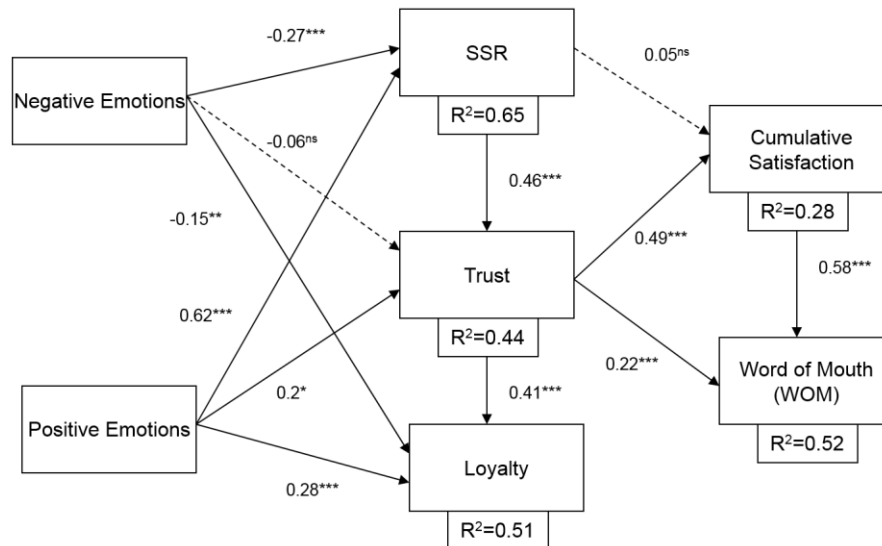
## 4.3 Structural Model

The structural model analysis considered the relationship between the different latent variables. The evaluation of the structural model consisted of a bootstrapping procedure using three indicators: path coefficients ( $\beta$ ), t-statistics (Table 3) and explained variance ( $R^2$ ; see Table 4).

Path coefficients –also known as structural path coefficients or standardized regression coefficients– represent the extent to which each predictor variable contributes to the variance explained by endogenous variables; in other words, they represent the strength of the statistical relationships in the model. Path coefficients should be  $\geq .2$ . The significance of path coefficients was calculated with a bootstrapping procedure in order to extract Student's t-values. Finally, the variance explained should be  $\geq .1$  [12].

All the paths –except negative emotions-trust and SSR-cumulative satisfaction– were significant and exceeded the .2 threshold, whilst the negative emotions-loyalty, positive emotions-trust paths had a weaker impact ( -.15 and .2 respectively), and therefore, only hypotheses H1 (SSR predicts cumulative satisfaction) and H8 (negative emotions predict trust) were rejected.

The results from the analysis supported H2 (cumulative satisfaction predicts word-of-mouth), H3 (SSR predicts trust), H4-H6 (trust predicts cumulative satisfaction, word-of-mouth and loyalty), H7 and H9 (negative emotions predict loyalty and SSR), and H10-H12 (positive emotions predict loyalty, trust and SSR). A summary of the results of the analysis of our model are shown in Figure 2 and a summary of the hypotheses testing is shown in Table 3.



<sup>ns</sup> non-significant; \* p<0.05; \*\* p<0.01; \*\*\* p<0.001, one-tailed t-Student.

Figure 2: Results from the research model.

Table 3: Supported and non-supported hypotheses: Path coefficients ( $\beta$ ) and t-values

Hypothesis		$\beta$	t value	Sig.	Supported
H1	SSR→Cumulative Satisfaction	.05	.76	ns	✗
H1a	Trust partially mediates between SSR and cumulative satisfaction				✓
H2	Cumulative Satisfaction→Word-of-mouth	.58	8.70	***	✓
H3	SSR→Trust	.46	5.81	***	✓
H4	Trust→Cumulative Satisfaction	.49	7.90	***	✓
H5	Trust→Word-of-mouth	.22	3.40	***	✓
H6	Trust→Loyalty	.41	7.55	***	✓
H7	Negative Emotions→Loyalty	-.15	2.73	**	✓
H7a	Trust partially mediates between negative emotions and loyalty				✗
H8	Negative Emotions→Trust	-.06	1.08	ns	✗
H9	Negative Emotions→SSR	-.27	5.74	***	✓
H10	Positive Emotions→Loyalty	.28	4.57	***	✓
H10a	Trust partially mediates between positive emotions and loyalty				✓
H11	Positive Emotions→Trust	.20	2.53	*	✓
H12	Positive Emotions→SSR	.62	13.74	***	✓

\* p< .05; \*\* p< .01; \*\*\* p< .001

Table 4: Model summary: Explained variance ( $R^2$ ) and Stone-Geisser test results ( $Q^2$ )

	$R^2$	$Q^2$
SSR	.65	.55
WOM	.52	.43
LOY	.51	.34
TRST	.44	.33
SAT	.28	.07



$R^2$ , or variance explained, indicates the amount of variance in each dependent variable which is explained by the model. For satisfaction with service recovery,  $R^2 > .65$  and for loyalty and word-of-mouth  $R^2 > .50$ . For overall satisfaction  $R^2 = .28$ , which is noteworthy as a  $R^2$  values  $>.10$  are considered high in the majority of studies [26]. It is also worth noting that cumulative satisfaction was the factor with the greatest influence on word-of-mouth.

The  $Q^2$  parameter from the Stone-Geisser cross-validation test measures the predictive relevance of the model's constructs using a blindfolding procedure [13].  $Q^2$  values from our data confirmed the predictive validity of the model ( $Q^2 > 0$  in all cases, with an omission distance of 7, see Table 4).

PLS does not explicitly provide goodness-of-fit measures. However [64] provided a parameter to measure a model's goodness of fit (GoF); it depends on the average of construct AVEs with reflective indicators and the quality of the structural model of endogenous variables –through  $R^2$ . GoF values can range from 0 to 1, with higher values indicating a model with better fit to the data. The GoF for our model was .65.

#### 4.4 Mediation Effects

The procedure described by [65] to validate mediation effects, requires an analysis of competence and differences between direct and the mediated effect models. The results of this analysis supported the hypothesis that trust acted as a partial mediator, due to the following reasons: firstly, comparing the direct and trust-mediated effect of positive emotions on loyalty, the mediated effect explained more variance in the loyalty construct ( $R^2 = .51$ ;  $p < .001$  vs.  $R^2 = .40$ ;  $p < .001$ ); secondly, the relationships between positive emotions and trust (H11), and between trust and loyalty (H6), were positive (H11:  $\beta = .19$ ,  $p < .05$ ; H6:  $\beta = .4$ ,  $p < .001$ ); thirdly, the path coefficient of the relationship between positive emotion and loyalty diminished abruptly in the mediated model (H10: direct model  $\beta = .48$ ,  $p < .001$ ; mediated model  $\beta = .28$ ,  $p < .001$ ).

Using the same procedure, the analysis of the relation between SSR and cumulative satisfaction yielded the same results which support the mediating role of trust. Introducing trust into the model as a mediator improved the model, and therefore validated hypotheses H1a: trust partially mediates the relationship between SSR and cumulative satisfaction, and H10a: trust partially mediates the relationship between positive emotions and loyalty, but not H7a: trust partially mediates the relationship between negative emotions and loyalty (see Table 3), since no significant relation was found between negative emotions and trust.

## 5 Discussion

This section discusses the results from the empirical analysis, focusing on the main findings of the research. Thus, we first examine the effect of positive and negative emotions on service recovery, followed by an analysis of the mediating role of trust in service recovery processes; then, the implications for practice derived from this research are presented. Finally, we address the main limitations of the study and offer guidelines for avenues of future research on this topic.

### 5.1 The Effect of Positive and Negative Emotions on Service Recovery

This study contributes to theory on service recovery by validating existing theory e.g. the relation between cumulative satisfaction and word-of-mouth, and by emphasizing the critical role of emotions in complaint handling, an under-researched factor in service recovery studies. Particularly, the findings from our empirical study show that satisfaction with service recovery can be explained mostly in terms of emotions (SSR total variance explained is 65 percent) and that positive emotions arising from complaint handling processes are key for satisfaction with service recovery. Positive emotions proved to have a stronger influence on satisfaction with service recovery, loyalty and trust than negative emotions in this study. This finding stresses the importance of taking into account the role positive emotions play in service recovery processes [18], [55], and it underpins the relevance of affective elements in loyalty building, a result in line with [72].

Negative emotions have a smaller influence on loyalty than positive emotions, and this may have its origin in the problems that customers claimed to have with their online purchases-see section 3.1- and which led to their complaint behavior. In online shopping environments, problems are frequently caused by the co-participation of the customer in service provision; this co-participation increases the possibility of errors. A common problem is that the product or service purchased does not match what was offered on the website –one out of every three customers who experienced some difficulty in their shopping mentioned this reason– but a third of these respondents added that it was a misunderstanding on their part, as the product information on the website had been correct.

In many cases logistical and payment problems originate with companies who operate under their own trade name, and are not handled directly by the B2C-EC platform; these may be situational and beyond the control of the B2C-EC vendor [44]. Customer misunderstandings resulting in ordering the wrong product may be internally attributed, generating shame or guilt [44]. Other studies [62] have reported that emotions are more intense when service

recovery is directly controlled by the service provider. It appears that negative emotions directed towards oneself are dissociable from those directed towards the B2C-EC platform and have no influence on loyalty and trust in B2C-EC.

## 5.2 The role of Trust as a Mediator in Service Recovery Processes

The introduction of trust into our model represents an important contribution to the understanding of the inner mechanisms of service recovery processes. From our study, trust is a key antecedent in relationship building between buyer and seller, and it can play an important mediating role in the relation between emotions and loyalty [18], [59], [68], and between SSR and cumulative satisfaction.

The results from this research show that emotions are reliable predictors of SSR, but not so much in the case of trust building: the relation positive emotions-trust is weak and negative emotions-trust is non-significant. In general, trust is forward looking and is normally considered as an expectation prior to the formation of a transaction [7] and the individual trust-building process is complex and it is influenced and determined by different individual and social dimensions and characteristics [69]. In the case of a service recovery where trust has already been compromised, our findings show that SSR plays a critical role in maintaining, and even regaining, that trust from customers, and that trust is necessary to establish long-term relationships with customers and develop loyalty and word-of-mouth. That is, by strengthening trust via SSR, companies might turn potential dissatisfied customers into evangelists of the firm.

The other relevant finding from the study concerning the mediating role of trust is related to how cumulative satisfaction is built. The results from the empirical study show that a single successful service recovery does not predict global satisfaction with the firm, but that cumulative satisfaction is driven by trust instead; in other words, a successful service recovery might not contribute to overall satisfaction if trust is damaged, and thus ensuring that trust is never broken in service recovery processes is essential for high long-term and stable customer satisfaction.

## 5.3 Implications for Practice

A straightforward implication of this study is the need to train employees to distinguish and manage customer emotions-especially positive emotions- when a complaint is made. To manage customer emotions in an online environment, employees must become aware of the difficulties entailed in service recovery processes due to the lack of face-to-face interaction with the customer, and therefore employee training might include role-playing and include techniques for the detection of emotions in telephone conversations and e-mails [56]. Providing employees with technological resources which enable them to recognize customers' emotions more accurately e.g. webcams for videoconferences, and appropriate training might also help greatly to improve the quality of service recovery interactions.

Generation of positive emotions during the complaint process and confronting adversity are important management challenges. Customers are not just buying a product or service from a company; they are buying the total experience: purchase, use and service, with customer service being an important component of the overall customer experience; management of complaints should therefore be, as far as possible, a preventive rather than corrective process.

Positive emotions are very varied and may be based on past experience e.g. satisfaction, indulgence, pride; the present e.g. joy, ecstasy, peace, enthusiasm, euphoria, pleasure; or the future e.g. optimism, hope, faith. It is therefore important to generate the right kind of positive emotions according to the characteristics of each specific service recovery process, taking into account that subjects in a positive emotional state are less likely to switch to another option, as their behavior tends to maintain their positive state [16].

Generation of positive emotions is essential to the achievement of higher levels of satisfaction with service recovery, since reducing customers' negative emotions has a smaller effect on satisfaction. It follows that customer services should not close any reported complaints until they have verified that the customer is in a positive emotional state. Surprising customers in a positive way by solving their problems or compensating them for any trouble before a formal complaint is made may also generate positive emotions, which in turn may strengthen trust and help make service recovery effective.

Generating trust through SSR, using procedures that are most adequate to the customer's shopping track record and his or her specific problems-by drawing on appropriate information systems- should contribute to greater loyalty. It is also important to consider short-and mid- term actions aimed at generating trust in the company in advance of possible service recovery-for example, offering a total satisfaction warranty, including total refund, immediate replacement of faulty or damaged products- or even by raising positive emotions focused in the past e.g. brand associations.

The mediating role of trust also has important implications. As mentioned above, service recovery is a critical process for companies, but each service recovery corresponds to an isolated action how a company handles a single complaint. However, the findings from our study show that the importance of a successful, satisfactory service

recovery lies more in the formation of trust and how it may affect loyalty and satisfaction in the long-term than on the recovery itself. In general, companies ask customers for feedback about their satisfaction with how the complaint was handled, but the results from this research suggest that companies should also monitor and keep track of customer trust, so that they can assess the effectivity of their service recovery processes and take actions when they detect significant variations in customer trust, in order to maximize satisfaction and loyalty.

Consumer opinions are essential to companies in order to understand the responses of customers to their products and services. Word-of-mouth has a great impact on consumer behavior, more so in online contexts, and therefore it is very important for companies to try to stimulate and manage e-WOM activity-especially in a complaint behavior- in order to identify problems [40]. If a company wishes to generate positive word-of-mouth, it must make efforts to maximize cumulative satisfaction by promoting SSR and ensuring that trust is maintained. Re-establishing customers' trust after a complaint which received a satisfactory response is therefore an important challenge for B2C-EC companies.

#### 5.4 Limitations and Future Research

This study has some limitations. Firstly, the authors believe it would be expedient to refine further the measurement instrument, and conduct a more comprehensive study of emotions, incorporating a larger battery of emotional responses, in order to provide a broader account of satisfaction and trust in service recovery contexts. An alternative approach to improving the current model would be to consider the affective and cognitive components of trust-which were not considered in this study for model parsimony- and develop an affective scale for cumulative satisfaction.

This study was cross-sectional and based on customer self-reported data; it would be of great interest to carry out a longitudinal analysis of the whole complaint process, including assessment of the different alternatives offered to the customers, and the evolution of customers' emotions throughout the process. A segmented study of service recovery processes which divided complaining customers according to cause, severity level or resolution time for the complaints would also be of interest.

It must also be pointed out that this study covers only one service (B2C-EC) and a sample of Spanish users. Although B2C e-commerce is becoming more and more important-and therefore of great interest to researchers, managers and marketers- it presents some special features and so further research in other sectors to explore the generalizability of our results is recommended. The replication of this research in other cultural settings, or with analogous services, would also help to confirm these findings.

Another limitation of this research is that it does not take into consideration the type of product. For instance, we did not make any differentiation between goods and services-from the answers given by respondents about the reason for their complaint it is straightforward that the majority of them experienced problems when purchasing physical goods-, and product type might have a potential impact on the results from the analysis. Moreover, trust-a pivotal variable in this study- as well as the satisfaction with a product or company and the emotional bonding also depend on the relationship and the involvement that the consumer has with the product e.g. functional, emotional, self-expressive [1], social-based [2] or trust-based relationships. Further research should confirm the results from this study across different types of products.

Finally, our decision to use data from an official database constrained our collection of data to a specific moment in time, which required participants to recall emotions felt in the past instead of measuring them during, or immediately after, the complaint experience. Therefore, the time between the complaint, service recovery and data collection varied among the individuals participating in the study. While this method potentially introduced some bias into the assessment of emotions, influenced by individual personality traits or current emotional states, previous research suggests that people remember their emotions fairly accurately [38]. In addition, the peak-end rule [23] suggests that emotional states relating to a past event are strongly determined by the most extreme moment-the peak- and its ending; whilst this might be a source of bias depending on the outcome of the service recovery, it also ensures consistency in the measurement of recalled emotions. Our findings are supported by evidence for the stability of the assessment of recalled unipolar emotions over time [3] and by the fact that on-line measures may be superior to retrospective measures for the approximation of objective experience, but retrospective measures derived from post-complaint behavior, such as word-of-mouth, may predict choices better [70]. Nevertheless, we would recommend that future research should take into account these potential sources of bias in order to validate these results.

## 6 Conclusion

This study makes a contribution to the scientific research literature on satisfaction with service recovery. It proposes a model of cumulative satisfaction, loyalty and word-of-mouth following a service recovery, with emotions as antecedents and trust as a mediator. To the best of the authors' knowledge, this research pioneers in the study of the influence of trust and positive and negative emotions on service recovery. Most service recovery research studies have grounded on justice theory and have used SSR as outcome variable, but it is also important to assess the impact of a service recovery in cumulative satisfaction and consider other variables, such as customer loyalty and word-of-mouth, in predicting future behaviors.

The main findings from this study are 1) that emotions play a critical role in service recovery processes and loyalty building, with positive emotions being a strong predictor of satisfaction with service recovery; and 2) that trust plays an important mediating role in the relations between satisfaction with service recovery and loyalty, and between satisfaction with service recovery and cumulative satisfaction. Vendors handling a complaint should not consider the complaint closed until they have detected positive emotions in the customer who issued the complaint, and companies should monitor customer trust before, but especially after, service recovery.

Finally, we would like to emphasize that this research focused on B2C-EC customers who issued a complaint after their purchase, but these results might also be relevant to other sectors and contexts in which the relationship between customers and providers must be mediated with only limited face-to-face interaction e.g. computer-mediated interaction.

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