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Travel Catering Research Centre

School of Management

Occasional Paper Series: No. 3

**The Importance of Food Onboard:
Attitudes Amongst Air Travellers
In North-East Asia**

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University of Surrey, 2004

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About the Travel Catering Research Centre

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- develop models of best practice that will enable performance improvements in all sizes of business across all sectors of the industry
- disseminate knowledge and influence policy makers with respect to the travel catering industry
- encourage multi- and trans-disciplinary research into travel catering

The Centre seeks to achieve its aims by:

- engaging in funded research projects
- recruiting and selecting PhD students seeking to research in this field
- conducting consultancy projects for clients
- speaking at conferences, developing case studies, writing texts, and publishing the Centre's findings
- supporting the development and delivery of state-of-the-art management development programmes for industry managers

This report is one of a series of occasional papers produced by the TCRC.

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The Importance of Food Onboard: Attitudes Amongst Air Travellers In North-East Asia

Executive summary

This report investigates passenger attitudes towards on-board catering in North East Asia. The study is based upon a stratified sample of 374 respondents interviewed at Incheon International Airport (ICN) in Seoul, Korea and assesses the level of importance of in-flight food products in the context of short haul international flights.

The data collected through these questionnaires showed that factors such as ticket price, destination and various passenger demographics had an effect on the perception of the level and necessity of in-flight catering on short-haul international flights within North East Asia.

Based upon previous research (see Jones, 2004; Gilbert and Wong, 2003; Papadiotis, 2003), respondents were asked to rank by level of importance 11 product features (see Table a. below). Ticket pricing and food and beverages were analysed separately as these factors directly relate to the research questions posed by this report.

Table a. Ranking of Airline Product Features

Product Feature	Rank
Safety and security	1
Ticket price	2
On time operation	3
Convenient schedule	4
Cabin crew service	5
Check-in service	6
Reservation service	7
Loyalty programme	8
New-aircraft & in-flight facilities	9
Global alliance	10
Food and beverages	11

Respondents were then asked to rate their satisfaction levels and evaluate the necessity of the in-flight food service provided by current FSNC's on short haul flights of less than three hours. The respondents were generally satisfied with the level of current in-flight food services with those who were highly satisfied also seeing the greatest necessity for in-flight food service. Those respondents who had travelled more often over the course of the previous year were less

likely to see the necessity of in-flight food services and both the travel destination and flight duration were important factors in deciding the necessity of in-flight food service.

The survey then asked respondents to rate ticket prices and the analysis showed that negative and unsatisfactory perceptions existed as most respondents felt that current prices were too high. As this area is still dominated by FSNCs, this report believes that the next few years will see prices dropping as LCCs enter the market and so increasing competitiveness.

Overall, the report finds that current food and beverage provision are not well appreciated or recognised by passengers on short-haul flights in North East Asia and that, ticket prices are perceived as being too high. As this market changes, either due to deregulation or liberalisation, so the major FSNCs will have to re-evaluate their market segments in order to remain competitive in this short-haul international market place.

CHAPTER 1: INTRODUCTION

1.1 Background of the research

This report is one of two reports based on a study of air travel passengers in North East Asia. The focus of this report is passenger attitudes towards on board service in North East Asia. The companion report¹ to this focuses on their attitudes to low cost airlines and 'buy-on-board' programmes.

1.2 Current State of Airline Industry

During the 1990s, the airline industry displayed a healthy growth rate of some 4%-6% due to overall rises in Gross Domestic Product (GDP) and a greater demand for travel resulting from globalisation (Franke, 2004). The demand for air transportation has been observed to grow at roughly double the rate of the growth in the general economy (Tretheway, 2004). Long term forecasts published by the International Air Transportation Association (IATA) expected that international air passenger market would grow 4.7% for 2003-2007 and 4.3% for 2008-2017 (IATA, 2003).

However, IATA has also identified that the airline industry has recently faced its worst crisis ever. Worldwide losses for 2001-2002 amounted to about US\$ 30 billion, which is more than the total industry profit since 1945 (IATA Airnews, 2003). The chairman of Lufthansa's supervisory board, Jurgen Weber, mentioned that about half of the airlines were technically bankrupt (Weber, 2003). Despite a recent recovery, a recent article in The Economist magazine reported, 'don't be fooled by rising travel numbers as airlines, especially big American ones, remain in deep trouble' (Anon, 2004: 67).

Most industry experts agree that the current slump is not a typical downturn triggered by external shocks such as terrorist attacks, wars in Afghanistan and Iraq, the Severe Acute Respiratory Syndrome (SARS) epidemic and the world economic downturn. These external shocks have unveiled much deeper problems in the airline industry - most of the full service network carriers are affected, whereas most low cost carriers are still operating with high profitability (Lindstadt and Fauser, 2004).

1.3 Implications for the Flight Catering Industry

If the situation in the airline industry is challenging following 9/11, a study conducted by the University of Surrey's Travel Catering Research Centre (TCRC) identified that global production of airline meals was down 25%. Based on responses from over 50 production kitchens in 30 countries, production units that were expecting to produce on average 61,500 meals a week between October and December of 2001 only produced 48,000. 90% of operators also predicted a substantial fall in annual

sales. Nearly one third down by more than 25%, and 10% predicted a marginal decline.

However, there was a small difference in the percentage downturn between regions of the world. Hardest hit has been production units in Asia, which are heavily reliant on full service, long haul flights to North America. Europe was affected slightly less than North America, especially the charter business. This reduction in volume resulted in two-thirds of flight catering firms laying off employees. In some cases, more than 25% of staff have been laid off.

1.4 Purpose of this Report

The primary purpose of this report is to assess the level of importance of in-flight food products in the context of short haul international flights departing out of Incheon International Airport (ICN) in Korea. The report also seeks to identify the necessity and satisfaction level of current complimentary in-flight food service provided on short haul international routes out of ICN airport.

1.5 Structure of the Report

This chapter has introduced the background to the research and purpose of the study. The next chapter examines the nature of the air travel experience and the products and services airlines provide for passengers. The relative importance of food and drink as part of the travel package is highlighted. Chapter 3 explains how the research was conducted. In chapter 4 the findings are presented. Conclusions and recommendations about onboard food and drink are made in chapter 5.

¹ Jones, P. and Lee, S. (2005), Attitudes to Buy-on-Board Amongst Air Travellers in North East Asia

CHAPTER 2: AIRLINE MARKET SEGMENTATION AND PRODUCT FEATURES

2.1 Introduction

Research has shown that the on-board food provision is placed low in the priority list of airline product features, as illustrated in Table 2.1. However, it is still regarded as a significant factor in the decision-making process of airline selection (Jones, 2004).

Table 2.1: Importance of factors influencing carrier choice

Factors	1999	1993	1992
Most convenient schedule	1	1	1
Reputation for safety	2	-	-
Good frequent flyer scheme	3	9	7
Extra comfort/legroom	4	6	4
Efficient check-in	5	3	10
Advance seat selection	6	7	11
Reputation for punctuality	7	2	3
Cheapest available fare	8	11	8
Friendly/Helpful cabin staff	9	8	6
Access to lounges	10	10	12
Good on-board food and drink	11	12	9
Known as an award winning airline	12		
Effective security precautions		4	2
Modern aircraft fleet		5	5

Source: Official Airline Guide, 1993; 1999

Currently North East Asia is a market in which a complimentary meal service is part of the travel product offered to airline passengers. This is largely because this market has not yet been deregulated and no low cost carriers operate in the region. However this may change in the future, so understanding the role that food plays in the travel experience is of interest. Moreover, no study has ever looked specifically at the attitudes of passengers in this particular market. Comparing the views of Asian travelers to other studies of passenger attitudes is therefore of interest.

2.2 Market Segmentation in Airline Industry

Middleton and Clarke (2001) advocate six main methods of market segmentation relevant to the travel and tourism industry. They are:

- (1) purpose of travel
- (2) buyer needs, motivations, and benefits sought
- (3) buyer or user characteristics
- (4) demographic, economic, and geographic characteristics
- (5) psychographics' characteristics; and
- (6) price

From the airline industry perspective, it is typical to broadly segment air passenger markets using three variables: purpose of travel, length of journey and the culture or country of origin of the traveler (Shaw, 1993).

2.2.1 Purpose of Travel

Travel purpose is a well-established segmentation variable in the airline industry. People travel mostly for either business or leisure. Other categories include students travelling for study, those travelling for medical reasons, migrants, pilgrims and military personnel (Graham, 1995). A fundamental difference between business and leisure travel is that the latter bears the expense out of his/her disposable income.

2.2.2 Length of Travel

Another important segmentation variable is length of journey. Thus, a distinction is drawn between short-haul and long-haul journeys. This distinction is important because the requirements and service expectations of the leisure passenger travelling to a long-haul holiday destination are fundamentally different from those of passengers taking a short haul holiday trip (Shaw, 1993). The duration of long haul flights requires meals and beverages to be served, as it is unreasonable to expect passengers to go without sustenance for extended periods of time.

2.2.3 Demographics and Nationality

According to Shaw (1993), demographics and nationality are probably the most important variables in segmenting the air passenger market. Passengers should be seen against the background of the country culture from which they originate rather than distinguishing them by business or leisure trip purpose. Some of the differences in expectations of service are derived from different passenger cultures.

Values and attitudes help to determine what members of a culture think is desirable. Moreover, consumer behaviour flows from values and attitudes adopted across cultures and airline marketers must understand these differences (Gilbert and Wong, 2003). Furthermore, country of origin may also have an influence on the attitude towards the national carrier where customers tend to be more patriotic in some countries regarding their purchasing decision (Shaw, 1993).

To fully assess the advantages of segmentation, it is important for airlines to understand that segmentation is never a static process. Even when a segment has been identified, customers' needs, motivations and attitudes are multifaceted and, as such, they move from one segment to another as part of their buying behaviour.

2.3 Product Features in Airline Industry

For an airline company, the product is not just the physical aircraft or seat but is a combination of features, services and benefits that contribute to satisfying customers' needs in a selected market. According to Doganis (2002), an airline's potential customers will be influenced by five key product features in making travel decisions. These are price, schedule, aspects of comfort, ease and convenience of

access to an airline's services. An airline must therefore decide how to combine these various product features to meet customer needs in different market segments.

2.3.1 Price

Gilbert's (1999:107) definition captures the gist of both the economic and emotional significance when he states that 'price is the monetary value assigned by the seller to something purchased, sold or offered for sale, and on transaction by a buyer, as their willingness to pay for the benefits the product delivers'.

Lawton (1999) points out that price is the single most important factor in airline choice for the leisure market segment as leisure travelers exhibit a higher sensitivity to price than business travelers. Even though business passengers place price lower in their list of priorities, they are not totally price insensitive; if their basic needs are fulfilled by several airlines, the cheaper fare may then determine their choice.

Furthermore, prices have to take into account the complexity created by seasonality of demand, the inherent perishability of airline seats and competitors' actions in the market. The complexity of airline pricing is accentuated by the fact that full service network carriers (FSNCs) need to offer a range of fare types and levels as they are dealing with segmented markets that vary in their needs and ability to pay. The objective of differential pricing is to achieve a reasonable mix of fares and passenger loads so that the potential for each flight's revenue can be maximized (Berdy, 1998).

However, since US deregulation and European liberalization, the pricing of airline products and services has become a major competitive variable in the 'low cost' markets. Price is definitely more important to passengers than other products, as it is very difficult for any carrier to differentiate its product on short-haul flights. However, the importance of pricing strategies is not universally agreed upon amongst all European low cost carriers (LCCs). Ryanair and easyJet are predominantly price-led carriers while Virgin Express is being marketed as better 'value' and 'quality' as they recognize the need for a balance between quality of product and price. Furthermore, there will always be a segment of the market that wants a good standard of service rather than the rock-bottom prices that can compromise service quality (Gilbert *et al*, 2001).

2.3.2 Schedule Convenience

Apart from punctuality, schedule convenience includes flexibility of ticketing, high frequency of service and flight timings (Graham, 1995). High frequency of flight and timings are important to business travellers. For point-to-point business passengers, high frequency will enable them to enjoy the greatest degree of flexibility, for instance by offering convenient connections. In addition, flexibility such as re-booking without penalty is of great importance to business travellers. Punctuality of service is important for both the business and the leisure traveler. Though the schedule delay cost for leisure passengers tends to be quite low (Borenstein and Netz, 1999), punctuality remains important for leisure travelers.

The importance of scheduled-related features was reinforced by a survey carried out by the International Foundation of Airline Passenger Associations of more than 25,000 business passengers in 1987. Such features appear to be the core element of the schedule airline product on short-haul routes and are probably the most important choice factor for business travelers (see Doganis, 2002).

2.3.3 In-flight and Ground Services

According to Doganis (2002), three aspects of the airline product are important in determining passenger comfort perceptions. The first is the interior layout of the aircraft, which affects the width and pitch of seat and thereby determines the space available for each passenger. The second is that of in-flight services and catering standards. This covers the nature and quality of food and beverages provided, the number of cabin staff for each class of cabin, the availability and range of newspapers and magazines, in-flight entertainment and communications, and giveaways for first and business class passengers as well as children. Thirdly, the services offered to passengers on the ground are a key component of the product. The efficiency, helpfulness and friendliness of staff are the non-measurable and intangible aspects of service.

2.3.4 Seating Comfort

Seating comfort is more important for long-haul routes where either business or leisure passengers have to be seated for many hours. The seat is the airline's primary point of contact and is the focus of the passengers' immediate environment. Seat pitch and width and the type of seat provided have a major impact on perceived comfort, especially on long-haul services. Short-haul travellers are usually less demanding in terms of seating comfort. Furthermore, leisure travellers are more willing to sacrifice seating comfort in favour of lower fares (Shaw, 1993).

2.4 Conclusion

In this chapter, airline segmentation and product features have been discussed. From the airline industry perspective, air passenger markets can be segmented using three variables: purpose of travel, length of journey and culture or country of origin of the traveller. Airline key product features were identified as: price, schedule convenience, in-flight and ground service, and seat comfort. An airline must therefore decide how to combine these various product features to meet customer needs in different market segments. This understanding of airline market segments and product features will be utilized to investigate travellers' attitudes towards food onboard.

CHAPTER 3: APPROACH TO THIS RESEARCH

3.1 Introduction

This chapter briefly explains how this research was conducted. It includes a discussion of the sample frame, survey design, data collection and data analysis methods.

3.2 Research Purpose

North East Asia is a very large market. In 2002 3.17 million Koreans traveled to Japanese and Chinese regions out of ICN airport and 1.75 million Japanese and 0.23 million Chinese visited Korea using ICN Airport (www.airport.or.kr).

The specific objectives of the study were:

- (1) To assess the level of importance of in-flight food products provided on short-haul flights in the airline product features.
- (2) To identify the necessity and satisfaction level of current complimentary in-flight food service provided on the short haul international routes out of ICN airport.

3.3 Target Population and Sampling Design

For the purpose of this study, the population comprised airline passengers who travelled on short haul flights out of ICN Airport for Japanese or Chinese regions. These flights were selected because changes to in-flight service, specifically introducing buy-on-board (BOB) catering services, are most likely to be introduced on short haul flights.

A stratified sampling approach was adopted. The sample was designed to reflect as closely as practically possible the true composition of the population based on the key variables of gender, age and nationality groups. From amongst these segments, passengers were randomly selected from those who were waiting in front of boarding gates at ICN Airport terminal in order to board the short haul flights for Japanese and Chinese regions. They were asked if they had made a similar trip in the last year. Only those who had done so were surveyed. This was to ensure that respondents' perceptions and attitudes were based upon their previous travel experiences rather than their expectations.

3.4 Survey design

The questionnaire (see Appendix 1) was divided into two parts:

Part 1 was concerned with the importance of airline product features in order to find

out the relative importance of food and beverage services as perceived by the passengers on short haul flights. Question items for airline products are categorized into 11 features.

Part 2 of the questionnaire obtained information about passengers' gender, age, and nationality. Also included were passengers' travel frequencies, travel purpose, type of ticket payment, airline selection, and travel destination.

The reliability of the questions within each part were tested using Cronbach Alpha coefficient and found to be satisfactory.

The original questionnaire was written in English by the researcher and was translated into the Korean language. The Korean version was presented to Korean native speakers for verification. Certified professional translators in Korea translated the English questionnaire into both Japanese and Chinese languages. The Chinese and Japanese versions were also presented to the native speaker of each language for verification. Finally the survey was piloted to ensure that respondents could understand the questions and complete the survey easily. Minor modifications were made to the words used and length of statements in part 2.

For the main study, the sequence of questions 13 to 23 was changed so that five versions of the survey were administered. This was in order to prevent any respondent bias resulting from the order of questioning.

3.5 The Fieldwork

The survey was carried out over a period of 14 days spanning 07 June to 20 June 2004. In total 400 questionnaires were administered to the passengers at ICN Airport, Korea in front of boarding gates assigned for the Japanese and Chinese routes.

CHAPTER 4: RESULTS

4.1 Introduction

Out of the 400 questionnaires administered, a total of 374 valid questionnaires were analysed. The results are presented in this chapter.

4.2 Profile of respondents

The profile of the respondents was categorized into two parts: demographic and travel patterns and behaviors.

4.2.1 Demographic profile

The demographic profile consisted of gender, age group, nationality of the respondents and these were examined in detail.

Gender

Table 4.1 presents the respondents' distribution by gender. 60% of respondents were male. This sample matches closely the gender distribution of all such passengers. In 2002, 5,156,205 outbound passengers travelled to Japan and China, of which 59% were male (<http://www.moj.go.kr/immi>).

Table 4.1
Sample distributions by gender

Gender	Number of respondents	% of total respondents
Male	225	60.2%
Female	149	39.8%
Total	374	100%

Age Group

Table 4.2 presents sample distributions of the respondents by age group. It was not possible to compare the distribution by age group between the sample and the general population due to limitation of data access to the passenger profiles. Data from the Korean National Tourism Organization in terms of outbound travel to Japan and China suggests a fairly even distribution across all age groups (<http://www.knto.or.kr>). In this study therefore, the under 30 age group may be slightly over represented, and the 41-50 age group under represented.

Table 4.2
Sample distributions by age group

Age Group	Number of respondents	% of total respondents
Below 30	123	32.9%
Between 31-40	103	27.5%
Between 41-50	66	17.7%
Over 51	82	21.9%
Total	374	100%

Nationality

Table 4.3 shows sample distributions by nationality. In order to test if there were differences between nationalities, it was necessary to have a sufficiently large sample of each group. Hence the sample is not designed to be representative of the total number of passengers. Compared with the total number of passengers, Koreans are under represented and other nationalities over represented.

Table 4.3
Sample distributions by nationality

Nationality	Number of respondents	% of total respondents
Korean	170	45.5%
Japanese	89	23.8%
Chinese	66	17.6%
American/others	49	13.1%
Total	374	100%

4.2.2 Travel pattern and behaviour profile

The travel pattern and behaviours of the sample were analysed according to travel purpose, travel frequency, ticket payment method, airline choice, travelling airlines, travel destinations and departure time.

Travel purpose

Table 4.4 displays travel purpose of the sample. Close to half of the sample were business travellers, followed by 34% of tourists and 18.7% were either visiting friends and relatives or were students passengers.

Table 4.4
Travel purpose

Travel Purpose	Number of respondents	% of total respondents
Business	177	47.3%
Tourist	127	34%
Others	70	18.7%
Total	374	100%

Travel frequency

Respondents were asked how many times they had travelled by air in the last twelve months. An analysis of the overall profile of the travel frequency is given in Table 4.5. The sample was almost equally divided into low, moderate and high frequency users.

Table 4.5
Travel frequencies

Travel frequency	Number of respondents	% of total respondents
Less than 3 times (Low)	132	35.3%
Between 3 & 6 times (Moderate)	120	32.1%
Over 7 times (High)	122	32.6%
Total	374	100%

Ticket payments

45.2% of the respondents paid for their own air tickets while 42.8% were bought by their company. The remaining 12% were paid by parents, relatives or others as presented in Table 4.6.

Table 4.6
Ticket payments

Ticket Payment	Number of respondents	% of total respondents
Yourself	169	45.2%
Company	160	42.8%
Others	45	12%
Total	374	100%

Airline choices

Table 4.7 represents those who selected their travelling airlines. More than half of the respondents selected the airlines themselves whereas travel agents decided travelling airlines for 34.2% of the sample. For the remaining 13.9%, it was done by secretaries or relatives.

Table 4.7
Choice of Airline

Airline Choice	Number of respondents	% of Total Respondents
Yourself	194	51.9%
Company	128	34.2%
Others	52	13.9%
Total	374	100%

Travelling airlines

The airlines being used by respondents is shown in Table 4.8.

Table 4.8
Traveling airlines

Airlines	Number of Respondents	% of Total Respondents
Korean Air	160	42.8%
Asiana Airlines	48	12.8%
Japan Airlines	53	14.2%
Air China	84	22.5%
Others	29	7.8%
Total	374	100%

Travel destinations

Table 4.9 presents the travel destinations of the sample. Just over 75% of the sample were travelling to four regional cities, two in China and two in Japan.

Table 4.9
Travel destinations

Destination City	Number of Respondents	% of total Respondents
Tokyo	114	30.5%
Beijing	75	20.1%
Osaka	61	16.3%
Shanghai	32	8.6%
Others	92	24.6%
Total	374	100%

Departure time

As this research focused on the provision of in-flight food services which are closely related with the departure times of aircrafts, the respondents' travelling flight time was divided into two groups: mealtime or outside of mealtime. In view of short flight time and research purpose, departure times for meal service flights were defined as any flights departing between 07:00 and 09:00 for breakfast, between 11:00 and 13:00 for lunch and between 17:00 and 19:00 for dinner. Table 4.10 shows that the departure time of the sample was evenly distributed between mealtime and outside of mealtime.

Table 4.10
Departure time

Departure Time	Number of respondents	% of total respondents
Meal time	182	48.7%
Out of meal time	192	51.3%
Total	374	100%

4.3 In-flight food and beverage in airlines

In order to probe the importance of in-flight food and beverage products from airlines overall product features, the respondents were asked to rate, on a five point Likert scale, the level of importance of each product feature when they select a travelling airline. Eleven product features were provided based upon the literature review (see Chapter 2). They included a convenient schedule, on-time operation, safety and security, aircraft and in-flight facilities, ticket price, food and beverage, reservation service, check-in service, cabin crew services, loyalty programme and global alliance.

4.3.1 The order of importance for product feature

Table 4.11 shows the importance of airline product features in descending order. Safety and security were rated the most important followed by ticket price, on-time operation, and convenient schedules. Food and beverage products were rated the least important in this instance.

Table 4.11
Descriptive statistics for airline product features

Product features	N	Mean	Std. Deviation
Safety and security	374	4.4759	.78060
Ticket price	374	4.2380	.86922
On time operation	374	4.2112	.90027
Convenient schedule	374	4.0134	.95324
Cabin crew service	374	3.7059	1.17577
Check-in service	374	3.5856	1.17704
Reservation service	374	3.5214	1.23328
Loyalty programme	374	3.2914	1.16614
New aircraft & in-flight facilities	374	3.0428	1.11931
Global alliance	374	3.0348	1.32064
Food and beverages	374	2.9973	1.13085

4.3.2 Factor analysis of the 11 airline product features

Factor analysis is a statistical technique to look for a way to reduce or summarize the data using a smaller set of components (Pallent, 2001). The 11 airline product features were subjected to factor analysis using SPSS 11.5. Prior to performing this factor analysis, the suitability of data for factor analysis was assessed. The Kaiser-Meyer-Olkin value was 0.874 exceeding the recommended value of 0.6 and the Bartlett's Test of Sphericity reached statistical significance ($p = .000$), supporting the factorability of a correlation matrix (Table 4.12). Factor analysis revealed the presence of two components exceeding 1, explaining 43.9% and 14.3% of the variance respectively (Table 4.13).

Table 4.12
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.874
Bartlett's Test of Sphericity	Approx. Chi-Square	1980.118
	Df	55
	Sig.	0.000

Table 4.13
Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.829	43.900	43.900	4.829	43.900	43.900
2	1.568	14.252	58.152	1.568	14.252	58.152
3	0.884	8.032	66.184			
4	0.810	7.363	73.547			
5	0.689	6.260	79.807			
6	0.651	5.914	85.722			
7	0.509	4.632	90.353			
8	0.410	3.728	94.081			
9	0.297	2.698	96.780			
10	0.201	1.824	98.604			
11	0.154	1.396	100.000			

Extraction Method: Principal Component Analysis.

Therefore the 11 product features were reduced to 2 components. Component 1 was labeled as “service products” including food and beverage, reservation, check-in, cabin crew, in-flight facilities, loyalty programmes and global alliance, whereas component 2 was named “operation products” comprising convenient schedule, on-time operation, ticket price and safety and security (as listed in Table 4.14). The two summarized product features were analyzed in lieu of all 11 product features.

However, data analysis for ticket price and food and beverage product features were also performed separately from the service products and operation products components as the ticket price is a material product feature in the airline selection criteria and food and beverage is the focal product feature in this research.

Table 4.14
Component Matrix (a)

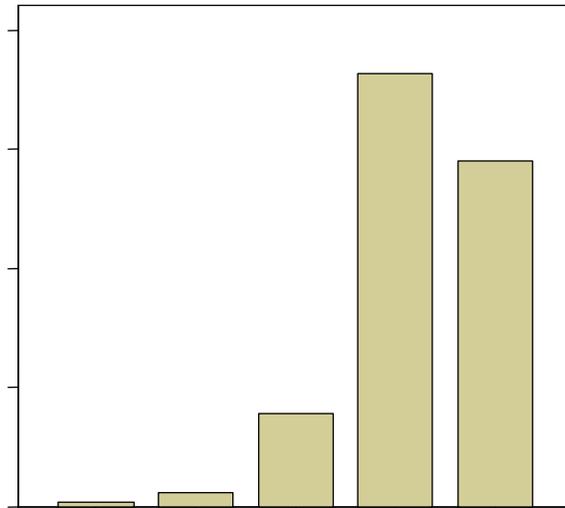
Product features	Component	
	1	2
Reservation service	0.865	
Cabin crew service	0.860	
Check-in service	0.855	
Global alliance	0.794	
Food and beverages	0.707	
Loyalty programme	0.697	
In-flight facilities	0.548	
Convenient schedule	0.348	0.601
On time operation	0.531	0.588
Ticket price		0.584
Safety and security	0.539	0.554

Extraction Method: Principal Component Analysis.

4.3.3 Operational products

Operational products including convenient schedules, on-time operations, ticket price and safety and security issues were reduced into the operation products component. Figure 4.1 shows the overall score of importance level for the operation product feature. The mean value is quite high over the mid-point of the 5-point Likert scale. An independent-sample t-test or a one-way between-groups ANOVA test subsequently detected that a statistically significant difference existed in the operation product scores depending on the nationality, travelling airlines, destinations and ticket payment variables.

Figure 4.1 Graph for operation products



Respondents: 374
 Mean: 4.2335
 Std Dev: 0.69177
 Skewness: -1.161

Nationality

A statistically significant difference existed in the scores of operation products for the nationality variable. Korean respondents rated this as less important than Japanese respondents.

Travelling airlines

Respondents travelling on Korean Air were significantly different from those on Japan Airlines in their rating of the importance of the operations product. This is consistent with the previous finding.

Destinations

The mean scores for respondents travelling to Osaka were significantly different from the other destinations in this survey. They rated the operation products lower than other respondents.

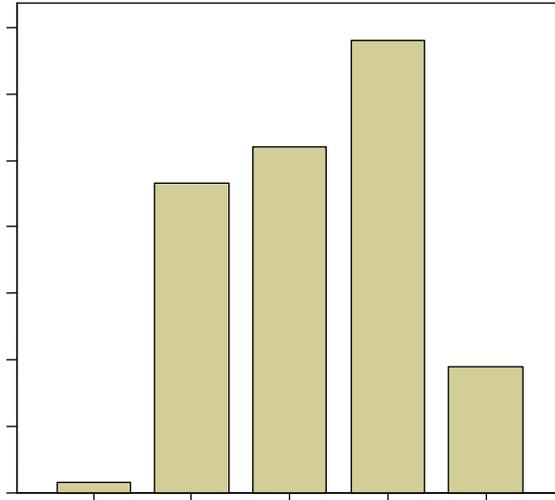
Ticket payment

An ANOVA test showed a statistically significant difference in rating the operation products based on who had paid for the ticket. People who had paid for their own ticket rated the importance of this product feature lower than those who had had their ticket bought for them.

4.3.4 Service products

Seven product features produced in the questionnaire were reduced into one service product component which comprised reservation service, check-in, cabin crew, loyalty programmes, global alliance, in-flight facilities and food and beverage service. Figure 4.2 exhibits the overall score of importance level of the service product features. The mean value is a little over the mid-point of the 5-point Likert scale.

Figure 4.2
Graph for service products



Respondents: 374
 Mean: 3.3113
 Std Dev: 0.93080
 Skewness : 0.07

A statistical test revealed that a significant difference existed in perception of the service products with other variables such as nationality, travelling airlines, destinations, age group, ticket payment, airlines choice and LCC travel experience.

Nationality

The American/others nationality group was significantly different from the Japanese, rating the importance of the service product lower.

Travelling airlines

Passengers on Asiana Airlines rated the service product features lower than respondents flying with other airlines.

Destination

A statistically significant difference was detected in the service product for the destinations variable. The mean scores of Shanghai were significantly lower than for other destinations in this survey.

Age group

The mean scores of the below 30 years age group were significantly lower than the over 51 years age group.

Ticket payment

The level of perceived importance for the service product was significantly lower for those who had paid for their own air ticket and those who did not.

Airline choice

The level of perceived importance for service products was significantly lower for those who selected airlines by themselves and those who did not.

Low Cost Carrier (LCC) travel experience

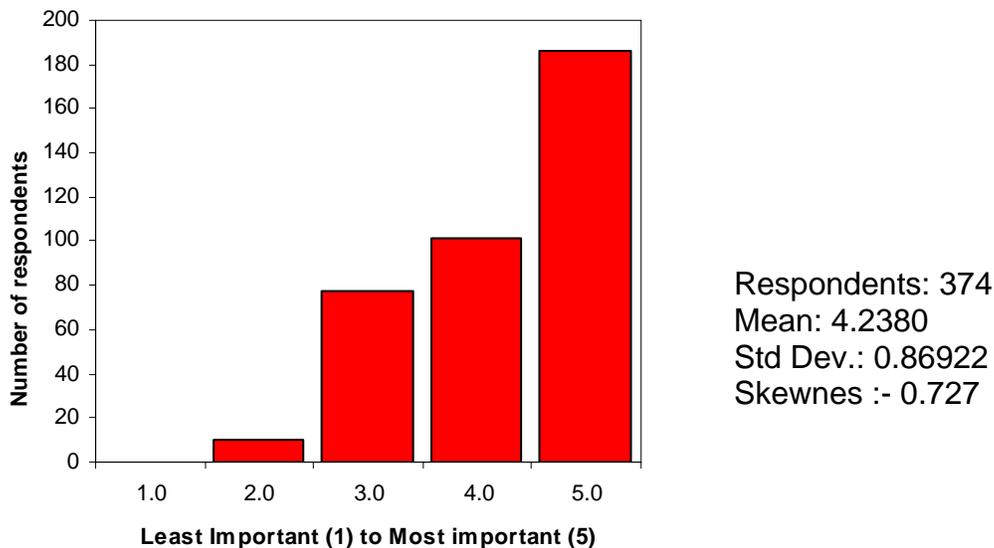
The respondents who had experienced air travel on-board LCCs gave higher scores for service product features than the respondents who had not.

4.3.5 Ticket price

As ticket price was considered to be one of the most important criteria in the airline product features, a separate analysis was conducted for this variable. Figure 4.3 shows the overall importance score for the ticket price product feature. The mean value is well over the mid-point of the 5-point Likert scale.

The statistical test results detected that there was no significant difference between the ticket price and other independent variables except for the age group variable. Despite reaching statistical significance, the actual difference in mean scores between the age groups was small.

Figure 4.3
Graph for ticket price

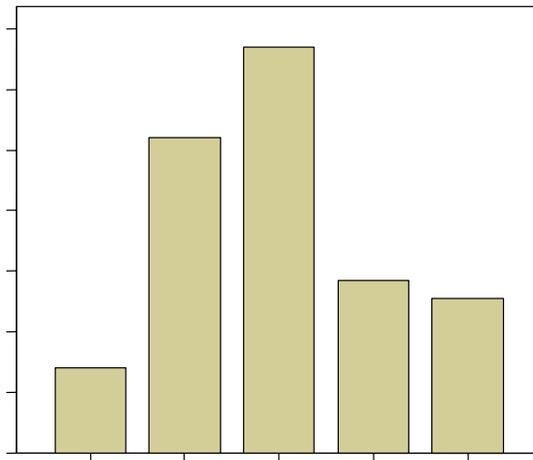


4.3.6 Food and beverage products

Based upon factor analysis, in-flight food and beverage products were merged into the service product component. Furthermore, this product feature was rated the least important among the 11 airline product features. However, this product feature required separate in-depth analysis as this research was looking specifically at the in-flight food and beverage services.

Figure 4.4 shows overall scores for the importance of food and beverage products in the airlines product features. The mean value for the food and beverage products is slightly below the mid-point of the 5-point Likert scale. The statistical test results identified that a statistically significant difference exists in the food and beverage product features compared with the other independent variables such as nationality, travelling airlines, destinations, and travel frequency.

Figure 4.4
Graph for food and beverage products



Respondents: 374
Mean: 2.9973
Std Dev.: 1.13085
Skewnes : 0.262

Nationality

The American/others nationality group was significantly different from the Chinese group of respondents. They rated the food and beverage product as less important than Chinese, Korean or Japanese respondents.

Traveling airlines

Respondents travelling on Asiana Airlines rated this feature significantly differently from those travelling on Air China. They rated the importance of food and beverage products lower.

Destinations

Respondents travelling to Shanghai were significantly different from Beijing, also rating food and beverage lower.

Travel frequency

Frequent travellers (the over 7 travelling times group) rated food and beverage products as less important than infrequent travellers.

Departure time

The mean scores for respondents who started travel during mealtimes were higher than those who started their air travel outside of mealtimes. However, the effect size was comparatively small.

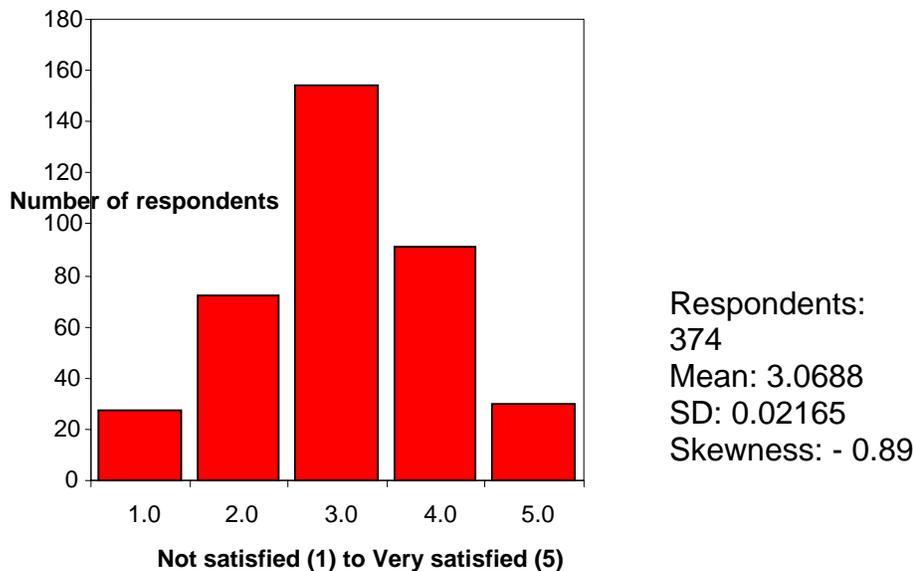
4.4 Air traveller's perception and attitudes toward current in-flight food services

All airlines operating out of ICN airport for Japan and China provided some sort of complimentary free meal service in the economy class cabin in spite of short flight times of less than three hours. In order to identify air traveller's perceptions and attitudes toward current in-flight food services and ticket prices, respondents were asked to rate their perceptions and attitudes to these issues. Question items included the satisfaction level of current complimentary free meal services, the necessity of in-flight food services, willingness to buy in-flight food on-board full service network carriers (FSNCs) and the level of air ticket prices.

4.4.1 Satisfaction level with current in-flight food services

The sample was asked to rate their satisfaction levels of the in-flight food service provided by current FSNCs on a short haul flight of less than three hours (see Appendix 1: Question 1). Figure 4.5 represents the overall satisfaction level of current in-flight foods. The mean value for this question was slightly over the mid-point of the 5-point Likert scale.

Figure 4.5
Graph for satisfaction level of current in-flight food services

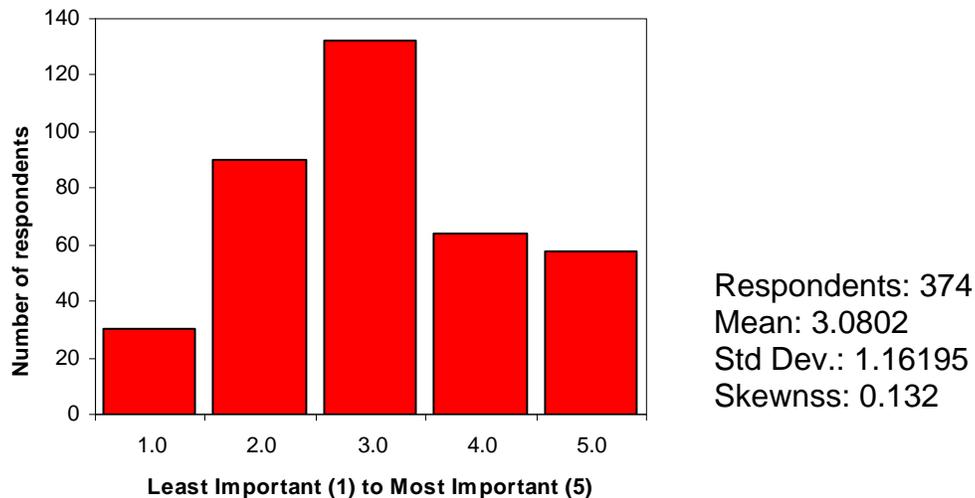


Differences in satisfaction levels of respondents according to their gender, age group, nationality, travel pattern and behaviour, and perceptions toward LCCs were tested for significance (using ANOVA). There was no significant difference in scores except for nationality in which there was slight difference. In particular, the mean scores for the Japanese respondents were significantly different (Tukey HSD test) from those of the American/Others group. This group was less satisfied relative to the others.

4.4.2. Necessity of current in-flight food services

The respondents were asked to evaluate the level of necessity of providing in-flight food by FSNCs as a free of charge complimentary service on short haul flights in economy class cabins (see Appendix 1: Question 2). Figure 4.6 shows the overall scores.

Figure 4.6
Graph for necessity of current in-flight food services



The mean value is slightly over the mid-point of the 5-point Likert scale. Statistical tests revealed that there was no statistically significant difference in the necessity level of current in-flight food services with other independent variables except for travel frequency.

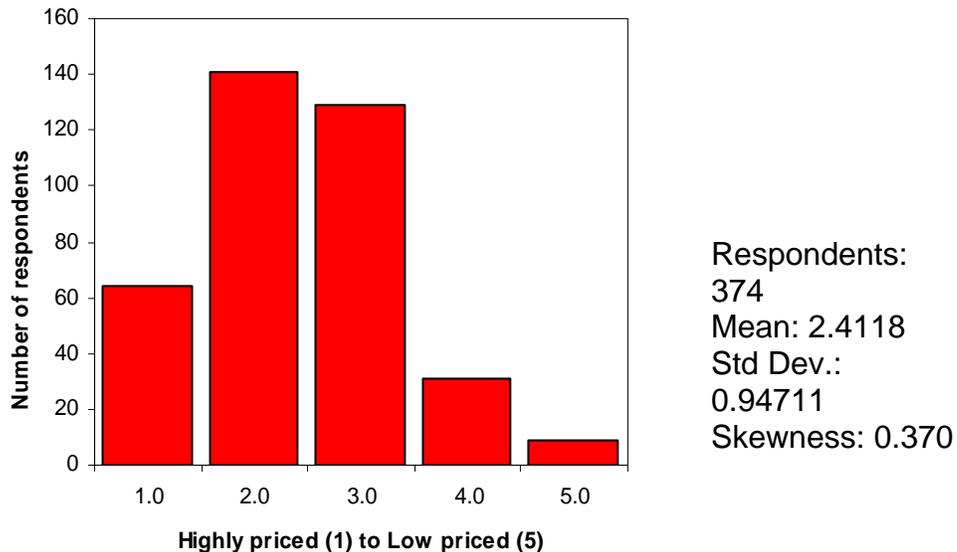
Travel frequency

The mean scores for the moderate (between 3 and 6 times) travel frequency group was significantly different from those for the low (less than 3 times) travel frequency group. The high (over 7 times) travel frequency group did not significantly differ from either the low group or the moderate group. The moderate user group generally considered in-flight food as less important than the low user group.

4.4.3 Perception of current air ticket price

The respondents were asked to assess their perceptions towards the current level of air ticket prices between Korea/Japan and Korea/China routes in view of the short flying time (see Appendix 1: Question 4). Figure 4.7 shows the overall score for the perceptions of current air ticket price.

Figure 4.7
Graph for the perception of current air ticket price



The mean value is below the mid-point of the 5-point Likert scale. Significant statistical differences existed in perceptions of current air ticket prices within other variables such as travel purpose, travelling airlines, and destination.

Travel Purpose

The mean scores for business travellers were significantly different from leisure travellers. Leisure travellers generally believed the ticket price to be high relative to business travellers.

Travelling airlines

The perceptions of respondents on-board Japan Airlines was significantly different from those of China Airlines. Japan Airline passengers believed their air ticket price to be high.

Destinations

The mean score for Shanghai was significantly different from other destinations. The cost of the air ticket to this destination was perceived to be high relative to other destinations.

4.5 Correlation analysis of variables

Correlation analysis is used to describe the strength and direction of the linear relationship between two variables (Pallent, 2001). The widely used correlation coefficient, Pearson correlation r , determines the strength of the linear relationship between the two ranked or continuous variables, i.e. the extent to which values of the two variables are proportional to each others (Pallent, 2001).

4.5.1 Level of current satisfaction of in-flight food service and its necessity

Table 4.15 exhibits that medium sized positive correlation exists between the current satisfaction level of in-flight food service and its necessity. The r-value here shows that high level satisfaction to current in-flight foodservices was associated with high levels of in-flight food necessity.

Table 4.15
Correlation between the current satisfaction and necessity variables

		Current in-flight food service satisfaction	Current in-flight necessity
Current in-flight food service satisfaction	Pearson Correlation	1	0.334(**)
	Sig. (2-tailed)		0.000
	N	374	374
Current in-flight necessity	Pearson Correlation	0.334(**)	1
	Sig. (2-tailed)	0.000	
	N	374	374

** Correlation is significant at the 0.01 level (2-tailed).

4.5.2 Food and beverage and in-flight facilities

Table 4.16 reveals that a medium sized positive correlation exists between the food and beverage and in-flight facilities products.

Table 4.16
Correlation between food and beverage and in-flight facilities variable

		Food and beverages	In-flight facilities
Food and beverages	Pearson Correlation	1	0.413(**)
	Sig. (2-tailed)		0.000
	N	374	374
In-flight facilities	Pearson Correlation	0.413(**)	1
	Sig. (2-tailed)	0.000	
	N	374	374

** Correlation is significant at the 0.01 level (2-tailed).

4.6 Conclusion

In this chapter, the data were analyzed using the statistical package SPSS 11.5. The scores of each question were analysed by using descriptive or inferential statistics in order to probe research questions. The findings from the analysis will be discussed in the next chapter.

CHAPTER 5: CONCLUSION

5.1 Introduction

The results of field research have been analysed in the previous chapter. In this chapter, findings from the data analysis are interpreted and discussed in order to probe the research questions (see Section 3.2). The limitations of the research process and its implications are discussed before concluding with recommendations regarding further study of these issues.

5.2 Discussion of findings

5.2.1 Profile of respondents

Demographic profile

The majority of the respondents in this sample were male (60%). The total number of air travellers departing out of Incheon International Airport (ICN) in 2002 corroborated this gender distribution of respondents (www.moj.go.kr/immi).

The largest age group in this sample was the less than 30 years age group (31%) while the over 51 years age group was the largest one in the data published by the Korea National Tourism Organization at 29% (KNTO, for Jun 2004). However, both data sets showed an even distribution over the age groups as a whole.

Koreans were the largest nationality group in the sample (46%) followed by the Japanese (24%) and the Chinese (18%). The nationality distribution for the population varied slightly from the sample of respondents. Passengers travelling out of ICN airport for Japan and China were defined as the population of this research, therefore it was necessary for this research to focus more on Korean, Japanese and Chinese populations than other nationality groups.

Travel pattern and behaviour

The respondents travelling out of ICN airport for Japan and China were mainly business travellers (47%), followed by 34% leisure travellers and 19% other travellers, including those visiting friends or relatives and students passengers. Of the respondents, 35% had travelled less than 3 times during the last year, 33% had travelled more than 7 times and 32% had travelled between 3 and 6 times in the same period.

45% of the respondents paid for their air ticket by themselves while 43% were paid for by their employers. The remaining 12% were paid by their parents, relatives or others. More than half (52%) of the respondents selected the travelling airlines themselves whereas travel agents decided airlines for 34% of the sample. The remaining 14% were done by secretary or relatives.

43% of the sample replied that they would prefer to travel by Korean Air, followed by 23% by Air China, 14% by Japan Airline, 13% by Asiana Airlines and 8% by other airlines. Compared to actual flight operation frequencies per airlines out of ICN

airport for Japan and China (June 2004), the distribution of travelling airlines for the sample was a little different from that of flight operation frequency per airline for the same period. However, as this project was mainly concerned with Korean Air and also the number of Chinese passengers travelling to/out of Korea (which has significantly increased recently) it is unsurprising that this research tended to concentrate more on Korean Air and Air China passengers.

The largest travel destinations for this sample were Tokyo (31%) followed by Beijing (20%), Osaka (16%) and Shanghai (9%). Other destinations represented the remaining 25%. During June 2004, a total 970,087 air passengers departed out of ICN airport. Among them, 245,065 (25%) travelled to Japan and 224,893 (23%) flew to China. Ten airlines operated scheduled services out of ICN airport for 44 destinations in China and Japan. Of the 2,404 flights operated out of ICN airport for China and Japan during June 2004, close to half of the flights (47%) operated to just four hub cities in these regions. About a half of the respondents' flights departed during mealtimes (see Section 4.2 for a definition of meal times).

5.2.2 Current in-flight food service

All airlines operating out of ICN airport for Japan and China currently provide some sort of complimentary meal service to economy class passengers in spite of the short flights time of less than three hours. For example, Korean Air provides two choices of hot entrée with appetiser and dessert on flights departing during a mealtime while a simpler sandwich or oriental cold meal is served on a flight departing outside of mealtimes. Figure 5.1 shows meal samples that are currently served on Chinese and Japanese routes by Korean Air.

Figure 5.1
Photo of current in-flight meal samples



Source; Korean Air Catering Centre, 07 Aug, 2004

The overall satisfaction level for in-flight foods provided by FSNCs was just slightly over the mid-point of the 5-point Likert scale ($M=3.07$, $SD=1.02$). A statistically significant difference was detected in the satisfaction level between Japanese ($M=2.78$, $SD=1.13$) and American/Others nationality group ($M=3.22$, $SD=0.80$). This result confirms that different perceptions and attitudes exist depending on different market segments of nationality (and so different passenger cultures).

The necessity of current in-flight food services was assessed as slightly over the mid-point ($M=3.08$, $SD=1.16$) and differences in the scores were identified in the travel frequency. The more respondents traveled on international routes during the last year, the lower the necessity level of in-flight food services.

A medium positive correlation was reported between the satisfaction level and necessity of the current meal service variables ($r=0.33$, $p=0.000$) for these respondents.

Even though airline companies compete against each other in order to provide better food and beverage services and invest in complimentary in-flight food and beverage services on their short haul flights, the level of satisfaction and necessity was only slightly over the mid-point. This may signify that FSNCs operating short haul flights in the North East Asia regions have ended up with in-flight food products that are neither able to satisfy the business customer's desire for quality and service, nor the price expectation of the leisure customers (Lindstadt and Fauser, 2004).

Each airline designs its own in-flight menu depending on its concepts and believes that in-flight food and beverage services are one of the airline product features that can easily differentiate airlines from each other. However, no statistically significant difference was detected between the airlines, destinations and departure times; these are believed to be the most important factors in designing and planning in-flight food and beverage services for airline companies.

Travel destination means that the duration of the flight and departure times are in fact the deciding factors in designing what type of meals or what volume of food and beverage should be served on a particular flight for these respondents. From the data analysis of these two questions, it can be supposed that in-flight food and beverage product features are not well appreciated or recognized by air passengers on short haul flights and therefore do not function well as differentiated airline product features or as efficient marketing tools in this instance.

5.2.3 Current air ticket price

The respondents perceived that current air ticket fares were too high. The mean value for this question was below the mid-point ($M=2.41$, $SD=0.95$), which signified that negative and unsatisfactory perceptions existed for air ticket pricing for these short haul flights. Business travelers tended to be more aware of the ticket prices than leisure travelers. There were differences between airlines, with Japan Airline passengers rating the ticket price more expensive than Air China passengers. Destination was also a factor as air passengers bound for Shanghai replied less favorably to the question about ticket pricing than those traveling to Osaka.

The stronger negative price perception of business travelers than those of leisure travelers concurs with previous research. Mason (2001) stated that short haul business class was becoming increasingly price sensitive and only 24% of business travelers perceived that business class service was providing good value for money (Company Barclaycard's business travel survey, cited in Mason, 2000). Furthermore, air tickets for most short haul routes out of Korea to Japan and China destinations are sold close to the nominal fare level, without applying diverse discounting clauses or yield management technique to the same degree as their European counterparts.

Those passengers who were bound for Shanghai revealed the strongest dissatisfaction with the current ticket price levels, which can be answered by explaining the number of operating airlines on this route. Before June 2004, routes between Shanghai and ICN and vice versa had been shared by Asiana Airlines and China Eastern Airlines due to an allocation problem of air traffic rights among these airlines in China and Korea. However, Korean Air started to operate on this route as of 21st of July 2004 and so it can be assumed that price competition will intensify, leading to price reductions.

As the air travel market for Korean/Japanese and Korean/Chinese routes is still dominated by 7 national flag carriers in China, Japan and Korea, the air ticket price is arguably not yet under full competition. Some routes are still operated by single or duo players. This may help explain the high level of negative perception towards the current air ticket prices found in this research.

5.2.4 In-flight food and beverage in airline product features

Among the 11 product features assessed, safety and security scored the highest across all groups, while airline alliance and in-flight food and beverage products were rated the least important. The result of evaluating the importance of airline products was similar to those from previous research (Official Airline Guide research data cited in Jones, 2004; Gilbert and Wong, 2003; Papadiotis, 2003). Even though the previous research was not solely confined to those passengers who intended to travel on short haul flights, in-flight food and beverage products were rated relatively low when airline passengers selected a travelling airline.

In order to facilitate the statistical analysis, the 11 product features were reduced to two product features by factor analysis. Separate analysis was also performed for ticket price as it was considered to be a material product feature in airline selection criteria. Food and beverage products were also selected as being a crucial product feature in this research and so analysed separately.

The overall scores of importance level for the operation product component from this analysis were quite high over the mid-point ($M=4.23$, $SD= .69$). But a statistically significant difference was detected in the nationality, traveling airlines, destinations and ticket payment variables.

The overall mean value for the service products component was lower than the operation products (M=3.31, SD=0.93) with differences existing in the nationality, traveling airlines, destinations, age group, who paid the ticket price and who decided traveling airlines variables.

The respondents rated the ticket price as the second most important feature after safety and security (M=4.23, SD= 0.87). The below 30 years age group (M=4.4, SD= 0.77) were the most price sensitive air travelers while the over 51 years age group were the most generous towards the ticket price.

Separate in-depth analysis was performed for in-flight food and beverage products. Its overall importance level was close to the mid-point (M=2.99, SD=1.13) but lower than general service product features (M=3.31, SD= 0.93). The difference in the mean score of the in-flight food and beverage product was detected in nationality, traveling airlines, destinations, travel frequency, and departure time variable.

- Among the nationality groups, the Chinese gave the highest scores for the importance of in-flight food and beverage products while American/Others nationality gave the lowest marks, which concurred with the Gilbert and Wong's (2003) research.
- The passengers who were bound for Shanghai gave the lowest scores for food and beverage products while those who were bound for Beijing gave the highest scores among the destinations variables.
- The more a respondent had traveled in the last year, the lower the scores were for the importance of food and beverage products.
- The respondents who departed during mealtimes evaluated the food and beverage product more important than those who departed outside of mealtimes.
- The importance of the in-flight food and beverage products and in-flight facilities reported a positive medium sized correlation ($r= 0.41$, $p= 0.000$) indicating that a high level of importance for in-flight food and beverage products was associated with a high level of importance for in-flight facilities.

In-flight food and beverage products were rated least important among the 11 airline product features in the questionnaire, implying that airline companies should review their current policies and practices for in-flight food service on short haul flights in order to develop passenger-focused service strategies. These strategies entail a detailed understanding of their passengers' perceptions of importance for airline product features depending upon their market segments. The findings also indicated that national preferences warrant consideration.

5.3 Conclusion

The research questions (see Section 3.2) sought to identify the necessity and satisfaction level of current complimentary food services provided on short haul international flights out of ICN airport. The findings were that the satisfaction and necessity level of current in-flight food services provided by airlines in the region was slightly over the mid-point of the 5 point Likert scale and different levels of satisfaction and necessity existed in the different market segments.

This research also assessed the level of importance of in-flight food and beverage products provided on short haul flights compared to other airline product features. It found that food and beverage products were rated the least important among the 11 airline product features that were assessed with this questionnaire.

5.4 Implications and recommendations

This research will shed some light on the managerial perceptions of in-flight food services on short haul flights out of ICN airport bound for Japan and China. The data and findings could also be used by airline management to expand and update their understanding of air travellers' perceptions and attitudes towards a current complimentary in-flight food services provided on short haul-flights.

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APPENDIX 1: QUESTIONNAIRE

Dear Passenger,

Travel Catering Research Centre at the Management School of Surrey University in the UK is conducting a survey regarding on-board food service on short haul flights out of Korea. Your opinion is extremely important to our research and will be treated with anonymity and confidentiality. Thank you very much for your cooperation.

Part 1. Please circle the number that indicates the level of your perception at each question or tick at the appropriate box below

1. Are you satisfied with the in-flight food service provided by current airlines on the short haul flight (less than 3 flying hours such as Korea/Japan and Korea/ Chinese route)?

1=Not satisfied 2 3 4 5=Very satisfied

2. Do you believe that it is necessary for airlines to provide complimentary in-flight food service on the short haul flights (less than 3 flying hours such as Korea/Japan and Korea/ Chinese route)?

1=Not necessary 2 3 4 5=Necessary

3. How likely are you to purchase food for onboard consumption if incumbent airlines stop providing complimentary in-flight food service and instead, introduce on-board food sale for those passengers who really want to eat during the flight time?

1=Very unlikely 2 3 4 5=Very likely

4. How do you perceive the current level of air ticket price between Korea/Japan and Korea/ China routes in view of the short flying hour?

1= Low priced 2 3 4 5=Highly priced

5. Have you heard about low cost airlines which are operating in the US and Europe?

Yes No (go to question 11)

6. Are you aware that ticket price of low cost airlines are much lower than those of incumbent airlines?

Yes No

7. Are you aware that low cost airlines are selling in-flight foods and beverages on-board flight instead of providing a complimentary free service?

Yes No

8. Have you ever travelled on any of the low cost carriers in the past?

Yes (go to question 9) No (go to question 10)

9. How satisfied were you with your air travel on low cost airlines?

1=Not satisfied 2 3 4 5=Very satisfied

10. Would you consider travelling with low cost airlines in the future?

1=Very unlikely 2 3 4 5=Very likely

11. How likely are you to purchase food for on-board consumption if low cost airlines start to operate on the route you intend to travel offering a much lower ticket price but without complementary meal service?

1=Very unlikely 2 3 4 5=Very likely

12. What would you consider to be a reasonable price for in-flight food to be sold on board the flight?

- Below KRW 10,000 Between KWR 10,001 and 15,000
 Between KRW 15,001 and KRW 20,000 Over KRW 20,001

Part 2. Please circle the number that indicates the level of importance of each category when you select an airline. (1= the last important, 5= the most important)

13. The airline has enough frequencies and provides most convenient schedules.

1 2 3 4 5

14. The flight departs and arrives on time as it promise and the airline has proven record for punctuality.

1 2 3 4 5

15. The airline has proven record for safety and makes you feel safe with effective security precautions.

1 2 3 4 5

16. The airline's aircrafts are modern and they have clean and comfortable seat and provide in-flight internet/e-mail/fax/phone service.

1 2 3 4 5

17. The airline sells the cheapest and the most competitive air ticket

1 2 3 4 5

18. The airline provides good quality of food and beverages.

1 2 3 4 5

- | | |
|--|--|
| <input type="checkbox"/> Japan Airlines | <input type="checkbox"/> All Nippon Airlines |
| <input type="checkbox"/> United Airlines | <input type="checkbox"/> Northwest Airlines |
| <input type="checkbox"/> Air China | <input type="checkbox"/> China Eastern Airlines |
| <input type="checkbox"/> China Southern Airlines | <input type="checkbox"/> China Northern Airlines |

32. Please write down flight number and your city of destination today.

Flight number: _____

Destination: _____