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Research on Impact of Airport Service Quality on Passenger Satisfaction: A Comparison of Incheon Airport and Beijing Capital Airport

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Abstract

The purpose of this paper is to design a survey of passenger satisfaction by using the Likert five-scale for the passengers of Incheon International Airport and Beijing Capital International Airport in China, and to combine the actual service situation of the airports in the two countries, using SPSS statistical software. Analyze and process statistics. Using the questionnaire survey method and exploratory factor analysis method, the airport service quality is analyzed to analyze the impact model of customer satisfaction. We will sort out the customer satisfaction with the two airports, compare and analyze the gaps in airport services between the two countries, and identify problems to formulate optimization and improvement plans.

▸Keyword: Airport Service, Service Quality, Consumer Satisfaction, Customer perceived, Customer loyalty

I. Introduction

In the first 15 airports of the global passenger throughput in 2017, and these airports's passenger throughput in the first half of 2018 exceeded 30 million, with an average growth rate of 4.84%. Incheon Airport in South Korea grew at a rate of 12.16%, rising from 19 in 2017 to 15 and China Capital Airport ranked second. With the advancement of global economic integration, the rapid development of airports and the quality of service issues have become increasingly prominent. In particular, the dissatisfaction of large-scale stranded customers caused by flight delays and complaints are not uncommon, causing different degrees of economic losses to passengers and affecting airlines. And even the reputation of the airport [1].

Customer satisfaction is positively related to the quality of service, and they are mutually causal. In 2016, Chilean scholars Birda and Chiappa proposed that managers should pay attention to the communication between airport customers and service personnel, and launch high-quality retail and catering services to help improve customer perception [2]. 2017 Korean scholar 이상훈 combines the national image with the airport service. He believes that the airport is the first impression of the country for passengers. The high service quality of the airport can give passengers a good impression of Korea [3].In 2016, Chilean scholars Birda and Chiappa proposed that managers should pay attention to the communication between airport customers and service personnel, and launch high-quality retail and catering services to help improve customer perception [4]. The meaning of customer satisfaction was first proposed by Philip. Kotler. The difference between the quality effect felt by the customer when using the product or the experience service and the customer's expectation of the product before use is customer satisfaction. This is a state of difference between customer experience and customer

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expectations. The objective and fair collection of customer expectations and feedback from customers after using the product will help to further improve product quality to extend the customer life cycle and provide a reliable basis for companies to improve their profitability [5].

About the airport, as early as 1984, Lemer and other scholars believed that a major factor affecting the quality of airport services was the flight delay of the airlines, and the delay was accompanied by the birth of the air transport field. How the airport accepts the airline's demands and how to deal with customers who have long waited for delays in flights is crucial [6]. In the 2018, Wu Minghai showed in research that airlines need to play their part and strengthen supervision and guidance. Main responsibility in fulfilling flight delays and more, Reduce airport flight delays while improving customer satisfaction[7]. In 2011, Liou et al. used the rough set model of good and bad relationship to test the airport customer service level, and found that the perception of passengers in the airport service will have a greater impact on their future domestic or local tourism and activities [8].

Although scholars have carried out a lot of research on airport transportation management and service improvement, there are not many researches on passenger service satisfaction by using exploratory factor analysis method, especially the comparison of service quality between China and South Korea. This paper will lead the remediation dimension into research. And Analysis of service quality at airports in both countries And construct the equation model for analysis, find out the customer's satisfaction and perception difference between the two airports' services, and finally draw theoretical results, and provide reference for improving the service quality of airports in the two countries.

II. Research methods and Hypotheses

2.1 Research background

2.1.1 Airport Service Quality (ASQ)

Quality of service refers to the combination of characteristics and characteristics of a service that meets the requirements and potential needs. It refers to the extent to which the service can meet the needs of the serviced person. There are a variety of research tools for measuring and researching the quality of airport services. Among them, Parasuraman and other scholars proposed to measure the quality of service by using 22 projects, including reliability, responsiveness, guarantee, empathy and tangibility [9]. Korean scholars Ji Seong-gu and Hong Suk Ki After studying the service quality of Incheon Airport, the SERVQAUL model is applied to the airport range, and the results obtained are appropriate [10]. Kim Min Soo and Jang DaeSung analyzed and evaluated the technical service quality and functional service quality of Incheon International Airport [11].

2.2.2 Customer perceived quality (CP)

Perceived quality was proposed by Olson and Jacoby in 1974 and is the level of quality perceived by consumer executives and is often defined as “evaluation of product quality” [12]. In 1988, Zeithaml summed up the four characteristics of customer perceived quality, namely, subjectivity. The customer's perceived quality and objective quality are different subjective evaluations. 2. Abstraction, customers have not obtained most before obtaining product experience. The specific quantitative product data can only be generalized and abstractly expected and estimated for the product; 3. Relativity, the customer will have a contrast when they experience different products, and then choose the best product for consumption; 4 non-comprehensive Sexuality, most customers will evaluate the overall quality of the product based on some typical indicators or indicators that are considered important [13].

2.1.3 Customer Satisfaction (CS)

Customer satisfaction is the state of pleasure or disappointment that a customer creates when the perceived effect (or outcome) of a product is compared to the expected value. The earliest paper on customer satisfaction theory can be traced back to "An Experimental Study of Customer Effort, Expectation, and Satisfaction" published by Cardozo in 1965. Early research on satisfaction focused on products, and Cardozo (1965) argued that improving customer satisfaction would result in customers re-shopping and not converting other products [14]. Through research, Oliver defines satisfaction as the consumer's experience in comparing the current service with the consumer's expectation, and finally the satisfaction generated by the consumer after the experience of the service is integrated [15]. Dutch

believes that consumers will be satisfied when the necessary requirements are completed, and that the service will have a higher satisfaction when it exceeds the basic requirements, and that dissatisfaction will occur if the expectation is not met [16]. Chinese scholar Yu Meichen believes that if the airport is geographically far away from the urban area, it can improve the overall satisfaction of customers through friendly services and quick security inspections [17].

2.1.4 Customer loyalty (CL)

Customer loyalty refers to the degree of customer loyalty and is a quantitative concept. Customer loyalty refers to the degree to which a customer has an affection for a product or service of an enterprise due to factors such as quality, price, service, etc., forming a preference and repeatedly purchasing the product or service of the enterprise. Many scholars have shown that loyal customers will be the main source of competitive advantage. It can be seen that retaining loyal customers is a very important task for business operators. Chinese scholar Cao Ling's relationship between service quality and customer loyalty in the relationship between service quality and customer loyalty is that service quality is the basis of customer loyalty, and customer loyalty in turn affects service quality [18]. Kotler & Armstrong believes that customer loyalty is the attitude of customers repeatedly using services or goods [19]. In November 2011, Copenhagen Airport in Denmark launched a loyalty program called CPH Advantage, which demonstrates increased customer loyalty and effectively consolidates the demand for “high-end” customers' commercial services at airports and the price of commercial services. Responsive ability to effectively strengthen the relationship between airports, retailers, and airlines [20].

2.2 Research methods

This paper refers to the service quality model and refers to the model's five dimensions (specific definition reference table 1), namely "reliability", "responsiveness", "guarantee", "empathy", "tangible" ,And to add a new dimension to the airport service - "remediation", and then put forward different assumptions to reflect the airport construction environment and staff service levels. The article will design a questionnaire for the above six dimensions, and issue a questionnaire after the reliability/validity test. The scale consists of 20 questions, using the Likert five-level scale, the value is 1-5, “1” stands for complete disagreement, “5” stands for complete agreement, and the smaller the value, the lower the customer satisfaction. The higher the opposite.

Table 1. Definition of quality of service elements

quality of service elements	Definition
reliability	Refers to whether the airport service personnel can fulfill the promised ability, whether the quality meets the customer's requirements, and whether it can be completed quickly and efficiently after receiving the customer's request, so reliable service is expected by all airport customers.
responsiveness	Whether airport service personnel can respond to customers' current demands based on fast and efficient services has reduced customer waiting time. The speed of solving the problem will affect the customer's recognition of the quality of the airport service.
guarantee	Refers to the basic literacy of the service personnel, the level of cultural knowledge and the ability to express language. The ability of service personnel to effectively communicate with customers and solve customer problems is one of their performances.
empathy	It means that the service personnel can put themselves in the position of the customer, making the service humane and let the customer feel the kindness of the service.
tangible	Refers to whether the airport equipment is complete, the environment is hygienic, and the appearance of the personnel is clean and proper.
remediation	Refers to the timely remedial measures taken by airport service personnel in response to customer complaints, complaints, and dissatisfaction caused by mistakes in the service.

The research object was selected from November to December 2018 through the questionnaire survey method for the use of the airport passenger group. The customers were mainly Chinese and Korean customers. Subjects groups between the ages of 18 and 70 and volunteered to participate in the survey. The questionnaire will be distributed in the form of a paper questionnaire. A total of 500 copies were designed and 455 copies were reclaim. The questionnaires with incorrect answers were deleted, and 428 valid questionnaires (214 each) were selected for the traveler of the two countries. The reliability analysis, factor analysis and structural equations were performed using SPSS 22.0. Model analysis. The reliability test in this study uses the homogeneity reliability test, and the content validity test uses the correlation analysis method,

as shown in Table 2, Table 3, Table 4, and Table 5 below. The reliability test in this study uses the homogeneity reliability test, and the content validity test uses the correlation analysis method. The reliability test in this study uses the homogeneity reliability test, and the content validity test uses the correlation analysis method, as shown in Table 2, Table 3, Table 4, and Table 5 below. The reliability test in this study uses the homogeneity reliability test, and the content validity test uses the correlation analysis method. The four variables ASQ, CS, CP, and CL have Cronbach'α values higher than 0.7 .In the validity test, the variable weighting value exceeded 0.6 and met the required value. The article will collect data from the passengers of the two airports, collate the data, compare the conclusions, and make recommendations for the construction of the two airports.

In order to verify the consistency of the variables within the model, a reliability analysis was used. In general, the standard of Cronbach's α of Nunall (1978) was used, and the reference value was set to a value of 0.65 or more. In Table 2, the reliability test for the four variables in Table 3 exceeds 0.65, and most of them exceed 0.8, and the reliability is high.

Table 2. Reliability Analysis (Korea)

	Cronbach'α	post-standardized Cronbach'α	number of entry
ASQ	0.865	0.868	6
CS	0.897	0.898	3
CP	0.853	0.857	3
CL	0.775	0.776	2

Table 3. Reliability Analysis (China)

	Cronbach'α	post-standardizedCronbach'α	number of entry
ASQ	0.836	0.838	5
CS	0.875	0.876	3
CP	0.730	0.735	3
CL	0.885	0.885	2

Table 4 and Table 5 are the results of the model validity analysis. Through factor analysis, we can see that the concept of each variable and the value of the attribute are more than 0.6. According to the experience of general validity, any increase of more than 0.4 , it means can be used. But the ASQ3 (China) does not meet the requirements, so delete it. And the other value that fully matches the scope of the appropriateness.

Table 4. Validity Analysis (Korea)

	composition			
	1	2	3	4
ASQ1	0.859	0.056	0.173	0.092
ASQ3	0.816	0.094	0.124	0.230
ASQ2	0.775	0.132	0.147	0.185
ASQ4	0.771	0.099	0.264	−0.037
ASQ6	0.584	0.118	−0.078	0.498
ASQ5	0.487	0.183	0.268	0.386
CS1	0.145	0.912	0.097	0.096
CS2	0.151	0.898	0.032	0.109
CS3	0.065	0.857	0.213	0.118
CP1	0.174	0.099	0.860	0.141
CP2	0.157	0.175	0.855	0.179
CP3	0.217	0.069	0.790	0.128
CL2	0.153	0.064	0.205	0.850
CL1	0.174	0.183	0.213	0.799

Table 5. Validity Analysis (China)

	composition			
	1	2	3	4
ASQ2	0.837	0.025	−0.005	0.083
ASQ4	0.798	0.240	0.082	−0.084
ASQ5	0.746	0.426	0.128	−0.060
ASQ1	0.609	0.248	0.334	0.214
ASQ6	0.538	0.299	0.350	0.176
CS2	0.273	0.871	0.130	0.042
CS1	0.239	0.866	0.200	0.004
CS3	0.290	0.713	0.261	0.089
CP3	0.175	0.253	0.824	0.076
CP2	0.226	0.052	0.798	0.257
CP1	−0.070	0.456	0.601	−0.123
CL2	0.034	0.047	0.082	0.930
CL1	0.055	0.008	0.111	0.926

2.3 Model establishment

Combining the actual service situation of the airport and constructing the airport service quality gap model based on the service quality gap model theory, as shown in Figure 1.

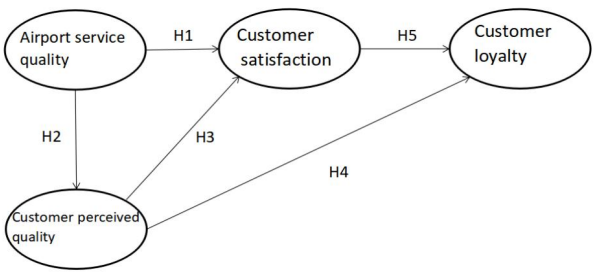

Fig. 1. research model

The model is specifically explained as:

H1. The service quality of the airport (Incheon Airport/Capital Airport) has a “+” impact on customer perceived quality;

H2. The quality of airport service has a “+” impact on customer satisfaction;

H3. Customer perceived quality will have a “+” impact on customer satisfaction;

H4. Customer satisfaction has a “+” impact on customer loyalty.

H5. Customer perceived quality has a “+” impact on customer loyalty.

III.Research results

When testing the overall model fitness index, it should first test whether the model parameters have violations from three aspects:

First, whether there is a negative error variance exists; Second, whether the standardized parameter coefficient is greater than or equal to 1;

Third, is there too much standard deviation? If there is no violation of the model test results, then the overall model fit degree can be tested. The overall model fit can be determined by chi-square values, chi-square degrees of freedom, RMSEA, GFI, AGFI and other indicators.

Analysis of the above Figure 2, can get the chi-square value = 157.157, P value close to 0, GFI = 0.960, AGFI = 0.862 and other results, according to the index criteria, we can completely determine that the results can be passed the model fit degree criteria.

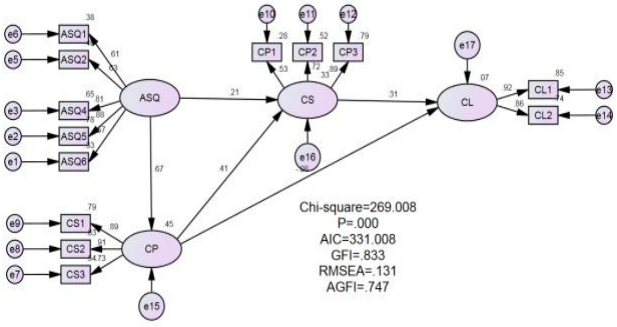

Fig. 2. Structural equation model analysis (Korea)

Analysis of the above Figure 3, can get the chi-square value = 269.008, P value close to 0, GFI = 0.833, AGFI = 0.774 and other results, according to the index criteria, we can completely determine that the results can be passed the model adaptation criteria.

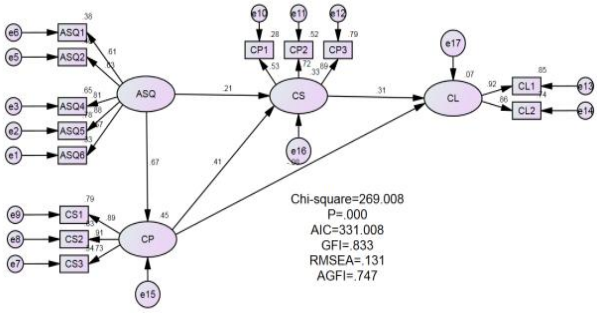

Fig. 3. Structural equation model analysis (China)

After determining the compound model judgment criteria, we can get the following conclusions, Table 6, Table 7.

in conclusion:

H1 : ASQ→CS. The service quality of Incheon Airport in South Korea has a “+” impact on customer perceived quality;

H2 : ASQ→CP. The service quality of Incheon Airport in South Korea has a “+” impact on customer satisfaction;

H3 : CS→CP. Customer perceived quality will have a “+” impact on customer satisfaction;

H4 : CP→CL. Customer satisfaction has a “+” impact on customer loyalty.

H5 : CS→CL. Customer perceived quality has a “+” impact on customer loyalty.

Table 6. Hypothesis test results (Korea)

Hypothesis	Estimate	S.E.	C.R.	P	conclusion
Hypothesis 1	0.353	0.084	4.197	***	Support
Hypothesis 2	0.467	0.093	5.011	***	Support
Hypothesis 3	0.178	0.076	2.336	0.019	Support
Hypothesis 4	0.454	0.085	5.315	***	Support
Hypothesis 5	0.236	0.083	2.848	0.004	Support

in conclusion:

H1 : ASQ→CS. The service quality of China Capital Airport has a “+” impact on customer perceived quality;

H2 : ASQ→CP. The service quality of China Capital Airport has no “+” impact on customer satisfaction;

H3 : CS→CP. Customer perceived quality will have a “+” impact on customer satisfaction;

H4 : CP→CL. Customer satisfaction has a “+” impact

on customer loyalty.

H5 : CS→CL. Customer perceived quality has no “+” impact on customer loyalty.

Table 7. Hypothesis test results (China)

Hypothesis	Estimate	S.E.	C.R.	P	conclusion
Hypothesis 1	0.852	0.133	6.422	***	Support
Hypothesis 2	0.199	0.103	1.935	0.053	Not Support
Hypothesis 3	0.308	0.088	3.517	***	Support
Hypothesis 4	0.505	0.178	2.843	0.004	Support
Hypothesis 5	-0.102	0.119	-0.859	0.39	Not Support

Ⅴ. Conclusion

1. Quality service can enhance passenger satisfaction and bring economic benefits. Through comparative analysis, first of all, with the help of global economic integration and population advantage, the passenger throughput of China's capital airport ranks second in the world, but the analysis model shows that the assumption of the impact of airport services on customer satisfaction is not supported, namely the airport. There are defects in the service, and the passengers fail to achieve the expected satisfaction in the service experience. Secondly, Incheon Airport compared with the Beijing Capital airport, where conditions are not good available, but With the cultural characteristics of the country, Taking the image of the airport as the image of the country, The linked business district offers a variety of special services. This is what the Chinese capital airport and even the world's major international airports need to learn. Let passengers not only get excellent service when they fly, Even at the airport, it gives passengers a warm and comfortable sense of belonging. Rely on all aspects of quality service to win, Achieve a win-win situation for passengers and airports.

2. Quality service can increase passengers' loyalty to the airport and bring a stable customer base. By improving the quality of service, airport companies have achieved a win-win situation for airlines, hotels, retailers and even taxi companies. It provides an interactive platform for airports and passengers, continuously introduces featured products and personalized services, establishes a database of passenger demand information, and uses big data technology to lay a solid foundation for analyzing passenger demand, creating a warm and warm travel and returning atmosphere for travelers.

3. Innovation is the basic requirement for the intelligentization of airport services in the Internet era. Airport culture and intelligent construction also affect the impression of passengers on the country. How to show the airport culture and national culture to customers during the short stay of the airport is crucial, not only in the need for innovation in facilities and services, but also at the airport. News, management, talent selection and many other aspects need to be innovative. The airport should establish a database of passenger demand information from the perspective of customer satisfaction and multiple perspectives, and use big data technology to lay a solid foundation for analyzing passenger demand.

4. Featured services and personalized services are the magic weapon for enterprise competition. The first is to provide an interactive platform for airports and passengers. Starting from the airport's grassroots service products, product prices, product types, and product quality should be more aware of customer needs [21], designing featured products for passenger service; second, strictly controlling customers' processes at the airport to ensure the entire process. Fluency and convenience; the third is the improvement of employees' service attitude. Personalized service creates a warm and welcoming atmosphere for passengers, and has a great influence on passenger satisfaction based on detailed guidance from customers. Therefore, it is also an important part of comprehensively improving the service quality and service skills of employees.

REFERENCES

[1] Xiangfen Kong, Xiaobei Wang . Research on Quality Evaluation of Flight Delay Service Remedy Based on Weighted SERVQUAL Model[J]. Industrial engineering(5), 75-84, 2014.

[2] Brida J G, Moreno-lzquierdo L,Zapata-Aguirre S. Customer perception of service quality: The role of Information and Communication Technologies (ICTs) at airport functional areas[J]. Tourism Managment Perspectives, 016, 52, 90-98, 2016.

[3] SangHoon Lee. A Study on the Influence of National Impression on Tourist Image. Tourism and Leisure

Studies. 29(5). 5-24. 2017.
[4] Brida J G, Moreno-Izquierdo L,Zapata-Aguirre S. Customer perception of service quality: The role of Information and Communication Technologies(ICTs) at airport functional areas[J].Tourism Managment Perspectives, 52, 90-98, 2016.
[5] Carmen B.C. Enrique M.A., David M.R. The influence of employee organizational citizenship behavior on customer loyalty. Internationally Journal of Service Industry Management, 15(1), 27~53, 2004.
[6] Lemer J.A needle for transbronchial aspiration cytology[J].Journal of the Royal College of Surgeons of Edinburgh, 29(5), 316-317, 1984.
[7] Wu Minghai. Flight Delay Governance Research - Taking Wuhan Tianhe Airport as an Example. 2018-05.
[8] Liou. J. J. H,Tang C H,Yeh W C, et al. A ddecision rules approach for improvement of airport service quality[J]. Expert Systems with Applications, 38(11), 2011.
[9] Parasuraman, A. V. A. Zeithamland L. L. Berry, "Aconceptual model of service quality and its implications for future research," The Journal of Marketing, Vol.49, No.4, 41-50, 1985.
[10] Seonggu Ji, SukKi Hong, "Development of International Air Quality Service Quality Scale," Industrial Economics Research, Vol. 18, No. 3, 1179-1201, 2005.
[11] Dae Sung Jang & Min Soo Kim, "A study on the relationship between tangible quality and customer loyalty related to airline crew," Journal of Korean Society for Production Management, Vol. 16, No. 3, 133-155, 2005.
[12] Olson, Jerry C. Price as an Informational Cue, Effects in Produc Evaluation. In Consumer and Industrial Buying Behavior Arch G, Woodside, Jagdish N, Sheth and Peter D, Bennte eds. [M]New York : North Holland Publishing Company, 267-86, 1977.
[13] Zeithaml, V.A. Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. Journal of Marketing, 52, 2-22. 1988.
[14] Cardozo, R. N. "An experimental study of customer effort, expectation, and satisfaction. Journal of Marketing Research", 244-249, 1965.
[15] Oliver, R. L. Measurement and Evaluation of Satisfaction Processes in Retail Setting, Journal of Retailing, 57, 25-48. 1981.
[16] Dutch,A. Handbook for Customer Satisfaction, Lincoln wool, IL. NTC Business Book, 38, 1994.
[17] MeiChen Yu. Research on Passenger Satisfaction Evaluation of Service Quality in Public Area of Xin zheng International Airport Terminal Building. Journal of Xi An Aeronautical College. 36-4, 2018.
[18] Ling Cao. The Relationship between Service Quality and Customer Loyalty-Based on the Research of China CABLE. Value Engineering. 16-20, 2019.
[19] Kotler & Armstrong. Marketing principle.5th edition[M]. Shanghai Translation Publishing House, 1996.
[20] Jian Wang. Loyalty program: How does the airport attract tourists? . China Civil Aviation News, 10, 2012.
[21] Qun Xie, Strategies to enhance the competitiveness of Bai Yun International Airport. Ability and Wisdom. 236/238, (27), 2018.

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