

Byun, Hyo-Jeong; Lee, Byeong-Cheol

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Classifying Service Quality Attributes of Low-Cost Carriers and Full-Service Carriers based on An Analytical Kano Model

Hyo-Jeong Byun^a and Byeong-Cheol Lee^b

^a Department of Tourism, Event and Convention Management, Kyonggi University, Seoul, Republic of Korea

^b Department of Tourism and Event Management, Kyonggi University, Seoul, Republic of Korea

ABSTRACT

The purpose of this study is a) to examine customer needs for, and satisfaction in service quality of both LCCs and FSCs in South Korea, and b) to compare the differences between LCCs and FSCs. To achieve this goal, this study employs Kano model that is considered a useful method not only to analyze customers' needs and satisfaction but identify ways to improve customer satisfaction. Four main components of airline service quality were chosen: human service, physical service, and system service attributes. Data were collected from Korean passengers who experienced both domestic LCCs and FSCs. A total of 280 responses were used for the final data analysis. Based on Kano model, each service quality attribute was clarified into 'must be', 'one-dimensional', 'attractive', and 'indifferent' dimension. As results, 'must be' dimension was not found for both LCC and FSC. Most service quality items were clarified as one dimensional attribute for FSC while relatively more attractive attributes were found for LCC. Based on the findings, the theoretical and practical implications were discussed.

Keywords: Kano Model; Low-cost Carriers; Full-service Carriers; Service Attributes

I. Introduction

The proliferation of low-cost carriers (LCC) which in the past have focused on domestic or short haul service have more recently expanded their markets to include both international and long haul routes, which had previously been largely controlled by full service carriers (FSC). However, with the rapid increase in the growth of LCCs internationally,

competition between LCCs and FSCs has intensified all over the world. According to Centre for Asia Pacific Aviation (CAPA) Look (2015), LCC capacity in Southeast Asia has expanded eight-fold over the last 10 years, from approximately 25 million seats in 2004 to almost 200 million in 2014 while FSC capacity has only increased by 45% during the same time period. Korea is also experiencing the same trend of intensifying competition between LCCs and FSCs as a result of expansion and proliferation of LCC markets. Evidence of this trend can be seen from a report in 2015 from the Korean Ministry of Land showing that, despite late introduction of LCCs, the market growth of domestic LCCs has recorded rapid growth since 2005 with an annual

† Byeong-Cheol Lee,

Department of Tourism and Event Management, Kyonggi-Gi University, 24, Kyonggi-Daero, Seodaemun-Gu, Seoul, Republic of Korea

Phone: 82-2-390-5055, Fax: 82-5040952572

E-mail: 2bclee@kgu.ac.kr

average of growth being 6%.

In this situation, there is no doubt that competition between LCCs and FSCs not only in the world, but also in South Korea will be more intensifying (O'Connell & Williams, 2005; Wittman, 2014; Yang, Hsieh, Li, & Yang, 2012). In general, target markets and service expectations are believed to differ between FSCs and LCCs. This variation occurs due to the different needs and expectations of passengers. Therefore, both types of airlines need to recognize differences in perceptions of customers on their service quality. As a result of examination and understanding of these perceptions, differentiated designs of service strategies should be developed to keep their market share. Although numerous studies have examined the service quality of LCCs and FSCs, most studies have focused on the effects of service quality on behavioral intentions such as satisfaction, loyalty, re-purchase intention, and so on (e.g., Chen, 2008; Forgas, Moliner, Sánchez, & Palau, 2010; Gour C. Saha & Theingi, 2009; Ostrowski, O'Brien, & Gordon, 1993; Park, Robertson, & Wu, 2005; Yang et al., 2012). Despite of contribution to offering meaningful information on understanding the antecedents of customers' positive behavior, they are limited in that the difference in expectations, needs, and satisfaction of customers between FSCs and LCCs have not been examined. In addition, most studies except for several studies (e.g., Chiou & Chen, 2010) were conducted in the US and EU airline market (O'Connell & Williams, 2005; Mason & Alamdari, 2007).

In order to fill the gaps in research, the purpose of this study is then to a) examine both customer needs and satisfaction in service quality attributes in both LCCs and FSCs in South Korea and b) compare these differences between LCCs and FSCs. In order to achieve this goal, the Kano model is used within the study because it is considered a useful method not only to analyze customers' needs and satisfaction but also because it allows for the identification of ways to improve customer satisfaction.

II. Literature review

A. Market trends of LCC and FSC in South Korea

LCCs have become a popular mode of transport across the world due to two regulatory and social changes: (a) the declaration of the Airline Deregulation Act in 1978 (Y. K. Kim & Lee, 2011; Yang et al., 2012), which plays a partial role in transforming the problematic management of air travel sectors in politics into the open-market competitiveness, and (b) the liberalization of air travel, which helps to not only yield lower airfares but also foster more aggressive competition between LCCs and FSCs. However, the rising competition of airline carries pertaining to LCCs and FSCs remains in a big concern in the South East Asia market. In the case of South Korea, approximately more than half of airline firms are related to LLCs that focus on domestic air travelers by offering low airfares compered FSCs (Korea Airports Corporation, 2015). As a result, compared to 2014, LCCs has increased by 54.6% while FSCs in same period has only increased by 10.3%. Furthermore, the year of 2015 marked the first time when the number of 137 million passengers who take Korean LCCs on domestic routes was higher than that of FSCs (106 million passenger trips)

More specifically, the current operation trend of the Korean's airline industry reveals that five LCCs (i.e., Jeju Aair, Jin Air, Air Busan, Easta Jet, and T-way) are now operated and three brand new LLCs (i.e., Air Seoul, Korea Express Air, and Yousky Air) are expected to join the Korean's air travel industry in 2016 in the sense that Korean LCCs have recorded an annual average growth of 6% when it comes to seat capacity. Thus, Korean FSCs have had difficulties in maintaining their profitable market because of the lack of cost advantages.

It is no surprising that FSCs would consider LCCs as a threat in light of a long-term operational competitiveness because LCCs have implemented several strategies to expand their market share in

competitive positioning (Y. K. Kim & Lee, 2011). However, the advantages of most Korean FSCs are included to utilize primary airport facilities and services instead of secondary or regional airport services and offer diverse facilitating elements of supplementary services such as the seating assignment instead of randomly assigned seats and complimentary in-flight services (Y. M. Kim & Lee, 2011). These advantages may make it possible for them to be more competitive than LCCs. In a more satirical manner, Korean's main FSCs such as Korean Air and Asiana Airline have adopted several competitive strategies to revamp their current business operations; as a result, they can regain their market value and share. Specifically, Korean FSCs attempt to (a) offer lower or discount fares at certain time at which LCCs are frequently scheduled, (b) strengthen their strategic partnerships with travel intermediaries (i.e., offline/online travel agencies) promoting loyalty rewards that foster sales volume of FSCs' products/services in competition with LCCs, and (c) apply a marketing strategy of house brands by launching a LLC such as Air Seoul (i.e., mutual investment airline of Asiana Airline as a typical FSC).

Despite these strategies, an emerging paradigm indicates that airline carriers may hesitate to create distinctive service positioning by customizing their customers' desirable needs respectively due to the easy imitation of competitors' service strategies in the airline industry (Hitt, Ireland, & Hoskisson, 2014). Both FSCs and LCCs increasingly face rising customer expectations, especially in mature markets (Forgas et al., 2010; Hunter, 2006; O'Connell & Williams, 2005). In addition, customers are getting more airline choices for their travel in the future. Therefore, these carriers are required to achieve an optimal balance of maintaining their competitive advantages that help to foster the degree of customer satisfaction (Saha & Theingi, 2009; Jiang, 2013; O'Connell & Williams, 2005). Therefore, it is vital for both airline carriers to understand customers' different expectation and satisfaction so that they can offer differentiated services for their customers in the airline industry.

B. Service quality of FSCs and LCCs

Despite the fact that the number of studies has identified the importance of developing predominant components of airline service quality, there is a paucity of research that show the robust definition of air service quality (Liou, Tsai, Lin, & Tzeng, 2011). In general, service quality is defined as the magnitude of customers' overall evaluation towards the relative efficacy of a supplier's organization and service (Aksoy, Atilgan, & Akinci, 2003; Park et al., 2005). Another researcher also regards service quality as a subjective impression when it comes to diverse interactions among a passenger, airline employees, and intangible service components determining the degree of passengers' satisfaction (Gursoy, Chen, & Kim, 2005; Liou et al., 2011). Given these definitions, airline service quality perceived as important by airline passengers are evaluated based on a variety of perceived attributes pertaining to aircraft, price, safety, timelines, luggage transportation, quality of food and beverage, comfort of the seats, check-in process, inboard service and etc. (De Jager, Van Zyl, & Toriola, 2012; Y. K. Kim & Lee, 2011).

In this regard, the attributes of airline service quality that have been frequently mentioned in prior studies can be divided into four categories (e.g., Aksoy et al., 2003; Basfirinci & Mitra, 2015; De Jager et al., 2012; Y. K. Kim & Lee, 2011; Park et al., 2005): (a) Aircraft-related attributes including safety, comfort of the seats, cabin storage space, and so on, (b) in-flight service including quality of the food and beverage, in-flight entertainment, and availability of meal service, (c) human service including appearance of employees, and kindness of employees, and (d) flight (airline) system service such as convenience of booking and ticketing, seat assignment, timeliness of flight, and convenient flight schedule.

In terms of the research trend, research related to airline service quality can be categorized into two subjects: (a) the influence of airline service quality on behavior-related variables such as loyalty,

re-purchasing intention and etc. and (b) the difference in the perceptions of service quality-related attributes.

First, numerous studies have focused on the impact of airline service quality on various variables (e.g., Chen, 2008; Forgas, Moliner, Sánchez, & Palau, 2010; Saha & Theingi, 2009; Ostrowski, O'Brien, & Gordon, 1993; Park, Robertson, & Wu, 2005; Yang et al., 2012), particularly investigating the relationship between service quality and behavioral or attitudinal variables such as satisfaction and purchase intention. For instance, airline service quality was found to have a positive impact on passengers' satisfaction with the airline image (Park et al., 2004). Along with this, Yang, Hsieh, Li, and Yang (2012) examined the relationships between service quality, airline image, customer value and behavioral intention for passengers flying on low cost carriers. More importantly, Kim and Lee (2011) explored the relative importance of perceived service quality and the impact of service quality on customers' satisfaction and behavioral intention including purchase intention, and price sensitivity. Consequently, service quality may play a critical role as a significant driver of attitudinal and/or behavioral outcomes (i.e., satisfaction and behavioral intentions).

The second-largest body of airline-related studies has been highlighting the comparison of the perception of service quality between FSCs and LCCs (e.g., Chiou & Chen, 2010; O'Connell & Williams, 2005), airlines in different regions or nationality (e.g., Basfirinci & Mitra, 2015; Lu & Ling, 2008). For example, O'Connell and Williams (2005) explored differences in passengers' perceptions between LCCs and FSC including passengers' profile, principal reasons for carrier selection, prominent drivers of each types of airline's business outcomes in model. Chiou and Chen (2010) investigated discrepancy in service quality-related attributes affecting passengers' intention to use FSCs and LCCs in China, and showed differences in attitudes toward FSCs and LCCs and less effect of service perception on intentions about using LCCs.

Previous studies pinpointing the relative importance of each airline service attribute may

neglect the research question of understanding difference in passengers' expectations of the desired airline service quality. For instance, passengers may recognize that FSCs need to provide seat assignment service upon reservation while for LCCs customers, the service may be considered optional, and it may not influence the level of customer satisfaction. Despite the fact that customers' expectations on same service quality attributes may vary depending on the type of airlines (i.e., LCCs and FSCs) that customers plan to use for their travels, a number of studies including studies that compared the customer perceptions on LCCs and FSCs merely examined the mean difference in service quality attributes, or the difference of their effect size on behavior-related variables. Therefore, this study employs an analytical Kano model that is utilized as a robust method for not only tapping customers' needs and satisfaction but also recognizing managerial approaches to improve the degree of customer satisfaction towards service attributes in the airline industry.

C. Kano model

The Kano model, an analytical approach to classify service quality attributes, is referred to as a two-dimensional recognition method of quality, which, explains the relationship between the performance of products and services with customer satisfaction and has been utilized in diverse management research. The ultimate goal of using the Kano model is to clarify the relative effect size of each service attribute on satisfaction or dissatisfaction in a comprehensive structure, which in turn predicts the magnitude of customer satisfaction towards a given organization (Basfirinci & Mitra, 2015). Tan and Pawitra (2001) proposed that the Kano model is a strong candidate for determining the most important factors by virtue of its theoretically sound application to given situations. Applications of Kano's model contribute by specifically identifying the relative satisfaction of alternatives in solving multi-criteria problems that decision-makers must

Table 1. Service Quality Classification of Kano Model

Attributes	Features
Must-be	Basic (or threshold) attributes perceived by customers and when it is fulfilled, it is taken for granted and does not give satisfaction, but the absence or poor performance of these attributes results in customer dissatisfaction
One-dimensional	Quality attributes that are essential and elements that cause satisfaction when fulfilled and dissatisfaction when not fulfilled
Attractive(excitement)	Quality attribute that gives satisfaction by exceeding customer anticipations, and a potential requirement that can give happiness and satisfaction to customers, while not causing dissatisfaction even if not provided
Indifferent	Quality attribute that does not affect satisfaction or dissatisfaction of customers

often negotiate (Liou & Tzeng, 2007; Mikulić & Prebežac, 2011)

Theoretically, consumers are acknowledged as perceiving different satisfaction levels by experiencing a variety of service quality components. In this regard, service quality attributes would be either fulfilled if not for customers in high or low satisfaction. Given this rationale of the Kano model, Table 1 shows the constituents including three major quality elements of customer anticipation for products or services.

In the Kano model, each question on service quality is in the form of a pair of asking both positive and negative questions. Under the assumption of the Kano Model that asks 'How would you feel if something does/does not?', it asks questions in opposite meanings of negative and positive. For answers to it, the positive and negative answer pairs for the five-point scales of 'Dislike', 'Live with', 'Neutral', 'Must-be', 'Like' are procured (Kano, 1993). Based on Kano evaluation table in table 2, this is then evaluated as one of the five quality attributes of 'attractive', 'must-be', 'one-dimensional', 'indifferent' and 'reverse'. Questionable scores usually signify

that the respondent misunderstood the question or crossed out a wrong answer by mistake. Table 4 shows the way to evaluate and identify categories for each attribute. For instance, in case of answer 2 in positive question and answer 5 in negative question, this requirement will fall into "Must-be" requirement. Final categories are evaluated based on the highest frequency.

Indicating the lack of the application of Kano model to measuring airline service quality, several studies (e.g., Basfirinci & Mitra, 2015; Mikulić & Prebežac, 2011; Shahin & Zairi, 2009) emphasized the usefulness of Kano model to establish the requirements which are most critical to customer satisfaction, and identify the characteristics of service quality attributes. In this line, this study tries to clarify the attributes of airline quality into different categories and to compare passengers' different perceptions between LCC and FSC service qualities.

Table 2. Kano evaluation table

		Negative question answer				
		1.like	2.must be	3.neutral	4.live with	5.dislike
Positive question answer	1.like	Q	A	A	A	O
	2.must be	R	I	I	I	M
	3.neutral	R	I	I	I	M
	4.live with	R	I	I	I	M
	5.dislike	R	R	R	R	S

A: Attractive; I: Indifferent; O: One-dimensional; R: Reverse; M: Must-be; Q : Questionable

III. Method

A. Data Collection

The current study employed the self-administered questionnaire to collect data. As the participants of this study, Korean passengers who experienced both LCCs and FSCs for domestic flights within last 12 months were selected and asked to respond to the survey questionnaires. Specifically, the survey questionnaires were distributed to those who were waiting for their airlines at the departure and arrival gates of Incheon and Gimpo Airport, South Korea during the period from July 30 to August 20, 2013. As a result, a total of 350 questionnaires were handed out and 293 of them were collected. Excluding 13 invalid responses, a total of 280 responses were used for the final data analysis.

B. Survey Development

The survey questionnaire, which was carried out from the literature of airline service quality in the fields of hospitality and tourism, consisted of three main components of service quality, including 5 items of human service attributes, 9 items of physical service attributes, and 7 items of system service attributes. A total of 21 airline service attributes were drafted using survey techniques (42 with positive/negative each) appropriate to the Kano model. Additionally, the survey questionnaire included the questions of individual and demographic characteristics such as gender, age, and educational level.

C. Data analysis

The data collected through questionnaires were classified into 'attractive', 'one-dimensional', 'must-be', 'indifferent' and 'reverse' through the Kano model analysis. The process of data analysis was conducted in three consecutive stages. In the first stage, the validity and reliability of measurements were examined through reliability analysis. In the second stage, frequency analysis was utilized to identify the

demographic characteristics of participants. Lastly, the difference of perceived service quality between LCCs and FSCs was analyzed by categorizing the service quality attributes per airline carrier type using the Kano model.

IV. Findings

A. Demographic Characteristics of Participants

In terms of gender, 26.1% (n=73) were men and 73.9% (n=203) were female, with 45% (n=126) being in their 20s, 30.7% (n=86) in their 30s, 19.6% (n=55) in their 40s, 4.3% (12) in their 50s, and 0.4% (n=1) in their 60s. For educational level, 53.6% (n=150) were university, 17.1% (n=46) were junior colleges, 14.6% (n=41) were graduate school, 10.7% (n=30) were high school, and 3.9% (n=11) were other.

B. Validity and Reliability Test

In order to identify the validity and reliability of measurement items, an exploratory factor analysis (EFA) using a principal component approach and reliability analysis were utilized in this study. First of all, EFA was conducted on 21 positive questions of LCCs using the Varimax rotation method. As shown in table 3, four factors were extracted with the eigen value 1.0. They were named aircraft, cabin service, human service, and system service, and in combination this explained 60.944% of the total variance. The KMO values of extracted components were high at 0.921, which is well above a recommendation threshold of 0.5. For reliability test, the value of Cronbach's Alpha was utilized to assess internal consistency of items for service quality attributes, and its value ranged from 0.646 to 0.875 (> .60) for each factor.

Table 3. Validity and Reliability Test

Factors		Items	factor loadings	% of Variance Extracted	Cronbach's Alpha
Physical Service	Aircraft	safety	.748	5.185	.652
		comfort of the seats	.665		
		attractive ticket fare	.658		
		cabin storage space	.499		
		state-of-the-art in flight equipment	.425		
	Cabin Service	quality of the food & beverage	.739	6.212	.875
		availability of meal service	.736		
		in-flight entertainment	.709		
		cabin cleanliness	.497		
Human Service		kindness	.788	7.486	.747
		business knowledge & skills	.731		
		prompt responses to requests	.642		
		appearance of employees	.634		
		attractiveness of employees' uniform	.591		
System Service		on-time luggage delivery	.766	42.061	.646
		convenient flight schedules	.700		
		timeliness of flight	.665		
		speed of check-in	.665		
		ease to refund	.654		
		convenience of booking & ticketing	.640		
		seat assignment	.631		

KMO = .921(p<.001), df= 210, Chi-Square = 2992.976

C. Service Quality Classification by Kano Model

Before classifying service quality attributes, the study conducted t-test analysis to test whether there were significant differences between LCCs and FSCs in terms of the perceptions of each service quality component. To avoid the complexity of analysis, the t-test was carried out based on 21 positive questions. The result in table 4 showed that there were significant differences in most factors, except for 'human and system' factor in positive question and 'aircraft' in negative question.

Given the questions of 21 positive/negative service attributes for LCCs and FSCs, they were clarified into four categories according to the Kano quality analysis table: attractive, must-be, indifferent and one-dimensional. As shown in Table 5, the nine

physical services, 'state-of-the-art in flight equipment' and 'cabin cleanliness' were found to be both attractive and one-dimensional attributes for both airline types. Meanwhile, 'attractive ticket fare' was a one-dimensional attribute for LCCs and an attractive attribute for FSCs. 'Safety', 'comfort of the seats', 'cabin storage space', 'quality of the food and beverages' and 'availability of meal service' were attractive attributes for LCCs and one-dimensional attributes for FSCs. For human services, of the five attributes, 'appearance of employees' was found to be an attractive attribute for LCCs and a one-dimensional attribute for FSCs. The remaining four attributes showed the same results, and in particular, 'attractiveness of employees' uniforms' was found to be indifferent quality features for both airline types. For system related services, 'seat assignment' was a one-dimensional attribute for LCCs

Table 4. T-test results

Question	Factor	Type	Mean	T	P-value
Positive	Aircraft	LCC	4.51	-2.786	.006**
		FSC	4.37		
	Cabin Service	LCC	4.63	-3.286	.001**
		FSC	4.48		
	Human Service	LCC	4.52	-1.760	.079
		FSC	4.44		
	System Service	LCC	4.71	-1.141	.254
		FSC	4.67		
Negative	Aircraft	LCC	1.82	-.694	.488
		FSC	1.79		
	Cabin Service	LCC	1.95	-6.570	.0001**
		FSC	1.57		
	Human Service	LCC	1.69	-2.140	.033*
		FSC	1.59		
	System Service	LCC	1.61	-3.392	.001**
		FSC	1.15		

*p<0.05, **p<0.01

Table 5. Classifications of quality attributes by Kano Model

Factors	Quality Attributes	Classifications	
		LCC	FSC
Aircraft	attractive ticket fare	O	A
	safety	A	O
	comfort of the seats	A	O
	state-of-the-art in flight equipment	A	A
	cabin storage space	A	O
Cabin service	availability of meal service	A	O
	quality of the food & beverage	A	O
	in-flight entertainment	A	O
	cabin cleanliness	O	O
Human service	appearance of employees	A	O
	kindness of employees	O	O
	attractiveness of employees' uniforms	I	I
	business knowledge & skills	O	O
	prompt response to requests	O	O
System service	convenience of booking & ticketing	O	O
	convenient flight schedules	O	O
	easy to refund	O	O
	speed of check-in	O	O
	seat assignment	O	A
	timeliness of flight	A	O
	on-time luggage delivery	O	O

A:attractive, M:must-be, I:indifferent, O:one-dimensional

and an attractive element for FSCs, while the ‘timeliness of flight’ of flights was an attractive attribute for LCCs and one-dimensional attributes for FSCs. All other attributes were found to be one-dimensional attributes for both airline types.

D. Customer Satisfaction Coefficient

Since Kano model merely uses only the most frequency responses, it is often criticized that it neglects the relative effect size of each service attribute on satisfaction or dissatisfaction. To overcome this limitation, Timko (1993) proposed the CS coefficient which helps identify whether satisfaction can be increased by meeting the requirement of certain service quality attributes or whether fulfilling these attribute requirements merely prevents the customer from being dissatisfied (Berger et al., 1993; Timko, 1993). In this regard, the CS coefficient indicates the magnitude of the effect of a service quality attribute on satisfaction or dissatisfaction in the case of its non-fulfillment (Tan & Pawitra, 2001).

The formulation of CS coefficients is :

For satisfaction (Extent of satisfaction):

$$\frac{A+O}{A+O+I+M}$$

For dissatisfaction (Extent of satisfaction):

$$\frac{O+M}{(-1)(A+O+I+M)}$$

The CS coefficients for each attribute are seen in table 6. For LCCs, ‘on time luggage delivery’ showed the strongest effect (0.835) on customer satisfaction in case of its fulfillment while ‘attractiveness of employees’ uniform’ exerted the weakest influence on satisfaction (0.487). For FSCs, the overall degree of effect on satisfaction is relatively lower than the one of LCCs. Specifically, ‘the speed of check-in’ was found to be the most important service attribute for satisfaction. This implies that

designing different check-in process may facilitate the satisfaction of FSC passengers who pay relatively higher ticket fares in that not only LCC passengers, but also FSC need to go through a similar check-in process. With regards to dissatisfaction coefficients, the results indicated that ‘seat assignment’ for LCC and ‘on time luggage delivery’ for FSC are more likely to exert the strongest impact on passengers’ dissatisfaction in the case of its non-fulfillment while ‘cabin cleanliness’ for LCCs and ‘timeliness of flight’ for FSCs have the weakest effect. Based on the findings, it can be a plausible explanation that to some extent, LCC passengers expect their baggage and flight delay while FSC passengers are quite sensitive to time-related service quality (e.g., speed of check-in and on time luggage delivery).

V. Conclusion

As a key driver of surviving airline firms, offering high quality of service attributes is of considerable importance in the airline industry. To be sustainable for airline firms in a competitive environment, they are required to rely on developing customized service attributes for target market. The current paradigm of low-fare airline business reveals the necessity to not only reduce airline fares but also develop new criteria of service attributes to compete effectively. However, studies focusing on types of airline service attributes remain insufficient. Thus, a number of scholars have attempted to apply various types of analytical approaches to classify the relative importance of service quality attributes in the domain of service management.

Using the Kano model analysis method may enable airline firms to determine the most efficient service attributes facilitating the degree of customer satisfaction. In particular, the emergence and growth of LCCs makes it necessary for airline carriers to generate innovative practice of service attributes. In this study, thus, the application of the Kano model

Table 6. Customer satisfaction coefficients

Service attributes			Airlines	Satisfaction coefficient	Dissatisfaction coefficient
physical service	aircraft	attractive ticket fare	LCC	0.507	-0.740
			FSC	0.640	-0.300
		safety	LCC	0.740	-0.426
			FSC	0.665	-0.485
		comfort of the seats	LCC	0.768	-0.346
			FSC	0.704	-0.611
	cabin service	state-of-the-art in-flight equipment	LCC	0.745	-0.299
			FSC	0.634	-0.405
		cabin cleanliness	LCC	0.704	-0.253**
			FSC	0.588	-0.493
		availability of meal service	LCC	0.779	-0.318
			FSC	0.504	-0.683
		quality of the food & beverage	LCC	0.796	-0.362
			FSC	0.724	-0.680
		in-flight entertainment	LCC	0.677	-0.233
			FSC	0.568	-0.439
		cabin cleanliness	LCC	0.781	-0.498
			FSC	0.518	-0.500
Human service		appearance of employees	LCC	0.692	-0.448
			FSC	0.653	-0.832
		kindness	LCC	0.729	-0.664
			FSC	0.724	-0.680
		attractiveness of uniform	LCC	0.487**	-0.304
			FSC	0.437**	-0.339
		business knowledge & skills	LCC	0.729	-0.664
			FSC	0.669	-0.687
		prompt responses to requests	LCC	0.753	-0.724
			FSC	0.686	-0.818
System service		convenience of booking & ticketing	LCC	0.789	-0.582
			FSC	0.729	-0.714
		convenient flight schedules	LCC	0.821	-0.461
			FSC	0.743	-0.605
		ease to refund	LCC	0.799	-0.582
			FSC	0.728	-0.771
		speed of check-in	LCC	0.771	-0.568
			FSC	0.763*	-0.701
		seat assignment	LCC	0.754	-0.768*
			FSC	0.768	-0.411
		timeliness of flight	LCC	0.785	-0.276**
			FSC	0.670	-0.595
		on-time luggage delivery	LCC	0.835*	-0.559
			FSC	0.699	-0.875*

*:the strongest effect, **: the weakest effect

analysis method enabled classifying relatively important service attributes by considering the different perceptions of consumers for services (physical, human, and system) being offered by both LCCs and FSCs. Based on the results of this study,

detailed implications for sustaining airline carriers are suggested as follows.

First, upon classifying the quality properties of each attribute using the Kano model analysis method, LCCs and FSCs were found to reveal different quality

properties. Specifically, the ten quality properties (out of 21 service attributes) were classified differently, including of airline fare, safety, seat comfort, cabin cargo space, quality of food, in-flight entertainment, employee appearance, seat assignment, and timeless. These attributes are expected to be regarded as salient service attributes that both LCCs and FSCs need to focus on for a better understanding of passengers' different expectations and needs.

Second, with regard to physical service, all service attributes except for advanced cabin facilities and cabin cleanliness were found to pertain to the feature of one-dimensional attributes for FSCs and the feature of attractive attributes for LCCs. This may imply that the expectations of consumers on service quality for FSCs are higher than that for LCCs. Most importantly, LCCs had more attractive attributes that help to attract customers' attention. That is, for LCCs there are more options to improve their service quality. It also dignifies that continuous improvements in services for attractive attributes are necessary in order to gain a competitive advantage between LCCs and FSCs or within LCCs.

Third, for human service, employee appearance was found to be one-dimensional attribute for FSCs and attractive attribute for LCCs, while all other items were found to be the same. Employee uniforms were found to be indifferent attribute for both airline types, while employee hospitality, work skill, and prompt response were found to be one-dimensional attributes as basic service qualities that airline employees should possess, and can be understood that their expectations are the same for FSCs and LCCs.

Lastly, for system services, offering seat assignments should be regarded as the function of attractive attributes for FSCs and the function of one-dimensional attributes for LCCs respectively, while the timeliness of flights were found to be one-dimensional attributes for FSCs and attractive attributes for LCCs. These should be reflected for differentiated marketing strategies for the type of airline carriers.

From the standpoint of customers, most of the service attributes of FSCs were found to be

one-dimensional quality properties in this study. This may come from the fact that higher quality services are expected from FSCs as they pay more in airfare compared to LCCs. Thus, FSCs need to develop new attractive quality attributes such as in-flight entertainment (e.g., games and WiFi) so that they can attract more current and/or potential customers, and since many of the items are perceived as one-dimensional qualities, more efforts must be made to maintain their service quality. Most importantly, customer satisfaction coefficient indicated that FSC passengers are susceptible to time-related attributes such as 'on time luggage delivery' and timeliness. Consequently, it is required for FSCs to put significant effort in securing their service delivery not only on time but also in fast process.

Meanwhile, though LCCs are airlines that provide service by minimizing additional services for the sake of cheaper prices, customers view human and system service to be naturally offered even if they are low-cost carriers. Thus, efforts should be made to attract more customers by establishing marketing strategies and efforts to improve services of items found to be attractive properties, while maintain their existing service qualities.

Despite the significant implications suggested in this study, the current study includes several limitations. First, the current study was limited to Incheon Airport and Gimpo Airport for collecting samples. This indicates the necessity to collect samples in diverse entry and/or departure points. Second, the current study does not compare whether there are differences in perception of service qualities according to the number of usage and genders of each airline company by detailed service quality research such as mileage services and various partnership services that this study did not deal with. In this regard, future research studies need to include or examine women and men in equal numbers within future study populations.

Lastly, through comparative studies research, more practical plans can be presented allowing for the procurement of distinguished competitiveness among LCC's in the future.

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