



200509015

# Investigating the Effects of Airline Service Quality on Airline Image and Passengers' Future Behavioural Intentions: Findings from Australian international air passengers

Jin-Woo Park  
Rodger Robertson  
and  
Cheng-Lung Wu

## Abstract

*This paper investigates how individual dimensions of airline service quality determine airline image and passengers' future behavioural intentions. To investigate the effects of individual dimensions of airline service quality, Structural Equation Modeling using a maximum likelihood estimator, was applied to data collected from Australian international air passengers. It was found that there were significant relationships between the variables except one path. The dimension of in-flight service and the dimension of convenience and accessibility were each found to have a positive effect on airline image, which was directly related to Australian international air passengers' future behavioural intentions.*

## Introduction

The research related to service quality and customer satisfaction in the airline industry has been growing in interest because the delivery of high service quality is essential for airlines' survival and competitiveness. A number of researchers have applied service quality related theories and methods in the airline industry. However, most previous airline service studies have relied mainly on customer satisfaction and service quality to describe customer evaluations of services and have focused on the effect of airline service quality at the aggregate construct level. Although examining the effect of individual dimensions of service attributes has potentially great utility for airline managers, the effects of individual dimensions of airline service quality has not been fully investigated in previous airline service studies (Patterson & Spreng, 1997). Since investigating the effects of individual dimensions of airline service quality is an important factor for airline marketers to develop their marketing strategies, the individual dimensions of airline service quality are considered as an important variable in this paper.

*Mr. Jin-Woo Park is a PhD Student, Department of Aviation, University of New South Wales, Australia.*

*Mr. Rodger Robertson is a Senior Lecturer, Department of Aviation, University of New South Wales, Australia.*

*Dr. Cheng-Lung Wu is a Lecturer, Department of Aviation, University of New South Wales, Australia.*

In recent years, research related to corporate image and consumer behaviour in the field of service marketing has progressed. There is some evidence that corporate image is an important factor in the overall evaluation of the service and the company (Gronroos, 1984). Corporate image can influence customers' perception of services offered and customers' choice of company (Andreassen & Lindestad, 1998). However, understanding the role of corporate image in the customer retention decision is a key issue that has received little attention in the service marketing area (Nguyen & LeBlanc, 1998). The role and the effect of corporate image in airline service setting has often been ignored in previous airline service studies.

This paper aims at improving our understanding of air passengers' future behavioural intentions by proposing and testing a conceptual framework that considers airline service quality, airline image, and passengers' behavioural intentions simultaneously. In particular, previous airline service studies have often ignored the effects of individual dimensions of airline service quality. Therefore, this paper derives airline service dimensions and investigates the effects of individual dimensions of airline service quality on airline image and passengers' future behavioural intentions by developing a structural equation model to study related effects simultaneously.

### Literature review

This paper proposes a conceptual framework that investigates the effects of individual dimensions of airline service quality and airline image on passengers' behavioural intentions. The following review presents an overview of relevant literature leading to the establishment of the proposed conceptual framework. Components of the proposed conceptual framework including

service quality and corporate image are discussed in this section.

### Service quality

Service quality is a consumer's overall impression of the relative inferiority/superiority of the organisation and its services (Bitner & Hubbert, 1994). The importance of service quality has been widely discussed by researchers. For example, Parasuraman, Zeithaml & Berry (1991) argued that delivering high quality in the service industry has been recognised as the most effective means of ensuring that a company's offerings are uniquely positioned in a market filled with "look-alike" competitive offerings. Goodman (1989) also asserted that businesses should be concerned with service quality issue because problems with service quality can make customer loyalty decline by 20%.

Parasuraman, Zeithaml & Berry (1988) developed a 22-item instrument representing the five dimensions, called SERVQUAL, for assessing customer perception of service quality in service and retailing organisations. It is based on the premise that customers can evaluate service quality by comparing their perceptions with their expectations of its service. To develop the SERVQUAL scale, data were gathered for five different service categories: appliance repair and maintenance, retail banking, long-distance telephone, securities brokerage, and credit cards. Since the development of the SERVQUAL scale, a number of studies have been conducted on service quality using this scale. The SERVQUAL has been used widely to evaluate service quality in various industries. However, several researchers noted limitations of the SERVQUAL and presented modified and alternative methods. For example, Carmen (1990) asserted that it is difficult to use the 22

SERVQUAL items exactly as proposed and some modifications in items or wording were always required. Cronin & Taylor (1992) argued that there are limitations in the SERVQUAL due to the fact that the disconfirmation paradigm does not perform well statistically and the author presented a performance-based alternative method called the SERVPERF.

Since service quality is an important factor for airlines, several researchers have applied service quality related theories and methods in the airline industry (Alotaibi, 1992; Chang & Yeh, 2002; Chen, 1997; Kaynak, Kucukemiroglu & Kara, 1994; Ostrowski, O'Brien & Gordon, 1993; Sultan & Simpson, 2000). Most of the previous airline service studies have used the SERVQUAL method to evaluate service quality. However, the 22-item scale of SERVQUAL representing five dimensions is not appropriate for measuring all aspects of airline service quality due to the characteristics of airline service quality. Airline service quality is different from services in other industries. An airline service comprises tangible and intangible attributes. Airlines carry passengers to the destination using aircraft, and passengers experience diverse intangible services from airlines such as on time performance, in-flight service, service frequency and so on. Shostack (1977) asserted that airline travel is intangible-dominant. It does not yield physical ownership of a tangible good. As shown in Figure 1, airline travel is more influenced by intangibles than tangibles.

The perceptions of airline service quality are quite diverse and do not seem to fit any single existing quality model such as the SERVQUAL or the SERVPERF (Haynes & Percy, 1994). The stability of the service dimensions across different branches of industry has proved to be weak and some modifications in items

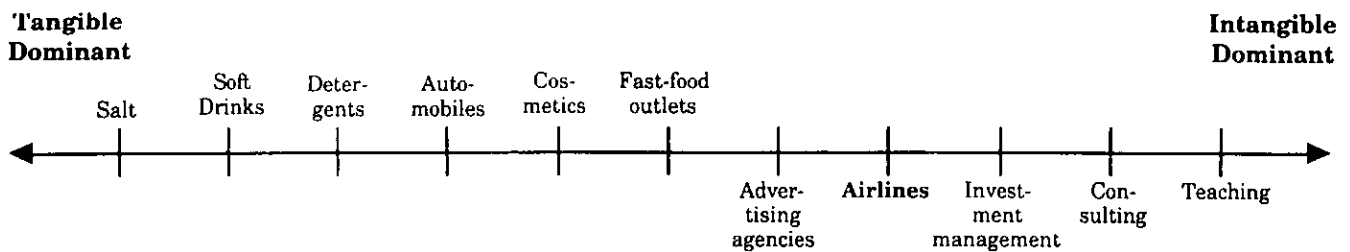


Figure 1: Scale of market entities

Source: Shostack, 1977, p. 77.

or wording were always required by the setting, or by results of tests of the questionnaire (Carman, 1990). Hence, modifications and adaptations should be made to selected questions and dimensions to make them more relevant to airline service quality.

Previous airline service studies are concentrated in modelling the effect of perceived service quality at the aggregate construct level, though examining the effects of individual dimensions of service attributes has potentially great utility for airline managers (Patterson & Spreng, 1997). The effects of individual dimensions of airline service quality have not been fully investigated, if any, they have concentrated on the SERVQUAL's five dimensions, namely tangibles, responsiveness, reliability, assurance, and empathy (Alotaibi, 1992; Sultan & Simpson, 2000; Tsaur, Chang & Yen, 2002). Since it is required to modify and adapt SERVQUAL questions and dimensions to make them more relevant to airline service quality, it is worth deriving the nature of airline service quality dimensions and investigating the effects derived dimensions of airline service quality rather than just applying the SERVQUAL dimensions and questions for measuring airline service quality.

### Corporate image

Corporate image can be defined as perceptions of an organisation reflected in the associations held in consumer memory (Keller, 1993). A planned and well-managed corporate image is the most promising marketing

strategy for attracting current consumers (Fombrun & Shanley, 1996). A company with a good image is more likely to stand out in the marketplace because it draws both repeat customers and trial users (Connor & Davidson, 1997). The more favourable a company's image, the more likely consumers will assume that the services tendered by that company are better, of higher quality and worth more in actual price (Dowling, 1994). Similarly in the airline industry, the more favourable image passengers have, the more likely negative elements about the airline will be filtered out of passengers' consciousness. Passengers who have a favourable image of the airline consider a particularly bad flight to be an exception to their impression of the airline (Ostrowski *et al.*, 1993). Thus, a favourable image separates and distinguishes the company from its competitors.

Previous research has identified corporate image as an important factor in the overall evaluation of the service and the company (Gronroos, 1984). The relationship between corporate image, service quality and loyalty has been investigated in previous studies. Andreassen & Lindestad (1998) noted that corporate image has an impact on customer's choice of company when service attributes are difficult to evaluate. Zeithaml & Bitner (1996) also asserted that image can influence customers' perceptions of the goods and services offered. Even though previous studies have presented the role and the effect of corporate image, it is still unclear

whether there is a direct relationship between image and consumer behaviour (Bloemer, Ruyter & Pascal, 1998). Understanding the role and the effect of corporate image in the customer retention decision is a key issue that has received little attention in the service marketing area. Neither the role nor the effect of corporate image in the airline industry have been fully investigated yet (Nguyen & LeBlanc, 1998). Hence, airline image is considered as a significant variable that influences passenger's choice of airline in this paper.

### Methodology

#### Questionnaire design and measurements

To develop the SERVQUAL scale, Parasuraman *et al.* (1988) gathered data from five different service categories. Even though these categories represent a broad range of services, SERVQUAL's five dimensions and 22 item scales drawn from those industries are difficult to apply to airlines. This is because the SERVQUAL instrument does not address other important aspects of airline service such as in-flight meals, frequent flyer programs, seat space and legroom. Against this background, the present study endeavours to include the important determinants of airline service quality that have been neglected in the previous literature and service quality models. This study strived to develop an instrument to better understand the determinants of passengers' perception of airline

service quality. To get acquainted with the characteristics of airline services and to identify the important factors involved, an investigative study related to airline service quality was undertaken.

This study adapted the SERVQUAL scale to the specific context of aviation by generating additional quality related measures or items other than the ones already included in the SERVQUAL instrument. This study changed the measurement items and the dimensions to develop a more appropriate scale for measuring airline service quality. To develop airline service quality measures, in-depth interviews and focus groups were held with airline staff and passengers. In the interviews, people were asked about airline services – particularly what kind of services airlines provide and passengers receive from flight reservation to arriving at the final destination. In addition, they were asked how

SERVQUAL's dimensions and items could be adapted to measure airline service quality. Respondents were also asked to suggest service quality items that were not included in the SERVQUAL instrument.

A pilot study was conducted in order to see if any of the statements are difficult for subjects to understand and to assess face validity. A number of samples of Australian international passengers who have recent experience of international travel were used in the pilot survey. Passengers were asked to complete the questionnaire and give their overall comments about the questionnaire. Based on the passengers' comments, one revision was made. Several passengers mentioned that two items, 'variety of routes' and 'understanding the specific needs of passengers', were difficult to evaluate with their experience and knowledge. Therefore, these two measurement items were deleted on the final survey

questionnaire, so the final questionnaire contained 22 measurement items. The airline service quality items drawn from these interviews and pilot study were examined by academics familiar with the airline industry and questionnaire design. These led to the development of service quality measurement items suitable for the airline industry.

Service quality was measured by 22 measurement items and airline image was measured by asking passengers three measurement items as shown in Table 1. Behavioural intentions were measured using passengers' intention to repurchase and willingness to recommend the airline to other people. All the items were measured using a 7-point Likert-type scale.

### Sample

The survey was conducted at the international terminal (T1) of Sydney Airport in September 2003. Sampling was done by

Table 1: Measurement Items.

Measures	Variables	Scale	Items
Service Quality	Up-to-date aircraft and in-flight facility	7-point Likert Scale	22 items
	Meal service (items, tastes, freshness, quantity, appearance, etc)		
	Seating comfort		
	Seat space and Legroom		
	In-flight entertainment services (books, newspapers, movies, magazines, etc.)		
	Convenience of reservation and ticketing		
	Promptness and accuracy of reservation and ticketing		
	Frequent flyer program		
	On-time performance		
	Sincere interest in solving problems (flight cancellation, baggage loss, etc.)		
	Safety record		
	Check-in service (waiting time, efficiency, etc)		
	Promptness and accuracy of baggage delivery		
	The amount imposed for overweight baggage		
	Providing seat that passengers prefer		
Neat appearance of employee			
Employees who are willing to help passengers			
Courtesy of employees			
Employees who have the knowledge to answer passengers' questions			
Give passengers personal attention			
Convenient flight schedule			
Non-stop flight			
Airline Image	I have always had a good impression of this airline	7-point Likert Scale	3 items
	I believe that this airline has a better image than its competitors		
	In my opinion, this airline has a good image in the minds of passengers		
Behavioural Intentions	Would you consider flying on this airline again in the future?	7-point Likert Scale	2 items
	Would you recommend this airline to other people?		

Table 2: Passenger Profiles.

Attributes	Distribution	Sample Number	Frequency (%)
Gender	Male	276	55.1%
	Female	223	44.5%
	Missing	2	0.4%
Age	Less than 20	39	7.8%
	20 - 29	137	27.3%
	30 - 39	80	16.0%
	40 - 49	82	16.4%
	50 - 59	91	18.2%
	60 and over	68	13.6%
	Missing	4	0.8%
Occupation	Professional	72	14.4%
	Student	76	15.2%
	Management	52	10.4%
	Housewife	29	5.8%
	Employee of company	97	19.4%
	Government employee	38	7.6%
	Private business	60	12.0%
	Others	71	14.2%
	Missing	6	1.2%
	Income	AUD 17,999 or less	43
AUD 18,000 – 35,999		76	15.2%
AUD 36,000 – 53,999		106	21.2%
AUD 54,000 – 71,999		85	17.0%
AUD 72,000 or more		164	32.7%
Missing	27	5.4%	

Note: \$1 AUD is equivalent to \$0.75 USD (in April, 2004)

interviewing randomly selected passengers, at different times of the day, on every day of the week, over a two week period. To reduce the refusals to participate or to

answer specific questions, the members of the survey team contacted passengers politely by explaining the purpose and contribution of research. The

data was gathered from Australian international passengers who had admitted to having been on at least one international flight in the past twelve months. A total of 600 questionnaires were distributed to Australian international passengers. Of the 600 questionnaires, 554 completed questionnaires were collected and 53 questionnaires were incomplete. Hence, 501 questionnaires were used for data analysis. The passenger profiles are presented in Table 2. The distribution in terms of age, occupation, and income factors seem reasonable.

### Analysis and Results

#### Factor analysis results

Exploratory factor analysis was used for airline service quality measures to determine the dimension of airline service quality. Factor analysis is a general name denoting a class of procedures primarily used for data reduction and summarisation (Malhotra, Hall, Shaw & Crisp, 1996). In the factor analysis, principal components

Table 3: The Result of Factor Analysis.

Factor	Variables	Factor loadings	Eigen value	Cumulative % of Variance
Reliability and customer service (Factor 1)	Courtesy of employees (E1)	.871	10.576	48.072
	Employees who are willing to help passengers (E2)	.855		
	Employees who have the knowledge to answer passengers' questions (E3)	.811		
	Give passengers personal attention (E4)	.723		
	Neat appearance of employee (E5)	.716		
	Safety of flying (E6)	.636		
	Sincere interest in solving problems (E7)	.623		
	On-time performance (E8)	.543		
Convenience and accessibility (Factor 2)	Convenience of reservation and ticketing (A1)	.791	1.548	55.106
	Promptness and accuracy of reservation and ticketing (A2)	.783		
	Check-in service (A3)	.664		
	Frequent flyer program (A4)	.602		
	Promptness and accuracy of baggage deliver (A5)	.586		
	Non-stop flight (A6)	.505		
	Convenient flight schedule (A7)	.500		
	Providing seat that passengers prefer (A8)	.497		
	The amount imposed for overweight baggage (A9)	.350		
In-flight service (Factor 3)	Seating comfort (F1)	.833	1.284	60.944
	Seat space and Legroom (F2)	.824		
	Meal service (F3)	.709		
	In-flight entertainment services (F4)	.556		
	Up-to-date aircraft and in-flight facility (F5)	.523		

analysis with VARIMAX rotation was utilised. Only factors with eigenvalues greater than 1 were retained. The overall pattern of rotated factor loadings suggested a three-dimensional solution and factors are labelled as follows: "reliability and customer service" (Dimension 1), "convenience and accessibility" (Dimension 2), and "in-flight service" (Dimension 3). Those three factors were used as airline service dimensions representing latent variables, which will later be used in the structural equation model. The result of factor analysis for service quality items is presented in Table 3.

### The structural equation model

Previous studies have shown that perceived service quality has a direct impact on forming the image of a company. For example, Nguyen & Leblanc (1998) asserted that bank customers who receiving higher levels of service quality, form a corresponding favourable image, in the banking services industry. It is generally recognised that many aspects of corporate image are derived from past experience, and word-of-mouth communications. However, providing higher service quality can have a direct effect on forming a favourable image of a company. This study seeks to investigate the formation of airline image based on passengers' experiences of airline services. Hence, this paper proposes and tests a conceptual framework that investigates the relationship between individual dimensions of airline service quality, airline image, and passengers' behavioural intentions as shown in Figure 2.

The model hypothesises a causal structure among a set of latent variables and observed variables, which are used as indicators of these latent variables. All the paths are hypothesised to be positive. Factor analysis suggested airline service quality

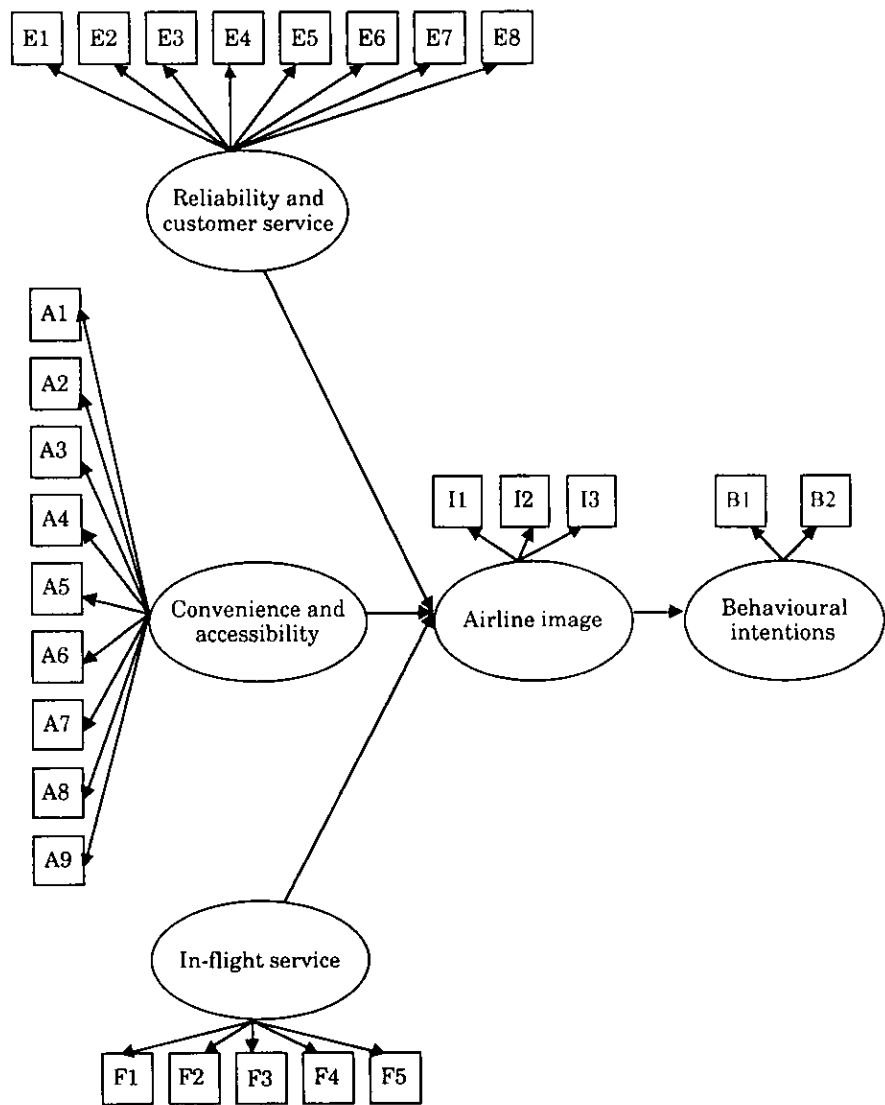


Figure 2: Structural equation model

is best described by three dimensions, called "reliability and customer service" (Dimension 1), "convenience and accessibility" (Dimension 2), and "in-flight service" (Dimension 3). Each service dimension is modelled as a latent variable, which is further described by a number of observed variables as shown in Figure 2.

- Dimension 1 (reliability and customer service): from E1 through E8
- Dimension 2 (convenience and accessibility): from A1 through A9
- Dimension 3 (in-flight service): from F1 through F5

Observed variables, e.g., E1 ~ E8

are based on passengers' actual responses to corresponding measurement items on the survey form. Observed variables in the same group, e.g., A1 ~ A9, are used as indicators of the corresponding service dimension, i.e. convenience and accessibility. Airline image and behavioural intentions are also represented by observed variables, i.e. I1 ~ I3 and B1 ~ B2 calculated from passengers' survey responses.

The proposed conceptual framework was analysed using Structural Equation Modeling. Structural Equation Modeling (SEM) is one of the most effective and reliable methods for finding relationships between variables because SEM allows a complete and simultaneous test of all the relationships. It is the only

analysis that allows a complete and simultaneous test of all the relationships when the phenomena of interest are complex and multidimensional (Tabachnick & Fidell, 2001). To analyse the data and to verify the hypotheses, SPSS 11.5 and AMOS 4.01 statistical software were used. AMOS is a statistical software package that computes the general approach to data analysis known as structural equation modeling.

### Reliability of measures

The reliability of the model and its internal consistency require statistical verification. Cronbach's alpha was used to assess internal consistency. Cronbach's alpha is the average of all possible split-half coefficients resulting from different ways of splitting the scale items and a value of 0.6 or less generally indicates unsatisfactory consistency reliability (Marhotra *et al.*, 1996). The Cronbach's alpha of each measure is presented in Table 4. The internal consistency reliability of each measure was higher than 0.8, which implies the reliability of the measure is very high.

### Correlation analysis

Correlation analysis was conducted between three airline service dimensions, airline image and passengers' behavioural intentions. The relationships between the variables were analysed using Pearson correlation coefficients. The result as shown in Table 5 showed that three dimensions of airline service quality and airline image had positive correlations with behavioural intentions at the 0.01 level of statistical significance.

### Model fitness

Generally in Structural Equation Modeling, the fit of the model evaluated by Chi-square measure is not always straightforward, because Chi-square is very sensitive to the sample size. Due

Table 4: Reliability of Measures.

Measure	Cronbach $\alpha$
Reliability and customer service	.9336
Convenience and accessibility	.8595
In-flight service	.8549
Airline image	.9077
Behavioural intention	.9452

to this drawback, various kinds of fit indexes have been developed that are independent of sample size (Hoyle, 1995; Marsh, Balla & McDonald, 1988). Among various fit indexes, the Tucker-Lewis Index (TLI) and the Comparative Fit Index (CFI) are relatively unaffected by sample size (Marsh *et al.*, 1988). The model developed here has a relatively large sample size and various indexes were used here to assess the fit of the model in this study, including Goodness-of-Fit Index (GFI), Adjusted Goodness-of-Fit Index (AGFI), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). The fit of the conceptual model is presented in Table 6. The theoretical model provided an excellent fit to the data on a number of fit statistics.

### Testing hypotheses

Except for one causal path, all the hypothesised relationships were statistically significant ( $p < 0.05$ ). The one statistically insignificant path was the effect of the dimension of reliability and customer service on airline image. In this model, significant relationships were found between the dimension of convenience and accessibility, the dimension of in-flight service, airline image, and

behavioural intentions. The result of hypotheses testing is presented in Table 7.

The dimension of convenience and accessibility was found to have a positive effect on airline image. This result indicates that if air passengers are satisfied with services related to convenience and accessibility, they are more likely to form a strong image of that airline. In-flight service had a positive effect on airline image. This finding implies that in-flight service is one of the key drivers of forming airline image. Airline image had a significant positive influence on behavioural intentions. This implies that passengers who form a positive overall impression of the image of the airline are more likely to fly the airline again and recommend the airline to others. The analysis also showed that the dimension of convenience and accessibility and the dimension of in-flight service had a positive influence on passengers' behavioural intentions through airline image. This finding suggests that the dimension of convenience and accessibility and the dimension of in-flight service influence passengers' repurchase intention and the intention to recommend the airline to others indirectly, by means of airline image.

Table 5: The Result of Correlation Analysis.

	RC	CA	IS	AI	BI
Reliability and customer service (RC)	1.000				
Convenience and accessibility (CA)	.748*	1.000			
In-flight service (IS)	.648*	.670*	1.000		
Airline image (AI)	.471*	.493*	.506*	1.000	
Behavioural intention (BI)	.507*	.492*	.473*	.727*	1.000

Note: \* Correlation is significant at the 0.01 level (2-tailed)

Although the dimension of reliability and customer service was hypothesised to have a positive influence on airline image, the analysis showed that it was statistically insignificant. The possible explanation is that most international airlines operating from/to Australia have good reliability and provide similar customer services at a high lead. Therefore, there is no airline differentiation on the variables of this dimension. In addition, it is possible that not many passengers have experienced problems such as flight cancellation or baggage loss. If there are few passengers having problems, it may be difficult for most passengers to evaluate some factors such as 'sincere interest in solving problems', 'give passengers personal attention', and 'employees who are willing to help passengers'. These might reflect on passenger surveys and hence results suggested that the dimension of reliability and customer service is not an important driver of forming a favourable image of the airline.

### Marketing implications

This paper provides some practical implications for airline marketing managers. Firstly, it is essential to meet passengers' expectations to improve service quality. The analysis showed that two factors, the dimension of in-flight service and the dimension of convenience and accessibility were significant drivers of airline image, which directly influence passengers' behavioural intentions. Although neither of the two factors had a direct effect on passengers'

Table 6: Goodness of Fit Measures.

Fit Measure	$\chi^2$	GFI	AGFI	TLI	CFI	RMSEA
Value	850.580 (d.f. = 301, p = .000)	0.890	0.862	0.935	0.944	0.061

behavioural intentions, airline marketers should realise that improvements in these two factors would enhance passengers' repurchase intention and their recommendation to other passengers via a favourable airline image. Airline marketers should allocate appropriate resources to the variables involved in these two factors. To do so, airline marketers need to deliver all the promises they make to meet passengers' expectations, because passengers' basic expectations are related to the service that is promised to passengers. In addition, airline marketers should develop strategies to improve service quality such as meeting passengers' desired service levels, improving the quality of in-flight meal, solving service problems effectively, developing convenient reservation and ticketing system, making convenient schedules for passengers, preventing service problems from occurring and so on. These strategies will enhance airline image and will result in keeping existing passengers and enticing passengers from other airlines.

Secondly, this paper has important implications regarding airline image. The analysis showed that airline image had a significant effect on passengers' behavioural intentions. This

indicates that Australian international passengers would respond to strategies that highlight a favourable image in their choice of airlines. Therefore, the inference for airline marketers is to continue to emphasise building a favourable image as a means of improving passengers' repurchase rate and their recommendation to other passengers.

Finally, this paper showed that reliability and customer service is not a significant driver of Australian international passengers' airline image formation. Although the effect of reliability and customer service dimension was not statistically validated in this paper, airline marketers must not overlook this dimension. In particular, reliability is one of the most important requirements of airline operations. The relationship between the dimension of reliability and customer service and airline image was not supported in this paper because it is difficult for passengers to differentiate airlines on this dimension. Most international airlines provide very similar customer service and have good reliability. However, if passengers recognise the difference in this service dimension by receiving inferior customer services and reliability, this might induce the formation of a

Table 7: The Result of Hypotheses Testing.

Relationships	Standardised regression weights	P values	Results
Reliability and customer service dimension - Airline image	0.013	0.882	Not supported
Convenience and accessibility dimension - Airline image	0.287	0.013	Supported
In-flight service dimension - Airline image	0.353	0.000	Supported
Airline image - Behavioural intentions	0.793	0.000	Supported



negative airline image. Therefore, airlines operating from/to Australia should strive to keep a good safety record and on-time performance in order to attract potential passengers.

### Conclusions

This study investigated the relationships between individual dimensions of airline service quality, airline image and passengers' behavioural intentions. Based on the proposed conceptual framework of the linkages between constructs, all hypothesised relationships appeared to be statistically significant except for one causal path. This study disclosed that there were significant relationships between the dimension of convenience and accessibility, the dimension of in-flight service, airline image and passengers' behavioural intentions. These variables were directly or indirectly related to passengers' repurchase intentions and word-of-mouth communications.

Results of this paper imply that airline marketing managers should develop various strategies to guarantee providing quality services to passengers because airline service dimensions were found to have significant and positive influences on airline image and passengers' behavioural intentions. Failure to provide quality services to passengers may damage the formation of airline image and cause negative impact on passengers' behavioural intentions.

There are some limitations and additional research areas of interest remaining for future studies. Firstly, this study has mainly focused on economy class passengers. Compared to economy passengers, not many first class and business class passengers were contacted. The effect of individual service dimensions could be different between first class, business class, and economy class

passengers. Therefore, additional empirical studies could be conducted to see if there are differences in the effect of individual dimension of service quality between cabin classes.

Secondly, this study was limited in the context of airline services for international passengers. Domestic passengers' perception of service quality and behavioural intentions might be different from that of international passengers. Hence, an empirical examination needs to assess how domestic passengers' perception of service quality and behavioural intentions are different from international passengers.

Finally, the formation of airline image and passengers'

behavioural intentions might differ according to demographic features such as gender, income, age, and education level. Thus, future research that includes the analysis of demographic variables with respect to airline service quality, airline image, and passengers' behavioural intentions would be valuable.

### Acknowledgements

The assistance and co-operation of Sydney Airport for permission to conduct the survey of this study is very much appreciated by the authors.

### References

- Alotaibi, K.F. (1992). An empirical investigation of passenger diversity, airline service quality, and passenger satisfaction. Unpublished Ph.D. thesis. Arizona State University, AZ.
- Andreassen, T.W., & Lindestad, B. (1998). Customer loyalty and complex services: The impact of corporate image on quality, customer satisfaction and loyalty for customers with varying degrees of service expertise. *International Journal of Service Industry Management*, 9(1), 7-23.
- Bitner, M.J., & Hubbert, A.R. (1994). Service quality: New directions in theory and practice. In R.T. Rust & R. Oliver (Eds.), *Encounter satisfaction versus overall satisfaction versus quality* (pp. 77). Thousand Oaks, California: Sage Publications.
- Bloemer, J., Ruyter, K., & Pascal, P. (1998). Investigating drivers of bank loyalty: The complex relationship between image, service quality and satisfaction. *International Journal of Bank Marketing*, 16(7), 276-286.
- Carman, J.M. (1990). Consumer perceptions of service quality: An assessment of SERVQUAL dimensions. *Journal of Retailing*, 66(1), 235-255.
- Chang, Y.H., & Yeh, C.H. (2002). A survey analysis of service quality for domestic airlines. *European Journal of Operational Research*, 139(1), 166-177.
- Chen, K.J. (1997). Consumer tolerance zone: Implications on Philippine Airlines domestic service delivery. *Journal of Global Marketing*, 11(2), 93-105.
- Connor, D., & Davidson, J. (1997). *Marketing your consulting and professional services*. New York: John Wiley and Sons.

- Cronin, J.J., & Taylor, S.A. (1992). Measuring service quality: A reexamination and extension. *Journal of Marketing*, 56(3), 55-68.
- Dowling, G.R. (1994). *Corporate reputation*. New York: Longman Publishing.
- Fombrun, C.J., & Shanley, M. (1996). What's in a name? Reputation building and corporate strategy. *Academy of Management Journal*, 33, 210-250.
- Goodman, J. (1989). The nature of customer satisfaction. *Quality Progress*, 22(2), 37-40.
- Gronroos, C. (1984). A service quality model and its marketing implications. *European Journal of Marketing*, 18(4), 36-44.
- Haynes, R., & Percy, J. (1994). Perception paradox: Airline service quality issues. *Proceedings of Decision Sciences Institute 1994 Annual Meeting*, 3, 1950-1952.
- Hoyle, R.H. (1995). *Structural Equation Modelling: Concepts, issues, and applications*. Thousand Oaks, California: Sage Publications.
- Kaynak, E., Kucukemiroglu, O., & Kara, A. (1994). Consumers' perceptions of airlines: A correspondence analysis approach in a global airline industry. *Management International Review*, 34, 235-254.
- Keller, K. (1993). Conceptualizing, measuring, and managing customer based equity. *Journal of Marketing*, 1(1), 1-22.
- Malhotra, N.K., Hall, J., Shaw, M., & Crisp, M. (1996). *Marketing research: An applied orientation*. Sydney: Prentice Hall.
- Marsh, H.W., Balla, J.R., & McDonald, R.P. (1988). Goodness-of-fit indexes in confirmatory factor analysis: The effect of sample size. *Psychological Bulletin*, 103, 391-410.
- Nguyen, N., & LeBlanc, G. (1998). The mediating role of corporate image on customers' retention decisions: An investigation in financial services. *International Journal of Bank Marketing*, 16(2), 52-65.
- Ostrowski, P.L., O'Brien T.V., & Gordon G.L. (1993). Service quality and customer loyalty in the commercial airline industry. *Journal of Travel Research*, 32(2), 16-24.
- Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (1988). SERVQUAL: A multiple-item scale for measuring customer perceptions of service quality. *Journal of Retailing*, 64(1), 12-40.
- Parasuraman, A., Zeithaml, V. A., & Berry, L.L. (1991). Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing*, 67(4), 420-450.
- Patterson, P.G., & Spreng R.W. (1997). Modelling the relationship between perceived value, satisfaction, and repurchase intentions in business-to-business, services context: An empirical examination. *International Journal of Service Industry Management*, 8(5), 414-434.
- Shostack, G.L. (1977). Breaking free from product marketing. *Journal of Marketing*, 41(2), 73-80.
- Sultan, F., & Simpson, M.C. (2000). International service variants: Airline passenger expectations and perceptions of service quality. *Journal of Services Marketing*, 14(3), 188-216.
- Tabachnick, B.G., & Fidell, L.S. (2001). *Using multivariate statistics*. Boston: Allyn and Bacon.
- Tsaur, S.H., Chang T.Y., & Yen, C.H. (2002). The evaluation of airline service quality by fuzzy MCDM. *Tourism Management*, 23, 107-115.
- Zeithaml, V.A., & Bitner, M.J. (1996). *Services marketing*. New York: McGraw-Hill.