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The Structural Relationship among Service Failure, Service Recovery, Emotional Reaction and Recovery Satisfaction in the Airline Service

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Abstract

Background/Objectives: This study was conducted to present a more effective service recovery strategy through a study on the effects of service recovery efforts in response to service failure. **Methods/Statistical Analysis**: A total of 300 copies of the survey were distributed. Among them, 243 copies (81%) were retrieved. Excluding 58 copies (19.3%) that had insufficient responses, a total of 185 copies (61.7%) were used for analysis. Data analysis was performed using the SPSS 21.0 and AMOS 22.0. Confirmatory factor analysis was conducted to validate the measured variables and the structure model covariance structure analysis was used to test the hypothesis. **Findings:** First, in the relation between the severity/controllability of service failure and service recovery, severity received a negative effect from tangible efforts and psychological efforts with the former affecting to a greater degree. As such, hypotheses 1-1 and 1-2 were adopted. Second, tangible efforts out of service recovery effort types had a significant effect on positive emotions (1-3), but no effect on negative emotions (1-4). In particular, psychological efforts had a significant effect on both positive and negative emotions. Third, tangible efforts had a significant effect on positive emotions (2-1). However, such tangible compensation appeared not to have an effect on negative emotions (2-2). In contrast, psychological efforts had a significant effect on both positive emotions and negative emotions (2-3, 2-4). Fourth, of the customers' emotional responses, positive emotions affected satisfaction with the recovery, while negative emotions did not affect satisfaction with recovery (3-1, 3-2). **Application/ Improvements**: It is meaningful to develop response methods for customers by service recovery type. This study seeks to provide a basic set of data for developing such methods by service recovery.

Keywords: Emotional Reaction, Recovery Satisfaction, Service Failure, Service Recovery

1. Introduction

Given how in the airline industry, the service process starts with reservation and goes through ticketing, cabin service and ground service, there are many chances where service failure might occur. It is thus extremely important to effectively manage such service failures to turn existing customers into loyal customers[1]. As for flight delays that often occur, there could be passengers that feel angry at the delay as well as those who do not think it is a big deal. As such, the severity of service failure varies from the trivial to the very serious, depending on the individual[2]. In addition, the question of how much control the airline had over the issue may also affect service failure. The severity and controllability in service failure in the airline industry must thus be discussed as important matters.

Unless the airline company executes an appropriate response strategy to service failure, passengers will be driven to select another airline, causing loss of corporate profit for the former company. If a disgruntled passenger spreads negative word-of-mouth to those closer to her about the bad response to service failure she experienced, this could also affect potential customers. Preceding studies support the service recovery paradox, where effective recovery managed actually bring higher customer satisfaction than to those who hadn't experienced service failure[3-6]. That is, prompt recovery of service failure reinforces overall customer satisfaction and creates a

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willingness among customers to recommend the airline to others[7].

Miller, Craighead and Karwan[8] suggested, as recovery efforts for service failure, two types of efforts – psychological efforts and tangible efforts. Psychological efforts refer to the service provider's efforts to improve the service failure situation. It can be boiled down to empathy and apologies. Tangible efforts refer to compensation for customers' loss in the form of discounts, exchanges or free offerings.

As preventing customer attrition through service recovery is an important matter, many studies have focused on this theme, both at domestic and abroad researches. Preceding studies mostly focused on the performance of service recovery in a service failure situation, but increasingly arguments have been made that customer behavior studies need to focus on emotional responses of customers rather than their cognitive responses[9], pointing out that there is a lack of studies on emotional responses to complaint processing as part of service recovery[10,11]. Emotion is what distinguishes humans from other primates[12]. As emotional factors, Ekman identifies happiness, sadness, anger, surprise, fear and hatred as basic human emotions[13] and Rhee identify joy, pride and love as positive emotions, while identifying rear, rage, sympathy, shame, despair and sorrow as negative emotions[14].

According to Holbrook, customers' purchasing behavior, in many cases, is emotionally driven rather than being based on logical and reasonable thinking[9]. Customer loyalty after service recovery, too, is deemed to be affected greatly by emotional motivations. However, measurement of customer satisfaction after service recovery as seen in preceding studies tended to lean towards overall satisfaction. Therefore in this study, following hypotheses are set based on the preceding studies which were suggested at the above.

H 1: Service failure will have significant effects on service recovery.

H 2: Service recovery will have significant effects on emotional reaction.

H 3: Emotional reaction will have significant effects on recovery satisfaction.

The Korean airline industry has seen the effects of high exchange rates, high oil prices and an economic downturn, as well as an increasing market share of low cost carriers. As the airline industry shifted away from a duopoly to a market where an additional four low cost carriers joined the industry, their market share which amounted to a mere 0.1% as of 2005 has now risen to 55.7% of total passengers as of[15]. Their share of international routes is also on the increase. Due to such a competitive landscape, the airline industry has been having difficulty in attracting new customers. A large marketing expense has also been required to acquire new customers and thus they need to focus on retaining existing customers.

In this study, service failure was categorized into severity and controllability, and service recovery into psychological efforts and tangible efforts. This study seeks to contribute to academic research on the role of emotional responses in service recovery, while on the practical front, present a basic direction for establishing an effective customer retention strategy and business management strategy through service recovery by airlines.

2. Data Collection and Analysis

This study sought to identify the structural relationship among service failure, service recovery, emotional reaction and recovery satisfaction. To that end, a survey was distributed to customers of airline services and an empirical study was conducted. Given the purpose of the study, customers who had not filed a complaint or airline staff were excluded from the study subjects. The categories to be measured were decided upon based on preceding studies to reflect the intention of the study. A total of 300 copies of the survey were distributed to regular customers of airline services during the six week period from April 1, 2014 to May 17, 2014. Among them, 243 copies (81%) were retrieved. Excluding 58 copies (19.3%) that had insufficient responses, a total of 185 copies (61.7%) were used for analysis. Data analysis was performed using the SPSS 21.0 and AMOS 22.0. Confirmatory factor analysis was conducted to validate the measured variables and the structure model covariance structure analysis was used to test the hypothesis.

3. Results

3.1 General characteristics

Table 1 shows the demographic characteristics of the respondents. Of the total respondents, 102 (55.1%) are female and 83 (44.9%) are male. By age, the respondents in their 20s are 91 (49.2%), which is the most. For education, the 'Community College Graduate' is 65 (35.2%) and 'University Graduate or higher' is 103 (55.7%), which is

Table 1. General characteristics

		Frequency	Percentage (%)
Gender	Female	102	55.1
	Male	83	44.9
Age	29 less	91	49.2
	30~39 less	67	36.2
	40~49 less	22	11.9
	50 and over	5	2.7
Occupation	Employee	93	50.3
	Public Official	1	.5
	Student	21	11.4
	Private Business	5	2.7
	Housewife	62	33.5
	Other	3	1.6
Education	High School Graduate	17	9.2
	Community College Graduate	65	35.2
	University Graduate or higher	103	55.7
Use of airline	Asiana Airlines	46	24.3
	Korean Air	96	51.9
	Low Cost Carrier	24	12.9
	Overseas airlines	19	10.3
Frequency of airline use (within previous 1 year)	3 less	65	35.1
	3~5 less	55	29.7
	5~10 less	55	29.7
	10 and more	10	5.4
Total		185	100

larger. And almost half (50.3%) of total respondents are employees in occupation.

3.2 Reliability and Validity

For the selection and elaboration of measurement categories, reliability analysis was conducted using AMOS 22.O. Construct reliability with higher than 0.7 is generally recognized as high construct reliability in measurement categories and all factors used in this study were identified to have higher than 0.9[16]. The values of construct reliability are suggested in Table 2. Next, confirmatory factor analysis was conducted to test the reliability of measurement categories. When the fit indexes for model are strictly applied, it is considered that RMR should be lower than 0.05, GFI, NFI and CFI should be higher than 0.9, and AGFI should be higher than 0.8[13]. Indexes in confirmatory factor analysis suggested in table 2 shows the model fit indexes after the categories which hinder the validity are removed. Model fit indexes were identified as χ^2=401.234(df=153, p=0.000), χ^2/df=2.62, RMR=0.037, GFI=0.896, AGFI=0.879, NFI=0.901, IFI=0.925, CFI=0.902 and these values can be accepted except χ^2 values[17] which are sensitive to sample size.

Recommended values in squared multiple correlation (SMC) values are higher than 0.5 in general and the categories which could not meet this condition were removed after convergent validity test. Total of 3 questions were regarded as convergent validity hindering category and removed. Removed questions are 'A feeling of being cheerful through addressing complaints (0.236) in positive emotion category, 'A sense of remorse through addressing complaints' (0.292) in negative emotion category, 'Satisfaction with the method used by the carrier to resolve the issue' (0.299) in recovery satisfaction category. All standardized factor loading values which are connected to items and related factors show higher than 0.5 and AVE which measures the explained dispersion by study unit is higher than 0.50 as well. Convergent validity in measured questions was identified as all t-values showed higher than 1.96 of acceptance level[18].

Discriminant validity means when individually different concepts are measured, correlation between obtained values should be low. In order to analyze the discriminant validity in measurement model as is suggested at below table 3, square root AVE values and correlation coefficient values were compared and the discriminant validity was secured as the condition that 'square root AVE value should be larger than correlation coefficient value' was met[15]. Through the above various analyses, reliability, convergent validity and discriminant validity in this study were verified.

3.3. Testing the Conceptual Framework

In this study, structure equation model was applied to identify the structural relation among service failure, service recovery, emotional reaction and recovery sat-

Table 2. Confirmatory factor analysis (CFA) for the measurement model

		ITEM	STD FACTOR LOADING	t VALUE	SMC
SF	SEV	The issue caused a very serious situation for me	.671	-----	.677
		A situation that caused a lot of time to be wasted	.590	17.001**	.722
		An important incident that caused great economic loss	.729	11.090**	.777
	CON	A situation caused by factors that were controllable by the carrier	.783	-----	.785
		A situation that could have been prevented by the carrier	.872	15.443**	.807
		A situation caused by negligence of the carrier	.780	17.966**	.883
SR	TAN	Financial compensation to resolve the issue	.790	-----	.778
		Offering of miles to resolve the issue	.883	14.222**	.889
		Offering of discount coupons to resolve the issue	.687	16.774**	.823
	PSY	A polite attitude of the staff during the time the issue was being resolved	.877	17.104**	.771
		Staff that sincerely apologizes and tunes into the customer's opinions	.773	14.160**	.707
		Staff that make the utmost effort to resolve the situation	.789	-----	.798
		Staff listens carefully to what the customer says and expresses empathy	.809	19.558**	.777
ER	PE	Happiness through addressing complaints	.689	-----	.896
		A feeling of being rewarded through addressing complaints	.758	18.514**	.773
		A feeling of comfort through addressing complaints	.698	25.666**	.885
		Confidence through addressing complaints	.966	14.334**	.884
	NE	Anger through addressing complaints	.908	15.770**	.921
		An unpleasant feeling through addressing complaints	.821	14.551**	.672
		A sense of annoyance through addressing complaints	.801	15.533**	.644
		Disappointment through addressing complaints	.789	-----	.721
SAT		Satisfaction with the outcomes of how the carrier resolved the issue	.777	-----	.744
		Overall satisfaction with how the complaint was addressed	.882	11.061**	.501
		A sense of friendliness felt towards the carrier after complaint was addressed	.877	13.999**	.567
		A sense of emotional attachment after the complaint was addressed.	.798	12.776**	.726
Construct Reliability: SEV 0.872, CON 0.899, TAN 0.902, PSY 0.893, PE 0.901, NE 0.905, SAT 0.804 AVE: SEV 0.602, CON 0.577, TAN 0.772, PSY 0.651, PE 0.775, NE 0.695, SAT 0.591, **:p<0.01					

isfaction. Examining the test results in overall structure model, the model with χ^2=377.783(p=0.000), GFI=0.896, AGFI=0.863, NFI=0.911, RMR=0.031 was drawn. This model is considered to be appropriate because it shows appropriate levels when compared with general evaluation indexes in covariance structure analysis[14]. And standard chi-square index was approximately 2.3(χ^2/df(164)=2.303) which showed very suitable Goodness of Fit. Test results of research hypotheses are like Table 4 and Figure 1.

In detail, hypothesis testing result is as follows: Hypothesis 1 suggesting that service failure will have significant effects on service recovery is all adopted.

First, hypothesis 1-1 that severity will affect tangible effort is showing -.340(t value=-4.806) of path coefficient and is adopted as t value shows significant level (t value≥±1.96). Hypothesis 1-2 indicating severity will affect psychological effort, hypothesis 1-3 that controllability will affect tangible effort and hypothesis 1-4 that controllabil-

Table 3. Correlation matrix

	SEV	CON	TAN	PSY	PE	NE	SAT
SEV	.775						
CON	.319(**)	.759					
TAN	-.275(**)	-.035	.878				
PSY	-.644(**)	-.449(**)	.000	.806			
PE	-.669(**)	-.377(**)	.340(**)	.299(**)	.880		
NE	-.669(**)	-.422(**)	-.306(**)	-.582(**)	-.672(**)	.833	
SAT	-.554(**)	-.442(**)	.345(**)	.567(**)	.578(**)	-.466(**)	.768

* all correlations are significant at p<0.01(2-tailed), diagonal value: square root AVE
* SEV: severity, CON: controllability, TAN: tangible efforts, PSY: psychological efforts, PE: positive emotion NE: negative emotion SAT: satisfaction

Table 4. Structure model path analysis

H	Path	Estimate	S.E	C.R	p
1-1	SEV→TAN	-.340	.024	-4.806**	.000
1-2	SEV→PSY	-.274	.018	-2.283**	.038
1-3	CON→TAN	-.322	.056	-3.371**	.000
1-4	CON→PSY	-.123	.039	-3.384**	.000
2-1	TAN→PE	.260	.043	3.521**	.000
2-2	TAN→NE	.011	.059	0.213	.421
2-3	PSY→PE	.320	.021	5.224**	.000
2-4	PSY→NE	-.431	.052	-6.669**	.000
3-1	PE→SAT	.233	.067	3.451**	.000
3-2	NE→SAT	.032	.022	0.521	.256

**:=t-statistic (≧1.96) sig. level of p<0.05
* SEV: severity, CON: controllability, TAN: tangible efforts, PSY: psychological efforts, PE: positive emotion NE: negative emotion SAT: satisfaction

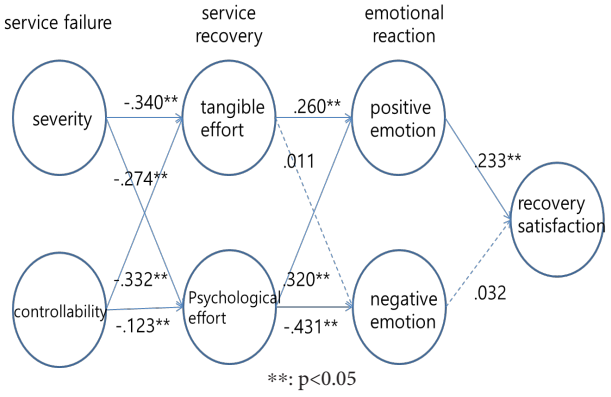

Figure 1. Structural model testing of the conceptual model.

ity will affect psychological effort are all adopted, showing each -.274(t value=-2.283), -.322(t value=-3.371) and -.123(t value=-3.384) of path coefficient with significant t value (t value≥±1.96). Accordingly, hypothesis 1 is all adopted.

Hypothesis 2-1 indicating tangible effort will affect positive emotion, hypothesis 2-3 indicating psychological effort will affect positive emotion and hypothesis 2-4 psychological effort will affect negative emotion are all adopted, showing each .260(t value=3.521), .320(t value =5.224) and -.431(t value =-6.669) of path coefficient. On the contrary, hypothesis 2-2 regarding the effect of tangible effort on negative emotion is rejected showing .011(t

value=.213) of path coefficient and with insignificant t value (t value≥±1.96).

Hypothesis 3-1 stating positive emotion will have a significant effect on satisfaction is adopted showing .223(t value=3.451) of path coefficient while hypothesis 3-2 is rejected. Consequently, in this study, all hypotheses are adopted at a significant level of 0.05 except for hypothesis 2-2 and hypothesis 3-2.

4. Discussion

This study was conducted to present a more effective service recovery strategy through a study on the effects of service recovery efforts in response to service failure. Given the nature of service products, it was important to select an industry where corporations would be exposed to opportunities of service failure to a greater degree and an industry that is at the same time considered as a service industry. Using customers who have had a dissatisfying experience with airline carriers as subjects, a total of 300 copies of surveys were distributed, among which 243 copies were retrieved. Out of them, 185 copies were used for analysis. The findings of this study with a focus on the results of verification of hypotheses set forth are as follows.

First, hypotheses 1-1 and 1-2 were adopted. In terms of controllability, tangible efforts had a greater effect than psychological efforts. That is, the greater the perception is of severity and controllability, the more tangible efforts and psychological efforts received a negative effect. This indicates that the more customers think of a service failure as more serious, and the more they think of it as controllable by the carrier, the more negatively they view the efforts for service recovery. That is, the greater the service failure, the more there will be service recovery, and the less the service failure, the less the service recovery.

Therefore, the more a customer's issue is taken seriously, the more airline carrier should address customers in a friendly manner and offer material compensation such as through offering air miles or discount coupons. Moreover, if the occurrence of a service failure incident is controllable by the carrier, then the staff must be given an opportunity to talk about the issue to passengers, take on a more courteous attitude and seek more proper ways of addressing the issue.

Second, tangible efforts out of service recovery effort types had a significant effect on positive emotions (1-3), but no effect on negative emotions (1-4). In particular, psychological efforts had a significant effect on both positive and negative emotions. The fact that psychological efforts have a strong negative effect on negative emotion indicates that psychological efforts mitigate customers' negative emotions caused by service failure. While financial compensation, offering of air miles or discount coupons had a significant effect on positive emotions, they did not mitigate negative emotions. Therefore, we can see that service recovery through psychological rather than tangible efforts is more important. This sheds light on where airline carriers can focus on when it comes to customer retention strategies, and in particular strategies for compensation for service failures.

Third, when a service failure occurs at an airline, the carrier offers numerous alternatives. Among them, tangible efforts had a significant effect on positive emotions (2-1). In other words, customers of the airline services felt happiness or comfort through tangible compensation. However, such tangible compensation appeared not to have an effect on negative emotions (2-2), showing that tangible compensation cannot convert customers' negative emotions into positive ones. In contrast, psychological efforts had a significant effect on both positive emotions and negative emotions (2-3, 2-4). This shows that psychological efforts negatively affected not only positive emotions but also annoyance or displeasure of customers, helping to mitigate these emotions. That is, when a service failure occurs, tangible efforts made by the carrier are important, but more emphasis should be placed on psychological compensation which comes in the form of showing empathy to the customer and tuning in to what they have to say.

Fourth, of the customers' emotional responses, positive emotions affected satisfaction with the recovery, while negative emotions did not affect satisfaction with recovery (3-1, 3-2). This indicates that carriers need to design their service satisfaction strategy so that they can maximize positive emotions in customers while converting negative emotions into positive ones. Therefore, airline carriers will have to develop an effective compensation system that promotes customers to have positive emotions through more effective service recovery in the face of service failure. Another thing that warrants attention is that Koreans are reluctant to explicitly display their emotions. This means that dissatisfied customers may not express it explicitly to the company, but may spread negative word-of-mouth. Therefore, airline carriers should not only have a strategy where they ask customers to select a particularly friendly staff, but also a system where their

grievances of not so outspoken customers can be dealt with more systematically.

The findings suggest that airline carriers, faced with heated competition to attract customers, need to recognize the importance of service recovery which is at the core of customer retention. If items related to service recovery are included in the service manual used for staff training, then even a new recruit will be able to handle a service failure situation without panic. The airline industry, more than any other industry, has an innate risk for unexpected situations. Therefore, it is meaningful to develop a response method for customers by service recovery type. This study seeks to provide a basic set of data for developing such methods by service recovery type.

Meanwhile, the limits of this study are as follows. The study set service recovery as a preceding factor and severity and controllability as variables. The variable for finding was mostly the effect on emotional responses. However, service recovery may have varying effects depending on the cause of the service failure, and depending on the service process (e.g., booking, ticketing, check-in, operation, in-flight services), service recovery types may also vary. Therefore, follow-up studies should be conducted on service recovery efforts made by service failure type.

5. References

1. Cho JE, Ko SH. The influence of the severity, controllability in the context of service failure on recovery justice, service value and loyalty. Korean Journal of Tourism Research. 2013; 28(2):287-303.
2. Mattila AS. The effectiveness of service recovery in a multi-industry setting. Journal of Business Research. 2001; 54(1):11-24.
3. Abrams M, Paese M. Wining and dining the whiners: treating complaints as opportunities is one customer strategy that really works. Sales and Marketing Management. 1993; 145(3):72-75.
4. Kelley SK, Hoffman D, Davis MA. A typology of retail failures and recoveries. Journal of Retailing. 1993; 69(4):429-52.
5. Smith AK, Bolton RN, Wagner J. A Model of Customer Satisfaction with Service Encounters Involving Failure and Recovery. Journal of Marketing Research. 1999; 36(3):356-72.
6. Weun SG, Beatty SE, Jones MA. Impact of Service Failure Severity on Service Recovery Evaluation and Post-Recovery Relationships. Journal of Service Marketing. 2004; 18(2):133-46.
7. Berry LL. Relationship Marketing of Service-Growing Interest, Emerging Perspectives. Journal of the Academy of Marketing Science. 1995; 23(4):236-45.
8. Miller JL, Craighead CW, Karwan KR. Service Recovery: A Framework and Empirical Investigation. Journal of Operations Management. 2000; 18:387-400.
9. Holbrook MB, Batra R. Assessing the Role of Emotions as mediators of consumer responses to advertising. Journal of Consumer Research. 1987 September; 14(3):404-20.
10. Weiss HM, Suckow K, Cropanzano R. Effects of justice conditions on discrete emotions. Journal of Applied Psychology. 1999; 84(50):786-94.
11. Chebat JC, Slusarcyk W. How emotions mediate the effect of perceived justice on loyalty in service recovery situations: an empirical study. Journal of Business Research. 2005; 58(5):664-73.
12. Kim DH, You YY, Jung JT. The effects of emotion and communication on job involvement. Indian Journal of Science and Technology. 2015 March; 8(5):1-8.
13. Ekman P. Universals and cultural differences in facial espressions of emotion. Nebraska Symposium on Motivation. 1971; 19(1):207-83.
14. Rhee JW, Song HJ, Na EK, Kim HS. Classification of emotion terms in Korean. Korean Journal of Journalism & Communication Studies. 2008; 52(1):85-116.
15. First half Air Passenger Performance in Korea. Ministry of Land, Infrastructure and Transport. Data accessed: 2015: Available from: www.icao.int/APAC/Documents/60th/Japan.pdf .
16. Hair JE, Anderson RE, Tatham RL, Black WC. Prentice-Hall International Inc.: Multivariate Data Analysis. Fifth Edition. 1998.
17. Bagozzi RP, Yi Y. On the Evaluation of Structural Equation Models. Journal of the Academy of Marketing Science. 1988; 16(1):74-94.
18. Fornell C, Larker DF. Evaluating Structural Models with Unobservable Variables and Measurement Error. Journal of Marketing Research. 1981; 18(2):39-50.