Academic Journal of Humanities & Social Sciences
ISSN 2616-5783 Vol.3, Issue 11: 98-103, DOI: 10.25236/AJHSS.2020.031114

Using Kano with Revised Ipa Model Explore Tourist Satisfaction in Airport Terminal

Jih-Kuang Chen

Economics & Management College, Zhaoqing University, Zhaoqing, 526061, China

ABSTRACT. *This study integrates the Kano with revised IPA model to explore Tourist Satisfaction Improvement Strategy in Airport Terminal. It is not only avoid without considering weakness of service attribute is two-dimensional when apply IPA to analyze solely, and avoid without considering to weakness of service factor importance when apply Kano model to analyze solely. Taking Xiamen airport T4 terminal building as case study, the result found five items which need to be improved and five items which need to be maintained.*

KEYWORDS: *Kano model, Ipa model, Revised ipa, Customer satisfaction*

1. Introduction

With economic development, more and more people choose to take air for journey. The business of airport's transport grows annually, importance of aviation service for customer dominated obviously. Since IPA model [1] and Kano model [2] promoted, there are applied in customer satisfaction field inclusively [3-6]. after Deng & Lee (2007) proposed a method of integrating KANO with IPA model, due to it avoid without considering weakness of service attribute is two-dimensional when apply IPA to analyze solely, and avoid without considering to weakness of service factor importance when apply Kano model to analyze solely, hence, it is applied inclusively. Like Hu et al. (2011) [8] analyzed Asian major contain port's service quality; Meng et al. (2014) [9] applied it to survey relation between customer satisfaction and delivery service performance; Xu & Liu (2011) analyzed and discussed administrative service quality of public elementary school [10].

However, Matzler & Sauerwein (2002) [11] pointed that traditional IPA model contains two important possible weaknesses: (1) satisfaction and importance of service factor is independent variable; (2) satisfaction of single service factor and satisfaction of whole customer presents linear and symmetrical effect relation. Hence, Matzler et al. (2004) [12] proposed revised IPA method, makes total customer satisfaction as dependent variable, performance of service factor as argument, use multivariate regression analysis method to lead out importance of factor service. Hence, the study cites this revised IPA method and

ISSN 2616-5783 Vol.3, Issue 11: 98-103, DOI: 10.25236/AJHSS.2020.031114

further integrating Kano model, makes Xiamen airport T4 aviation station as study object, analyze its customer satisfaction improvement strategy.

2. Method

2.1 Revised Ipa Method

Calculating multiple regression coefficient between various satisfaction factors and total satisfaction as derived importance to replace self-stated importance, as following formula(1):

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 \cdots\cdots + \beta_n X_n \quad (1)$$

Where: Y as total satisfaction fraction

X is satisfaction of each factor

Every factor's regression coefficient (β_i) is used as importance (I) of IPA analysis.

2.2 Integrating Method of Kano Model and Revised Ipa Mode

Combining attribute judgement result of various factors with quadrant which located in IPA, after classifying factor's IPA matrix quadrant, and then differentiate and mark judgement result of every factor attribute. If Must-be attribute cannot reach customer's requirement, customer will turn to other enterprises, hence, Must-be attribute has highest priority, and One-dimensional attribute is second, then Attractive attribute, final one is Non-difference attribute. As to the same quadrant, quadrant I, IV should adopt maintains strategy, but quadrant I is prior to quadrant IV; quadrant II and III should adopt improvement strategy, but quadrant II is prior to quadrant III. This combination method can determine priority order of improvement and strategy of various service factors. Summarizing and arranging improved priority order and retained priority order, as following table 1:

Table 1 Order of Improved and Maintained

~~Attribute Category~~	IPA Quadrant	Sequence of Improved	Sequence of Maintained
Must -be	I	—	1
	II	1	—
	III	2	—
	IV	—	2
One-dimensional	I	—	3
	II	3	—
	III	4	—
	IV	—	4
Attractive	I	—	5
	II	5	—
	III	6	—
	IV	—	6

ISSN 2616-5783 Vol.3, Issue 11: 98-103, DOI: 10.25236/AJHSS.2020.031114

3. Case Study

3.1 Factors Establishment

The study regards Xiamen airport T4 terminal building as object, using the integrating method which revise IPA and Kano model to discuss customer satisfaction aviation station. Firstly, makes SERVQUAL's factor as reference, and refer to former relevant study, and consult many executives of Xiamen Aviation Company and teachers of management college, summarized 21 items of service factors for further analysis and discussion.

3.2 Questionnaire Delivery, Retrieved and Sample Description

The questionnaire delivered 223 pieces, retrieved 223 pieces, 31 invalid pieces for deletion, omitting, wrong filling, 184 valid pieces totally, valid pieces rate is about 82.51%.

3.3 Reliability and Validity Analysis

Utilizing SPSS 20.0 to make Cronbach's coefficient test for reliability, result is 0.918, hence, retrieve questionnaire's reliability is enough. Next utilize factor load capacity to judge questionnaire's structural validity, firstly, make KMO and Bartlett sphere test, KMO's value is 0.911, Bartlett sphere statistical value is 0.000, which state questionnaire's structural validity is favorable, and suitable for making factor analysis. Further applying common factors to analyze, after rotation sum of squares loaded, total variance was explained of former six common factors accumulation is 61.166%. At last, the principal component matrix after rotation was shown that the factors can be covered by six principal components and all the factor loads were larger than 0.5, so that it shall have enough validity accordingly.

3.4 Kano Attribute Classification

Judging attribute classification of 21 items of service factor according to method of positive and negative comment table of Kano, count all of questionnaire result and make final attribute classification by principle. Result is as following table 2:

Table 2 Result of Category Judgements

Service	Frequence of categories						Category
Factors	Q	A	O	R	I	M	
1	0	27	45	0	27	30	O
2	1	20	55	0	26	27	O
3	0	50	30	3	28	18	A
4	0	30	42	0	33	24	O
5	0	0	0	1	52	76	M
6	3	18	63	0	15	30	O
7	3	17	40	3	29	37	O
8	2	17	42	1	31	36	O
9	0	26	45	1	39	18	O
10	0	33	49	1	37	9	O
11	0	23	63	0	13	30	O
12	27	13	37	3	20	29	O

ISSN 2616-5783 Vol.3, Issue 11: 98-103, DOI: 10.25236/AJHSS.2020.031114

13	1	18	56	0	27	27	O
14	0	35	37	0	24	33	O
15	3	18	58	3	24	23	O
16	2	21	64	0	23	19	O
17	0	27	18	2	40	42	M
18	0	35	48	1	33	12	O
19	1	15	37	2	17	57	M
20	0	17	64	0	30	18	O
21	0	39	35	0	36	19	A

3.5 Revised Ipa Analysis

Making whole satisfaction as dependent variable, every factor's satisfaction is independent variable, establish multiple regression equation, to calculate regression coefficient of every factory. And make variance analysis to test whether regression model exist. The result showed significant probability value is less than 0.01, hence this regression model is available. Summary and arrangement of importance and satisfaction of every factor is as following table 3:

Table 3 Satisfaction and Importance of Service Factors

Code	1	2	3	4	5	6	7	8	9	10	11
Satisfaction	1.475	0.907	0.571	0.437	0.737	1.526	1.379	1.022	0.705	0.380	0.304
Importance	3.719	3.849	3.321	3.588	3.965	3.151	3.317	3.357	3.754	3.658	3.523
Code	12	13	14	15	16	17	18	19	20	21	
Satisfaction	0.547	0.694	1.330	0.474	0.602	1.340	0.978	1.554	0.382	0.603	
Importance	3.864	4.050	3.975	2.995	3.090	3.437	3.508	4.075	3.643	3.503	

3.6 Integrating Analysis

After summarize result of attribute judgement and importance and satisfaction of revised IPA method, importance as longitudinal axis; satisfaction as lateral axis, mark location of various factors. And average of factor importance and satisfaction as center, divided into four quadrants. As following figure 1:

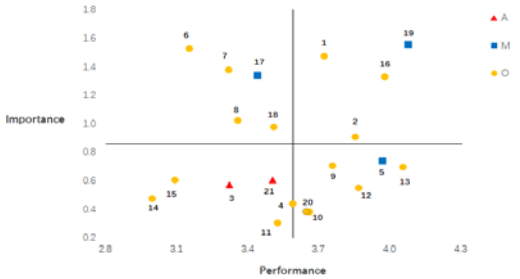

Fig.1 Ipa-Kano Diagram

ISSN 2616-5783 Vol.3, Issue 11: 98-103, DOI: 10.25236/AJHSS.2020.031114

4. Result

From figure 1, the factor distributed in quadrant I is 1, 2, 16 and 19. Quadrant I is continuous keep interval of IPA analysis method, which indicates that interviewees treat these four factors are more important, and these four factors' service satisfaction is high currently. Quadrant II includes 6, 7, 8, 17 and 18. This region is improvement area determined by IPA analysis method. Quadrant III includes 3, 4, 11, 14, 155 and 21. IPA analysis method defines this quadrant as weakness region, its satisfaction and importance is low, which state these service factors should kept in low priority to interviewee. Quadrant IV includes 5, 9, 10, 12, 13 and 20. IPA analysis method defines this quadrant as transition region, satisfaction is high, but importance is low, which indicates these service factors spend much extra resources. However, after combine attribute classification of various factors, the point of management and sequence of improvement and sustainability changed, firstly, it should improve factor 17, second is 6, 7, 8 and 18. The whole improvement and sustainability sequence is as following table 4:

Table 4 Result of Sequence for Improved and Maintained

Attribute Category	IPA quadrant	Factors included	Improved Sequence	Factors included	Maintained Sequence
M	Ⅰ		-	19	1
	Ⅱ	17	1		-
	Ⅲ		-		-
	Ⅳ		-	5	2
O	Ⅰ		-	1,2,16	3
	Ⅱ	6,7,8,18	2		-
	Ⅲ	14,15,4,11	3		-
	Ⅳ		-	9,13,12,20,10	4
A	Ⅰ		-		-
	Ⅱ		-		-
	Ⅲ	21,3	4		-
	Ⅳ		-		-

5. Conclusion

The study integrate revised IPA with Kano model to discusses customer satisfaction improvement strategy of Xiamen airport's T4 terminal building based on SERVQUAL scale and study of former researches. It conducted service factor sequence of former five items which need to be improved: seat quantity of waiting area, flight schedule rate in airport; abnormal flight service; treatment o complaint and opinion; completeness of internet telecommunication device. These services need to increase resources devotion strength, make endeavor to improve their status. And five items of former service include: airport's sanitary environment; attitude of consultant in airport; timeliness of flight information inform; efficiency of conductors and completeness of booting system of terminal

ISSN 2616-5783 Vol.3, Issue 11: 98-103, DOI: 10.25236/AJHSS.2020.031114

building. Airport managers can maintain or improve strategy sequence, allocate resources and maximize resources use efficiency and improve customer satisfaction of airport terminal building according to analyzed result and determined service factor.

References

[1] J. A. Martilla and J. C. James (1977). Importance–Performance analysis. Journal of Markeing, vol.41, no.1, p. 77-79.

[2] N. Kano, N. Seraku, F. Takahashi and S. Tsuji (1984). Attractive Quality and Must-be Quality, The Journal of The Japanese Society for Quality Control, 14, No.2, p. 39-48.

[3] B. B. Boley, N. G. McGehee and A. L Tom Hammett (2017). Importance-performance analysis (IPA) of sustainable tourism initiatives: The resident perspective, Tourism Management. Tourism Management, vol.58, p. 66-77.

[4] D. I. Prajogo and P. McDermott (2011). Examining competitive priorities and competitive advantage in service organizations using Importance–Performance Analysis matrix. Managing Service Quality, vol.21, no.5, p. 465-483.

[5] A. Shahin and M. Zairi (2009). Kano model: A dynamic approach for classifying and prioritising requirements of airline travellers with three case studies on international airlines. Total Quality Management & Business Excellence, vol.20, no.9, p. 1003-1028.

[6] B. Bilgili, A. Erciş and S. Ünal (2011). Kano model application in new product development and customer satisfaction (adaptation of traditional art of tile making to jewelries), Procedia - Social and Behavioral Sciences, vol.24, p. 829-846.

[7] W. Z. Deng and Y. Z. Li (2007). key quality attribute determination of Beitou spring hotel -application of Kano model and IPA, Quality Journal, vol.14, no.1, p. 99-113.

[8] K. J. Hu, T. Y. Li and Z. W. Qiu (2011). Use Kano model and importance performance to analyze and discuss service quality of Asian major container port, Journal of Transportation, vol.23, no.1, p. 129-164.

[9] Z. G. Xu, Y. Y. Liu (2011). Combine Kano model and IPA to analyze and discuss public elementary school's administrative service quality. Chinese Journal of management, vol.12, no.1, p.1-17.

[10] Q. L. Meng, L. L. Bian, L. He, L. Zhang (2014). Configure delivery service quality detection method of Kano model and IPA analysis, Industrial engineering and management, vol.19, no.2, 75-80.

[11] K. Matzler and E. Sauerwein (2002). The factor structure of customer satisfaction:An empirical test of the importance grid and the penalty-reward-contrast analysis, International Journal of Service Industry Management, vol,13, no.4, p. 314-332.

[12] K. Matzler, F. Bailom, H. H. Hinterhuber, B. Renzl and J. Pichler (2004). The asymmetric relationship between attribute-level performance and overall customer satisfaction:A reconsideration of the importance – performance analysis. Industrial Marketing Management, vol.33, p. 271-277.