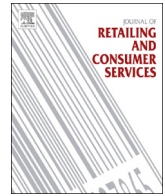




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Similarities and differences in Asian and Western travelers' service performance measurement, evaluation and outcomes

Gregory J. Brush*

Business School, University of Western Australia, Perth, Australia

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ABSTRACT

As service firms look to international markets for growth opportunities, they often encounter consumers who have significantly different expectations and perceptions of service performance. Little is known of the relationships between service performance, price perceptions, satisfaction and behavioral outcomes in diverse cross-cultural consumer segments. Prior work also questions the equivalence in cross-cultural settings of service performance instruments developed in U.S. service environments. Using the international airline industry as the context, an industry-specific service performance instrument is developed and found invariant across Western and Asian settings. The results also reveal both similarities and differences in service performance evaluation and behavior across cultures. This study addresses the need for invariant service performance measures in order to be able to evaluate cross-cultural differences in service performance evaluation effectively; and the importance of service strategy differentiation for diverse cultural groups in international travel settings.

1. Introduction

International tourism services pose special challenges. These often relate to differences in consumer evaluations across nations and cultures, and dissimilar expectations and preferences as to optimal and adequate service encounters (Bolton and Myers, 2003). Service managers need to be cognizant of the parts of the service experience that are open to cultural influences, and be aware of those that remain stable across cultures. However, there are significant gaps in our understanding of the trade-offs between service performance and price in satisfaction assessment, and the role of satisfaction in influencing behavioral intentions across diverse cultures. Cross-cultural tourism research is largely limited to English-speaking countries, and requires a greater focus on cross-cultural issues in emerging markets (Cohen et al., 2014).

It is important also to investigate whether there are differences in how consumers interpret and respond to service performance measures (Li, 2014). Attention to construct, data collection and measure equivalence is critical (Hult et al., 2008). Without evidence of data equivalence, interpretations of cultural differences are problematic, as it is not established that members of different groups are using the same conceptual frame of reference when responding to survey items (Riordan and Vandenberg, 1994). Studies investigating the invariance of service performance and satisfaction measures across national groups

support partial measurement invariance only (e.g., Alden et al., 2010; Laroche et al., 2004). There is some debate as to whether partial metric invariance (where some factor loadings are non-invariant) is adequate (cf. Bollen, 1989; Steenkamp and Baumgartner, 1998). Reliance on partial invariance only is problematic because it can alter the nature of a standardized scale, and is susceptible to capitalization on chance characteristics of the observed samples. Cross-cultural service quality studies frequently overlook many aspects of cross-cultural research methodology (Morales and Ladhari, 2011), and data equivalence issues are not addressed appropriately (Li, 2014).

The major objectives of the study are to explore: (1) whether industry-specific measures of service performance exhibit measurement invariance across Western and Asian consumers; and (2) the existence of similarities and differences in determinants of service performance, satisfaction and behavioral intentions across Western and Asian consumer groups.

2. Literature review

2.1. Ethnic differences in service performance evaluation

The SERVQUAL framework is the most widely accepted instrument for service evaluation (and service expectations) in cross-cultural consumer services research (Zhang et al., 2008). However, applications of

* Correspondence address: Business School, University of Western Australia, M263, 35 Stirling Highway, Crawley, WA 6009, Australia.
E-mail address: greg.brush@uwa.edu.au.

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the SERVQUAL instrument in cross-cultural settings are not always able to confirm the original dimensionality (Ladhari, 2009). Inconsistent findings on the dimensions of service quality highlight the importance of identifying service performance determinants with a culture and industry-specific approach.

For international managers it would be valuable to see the extent to which service performance determinants in the West apply to their businesses in Asia. Despite recent changes in Asian consumer behavior, the Asian cultural context retains important aspects of traditional culture. For example, while there is evidence of a similar rise in individualism in the East and West, in the East, collective values continue to be important in modern society (Hamamura, 2012). Analysis of new data on Hofstede's cultural values shows national ratings across Asian and Western contexts consistent with his original work (e.g., Erdem et al., 2006). The main contrasts between Asian and Western cultures occur in the communication context (Feng, 2014; Kim et al., 1998), individualism and power distance (Hofstede et al., 2010) and time-orientation (Minkov and Hofstede, 2012). When firms operate across multiple markets, service delivery systems need to be congruent with key values in order to maximize customer satisfaction (Liu et al., 2016). For example, in Asia the key ingredient of good service is often personal attention or customization (Dash et al., 2009). Efficiency and time savings are highly valued in the West (Hsieh and Tsai, 2009).

2.2. Measurement invariance in cross-cultural studies

The establishment of measurement invariance, in which the factorial structure is equivalent across groups, is a prerequisite to conducting substantive cross-group comparisons (Vandenberg and Lance, 2000; Yoo, 2002). If not established, violations of measurement equivalence assumptions are as threatening to substantive interpretations as is an inability to demonstrate reliability and validity (Vandenberg and Lance, 2000). When the measures of interest are perceptually based, interpretations of between-group comparisons on non-equivalent measures are highly suspect (Bollen, 1989; Vandenberg and Lance, 2000). Failing to test for invariance raises doubts as to the validity of previous cross-cultural service quality studies, as some service concepts may have different meanings in Asia than they do in the West (Cui et al., 2004). Reliance on the findings of previous service performance measurement invariance studies are subject to a number of caveats because of the use of student samples, an experimental design, a unidimensional measure of service quality, partial measurement invariance for the service performance measures, and use of Western students and business customers only. Studies examining service performance using student samples may be especially problematic in cross-cultural research due to sociodemographic effects and the implications of 'cultural time-out' (Lee, 2000).¹

3. The model and hypothesis development

3.1. Preliminary qualitative phase

Focus groups with Asian and Western airline customers, and in-depth interviews with international airline management and consultants, were used to determine the most important service quality dimensions. From this process, a set of six dimensions were identified to capture the domain of airline industry service performance (timeliness, personal interaction, convenience, comfort, meals, safety and security).² These dimensions are prominent in investigations of airline

service performance. They also provide a comprehensive coverage of the four primary dimensions of service quality: interaction quality (personal interaction), physical environment quality (meals, comfort, and safety and security), outcome quality (timeliness), and access quality (convenience). The Star Alliance customer satisfaction survey incorporates all of the study dimensions with the exception of safety and security perceptions.

3.2. The research model

The consumer's intention to recommend and repatronize the service provider is a function of the consumer's overall satisfaction with the service experience. Overall customer satisfaction derives from the consumer's overall perceived service quality, and satisfaction with the price paid. A consumer's overall service quality with their airline experience derives from their perception of the service provider's performance on the industry-specific service variables. We assume that consumers evaluate various dimensions of service performance to reach their overall judgment of service quality, and the relative influence of these dimensions on overall service quality, price-quality tradeoffs and behavioral intentions can vary across different cultural and national groups. The research model is in Fig. 1.

3.3. Research hypotheses

3.3.1. Antecedents of service quality and Asian-Western differences

3.3.1.1. Timeliness. On-time performance is important in airline service evaluation (Lin and Huang, 2015). In a study of service failures on Swedish and US airlines, delays, cancelled flights and lost, delayed or damaged luggage are the three leading causes of negative critical incidents (Bejou et al., 1996). In Asian cultures, being on time is important and seen as a measure of professionalism, and as a demonstration of sincerity and concern for others (Prideaux, 1998). While both cultures value timely service, their different time orientations result in dissimilar expectations for speed of service delivery, punctuality, and the evaluation of waiting time (Stauss and Mang, 1999). Asian societies generally have a long-term orientation (Minkov and Hofstede, 2012). They regard time as an infinite and enduring resource, and try always to be patient. Western societies often regard time as a finite resource. They are more impatient with time and demand efficiency in service provision (Hsieh and Tsai, 2009). Furrer et al. (2000) conclude that high power distance customers (a cultural characteristic very prevalent in Asia) find reliability and responsiveness less important, a finding supported by Dash et al. (2009).

H1. (a) There is a positive relationship between the timeliness of service provision and consumer perceptions of overall service quality, and (b) this relationship is significantly stronger among Western consumers

3.3.1.2. Personal interaction. Personal interaction and encounter quality are important determinants of airline service performance evaluation (Milioti et al., 2015). Taiwanese tourism service firms providing a greater level of interpersonal engagement in the service encounter obtain higher evaluations of functional service quality (Lin, 2007). Confident, knowledgeable and motivated staff who provide credible, clear and timely information are an important source of customer-perceived quality among Western travelers (Bejou et al., 1996). However, individualistic cultures (common in Western

(footnote continued)

EFA the items loaded on a single factor, and the CFA failed to support discriminant validity in the Asian and Western samples. Wu and Cheng (2013) consider knowledge and helpfulness as reflective sub-dimensions of an interaction quality primary dimension. In previous services study, knowledge and helpfulness attributes are incorporated into a single construct (Liu et al., 2016).

¹ Cultural time-out is observed in young consumers, who often express attitudes and/or exhibit behaviors that differ from those sanctioned by the dominant culture. This temporary shift is found to peak during college years.

² Personal interaction incorporates employee knowledge and helpfulness. In the qualitative research they were distinct but highly related concepts. In the

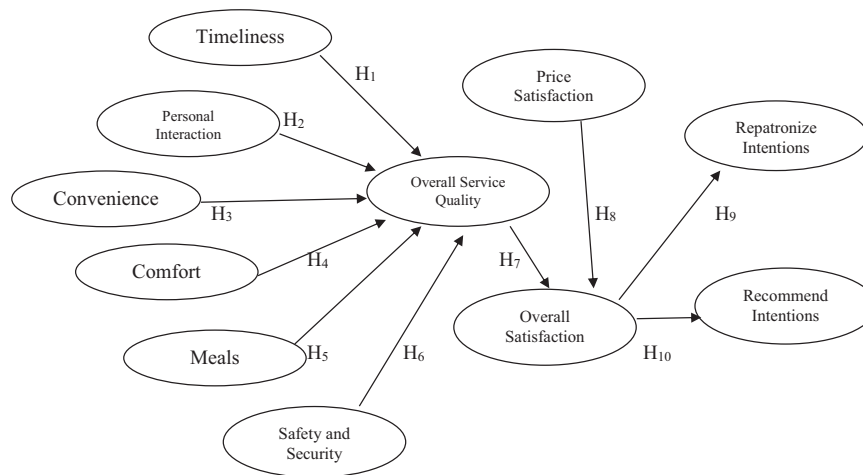


Fig. 1. The research model.

countries) seem less concerned by the physical absence of a service provider (van Birgelen et al., 2002). Similarly, high individualist customers attach lower importance to service provider empathy (Dash et al., 2009; Hsieh and Tsai, 2009). High-context cultures (evident in many Asian nations) place primary emphasis on interpersonal relationships (Kim et al., 1998).

H2. (a) There is a positive relationship between the personal interaction with service staff and consumer perceptions of overall service quality, and (b) this relationship is significantly stronger among Asian consumers

3.3.1.3. Convenience. While timeliness and convenience are distinct dimensions of service performance, much of the discussion to support the hypotheses for timeliness applies here also. Air travel convenience is an important determinant of service performance (Basfirinci and Mitra, 2015). Gursoy et al. (2005), in a study of US airline service quality, found time concerns such as convenience of departure and arrival times, dependability, and the additional travel time and uncertainties regarding making connections, as key dimensions. Customers culturally influenced to view time as a finite resource are likely to be particularly sensitive to service convenience (Berry et al., 2002). Convenience positively influences the airline service quality assessments of Asian consumers; although effect sizes often are lower than other service performance dimensions (Liou and Tzeng, 2007; Wu and Cheng, 2013).

H3. (a) There is a positive relationship between the convenience of service provision and consumer perceptions of overall service quality, and (b) this relationship is significantly stronger among Western consumers

3.3.1.4. Comfort. Western air travelers value on-board physical comfort (Balcombe et al., 2009). Keeping seat pitch (the distance between the back of a seat and that in front) at or close to the legal minimum is a source of complaints and passenger discontent (Quigley et al., 2001). Asian travelers have high expectations for a clean and comfortable aircraft interior and seat (Gilbert and Wong, 2003). They consider tangible attributes such as seat comfort, a clean and pleasant interior, and good cabin equipment conditions important in their analysis of in-flight service performance (Chou et al., 2011). The literature is less clear as to whether culture influences the role of spatial layout and functionality in overall service performance evaluation. Stauss and Mang (1999) argue the higher the context orientation of the customer culture, the more important the role of the physical environment as an indicator of service quality. However, in

the absence of prior investigation of Western-Asian spatial layout and functionality differences, there is insufficient support for a cross-cultural directional hypothesis.

H4. (a) There is a positive relationship between the comfort of the service and consumer perceptions of overall service quality, and (b) there are no significant differences in the strength of this relationship between Asian and Western consumers

3.3.1.5. Meals. Availability and the variety, taste and quality of food are significant influences on customer satisfaction in the tourism industry for Asian and Western consumers (Chou et al., 2011; Poon and Low, 2005). While some primarily American and European airlines have decided to not serve meals on short-haul international flights, often they have subsequently re-introduced free on-board food provision or paid-for catering in economy class as a result of negative passenger perceptions and image (Dennis, 2007). European travelers value the provision of in-flight food and beverages (Balcombe et al., 2009). Food plays a central role in Asian culture, with eating considered an art form by the Chinese and food as one of the joys of life (Lin, 2004). Food quality and variety, and Chinese food culture, are amongst the most frequently mentioned topics by Chinese outbound tourists when discussing the criteria they use to select international long-haul (outside Asia) travel products and services (Li et al., 2011). Furrer et al. (2000) and Dash et al. (2009) report strong positive relationships between power distance and the importance of tangible service elements. Japanese consider in-flight food and beverage quality more important than do North American and European travelers (Gilbert and Wong, 2003).

H5. (a) There is a positive relationship between the quality of in-flight meals and consumer perceptions of overall service quality, and (b) this relationship is significantly stronger among Asian consumers

3.3.1.6. Safety and security. Provision of a safe service environment often is the most important factor in air travel service evaluations of Asian and Western consumers (e.g., Gilbert and Wong, 2003; Min and Min, 2015). Travel risk may be of particular concern for tourists from higher uncertainty-avoidance cultures. They have a lower tolerance for ambiguity (Hofstede et al., 2010), and attach a higher importance to security (Ladhari et al., 2011). Consumers from individualistic countries tend to be dismissive of environmental and technological risks, as giving credence to such risks would invite restrictions on commerce and industry, two aspects of society that they value (Xue et al., 2014). Steenkamp et al. (1999) found individuals higher in collective and uncertainty avoidance characteristics are more risk

adverse and have greater risk perceptions. Higher levels of consumer perceived risk generally results in lower satisfaction (Johnson et al., 2006). Rittichainuwat et al. (2018) found no clear evidence for Asian-Western tourist differences in the role of safety risk perceptions on travel decision making. There is no difference in expectations of, and importance attached to, airline safety across Western and Asian ethnic groups or nationalities (Gilbert and Wong, 2003).

H6. (a) There is a positive relationship between consumer perceptions of the safety and security of the air travel service and perceptions of overall service quality, and (b) there are no significant differences in the strength of this relationship between Asian and Western consumers

3.3.2. Interrelationships between service quality, satisfaction and behavioral intentions

3.3.2.1. Service quality, price perceptions and customer satisfaction. Substantial evidence supports a positive and direct relationship between service quality and satisfaction across multiple cultural groups (e.g., Han and Hwang, 2017; van Birgelen et al., 2002). The service quality – satisfaction relationship is significantly stronger in countries characterized by individualistic cultures (Carrillat et al., 2009; van Birgelen et al., 2002). Consumers from individualistic countries are self-oriented and motivated by self-actualization (Cano et al., 2004). These characteristics intensify their concern about what a particular service does for them, and consequently strengthen the positive effect of service quality on customer satisfaction (Carrillat et al., 2009). For low uncertainty-avoidance cultures, the effect of perceived service quality on customer satisfaction is weaker than it is for higher uncertainty avoidance cultures (Reimann et al., 2008). Consumers from lower uncertainty avoidance cultures (e.g., China, Singapore) consider a greater range of service behaviors to be satisfactory (Reimann et al., 2008). This likely relates to a higher tolerance for ambiguity (Hofstede et al., 2010), a lesser need to minimize service defect potential, greater satisfaction with service recovery strategies (Reimann et al., 2008), and lower importance attached to self-fulfilment, sense of accomplishment and security (Ladhari et al., 2011).

H7. (a) There is a positive relationship between consumer perceptions of overall service quality and their overall satisfaction with the service, and (b) this relationship is significantly stronger among Western consumers

In a Western context, Anderson et al. (1994) emphasize perceived price as an important factor influencing customer satisfaction, and Voss et al. (1998) found price perceptions affect satisfaction in an experimental setting involving a hotel check-in scenario. Pricing is an important influence on customer satisfaction in the Chinese air travel market (Jiang and Zhang, 2016). Chinese outbound tourists are very sensitive to the price-value relationship (Li et al., 2011). For Asian travelers, price is the most important factor in explaining their overall satisfaction with international hotels, and significantly more so than for Western travelers (Poon and Low, 2005). Service performance is a greater influence on satisfaction judgements for US customers than are price perceptions (Voss et al., 1998). In a study of Hong Kong hotels, Asian travelers' overall satisfaction derives primarily from the value (for money), whereas room quality is the key influence for Western travelers (Choi and Chu, 2000).

H8. (a) There is a positive relationship between consumer perceptions of price satisfaction and their overall satisfaction with the service, and (b) this relationship is significantly stronger among Asian consumers

3.3.2.2. Customer satisfaction and behavioral intentions. More favorable behavioral intentions are linked to increased levels of satisfaction (Blut et al., 2015; Carrillat et al., 2009), and this relationship is evident in both Asian and Western contexts (e.g., Dabholkar et al., 2000; Hui

et al., 2007; Su et al., 2016). Cultural differences influence behavioral norms (e.g., Markoczy, 2000). In cultures with a long-term orientation, typical of many Asian cultures, long-term relationships with service providers are expected. Accordingly, Asian consumers' intentions to repatronize may be less affected by their level of satisfaction with a specific service encounter. However, the cross-country empirical evidence is inconsistent as to the effect of consumer culture and origin on the satisfaction – intention to repatronize relationship in tourism settings. In a study of Western and Asian travelers' perceptions of Hong Kong as a tourist destination, Western travelers are more satisfied with the experience, yet also indicate they are less likely to return (Hsu and Kang, 2003). The online travel service behavior of young Korean and British consumers shows no significant differences in the strength of the relationship (Ha et al., 2010).

H9. (a) There is a positive relationship between overall satisfaction with the service and consumer intentions to repatronize the service, and (b) there are no significant differences in the strength of this relationship between Asian and Western consumers

Word-of-mouth (WOM) is a consequence of customer satisfaction (Han and Hwang, 2017). Personal networks and WOM are important sources of information in a Chinese context (Cui et al., 2004). Chinese consumers are more likely than American consumers to search for, and rely on, personal sources of information (Doran, 2002), and use them to a greater extent in travel decision making (Kambele et al., 2015). However, in individualist cultures, people are encouraged to express private opinions and are likely to be more willing to provide information and recommendations (Lam et al., 2009). In Asian culture in-group/out-group differences may limit the perceived appropriateness of personal communication (Alden et al., 2010). Fong and Burton (2008) offer empirical support for a conclusion that Western consumers provide greater WOM. In a study of Canadian and Chinese attitudes towards marketing, Canadian consumers engage in greater levels of WOM than do Chinese, at a similar experienced level of satisfaction (Cui et al., 2008). Hui et al. (2007) found a stronger relationship between overall satisfaction and likelihood of recommendation of Singapore as a destination for Western tourists, than the relationship found in their Asian sample.

H10. (a) There is a positive relationship between overall satisfaction with the service and consumer intentions to recommend the service, and (b) this relationship is significantly stronger among Western consumers

4. Research design and method

4.1. The study context

This study considers international air travel service performance in the Asia-Pacific region. Worldwide, commercial airlines' passenger revenue was \$502 billion in 2016, with Asia-Pacific carriers accounting for a third of global passenger traffic (IATA, 2017). The Asia-Pacific region is a significant provider of international outbound travelers. China leads the world in outbound travel expenditure. In 2016, China accounted for 21.4% of global tourism expenditure (the United States ranks second with 10.1%). South Korea, Australia and Hong Kong also rank in the top ten by expenditure (UNWTO, 2017). Airlines provide a mix of tangible and intangible value added benefits. Service performance in the airline industry is multifaceted, and involves a range of consumer expectations, both cognitive and emotional.

4.2. Development of study measures

Perceptual measures of service performance are used. A number of the items, or closely related variants, have been used previously in both Western and Asian service contexts. Studies investigating service

quality, customer satisfaction and behavioral intentions use both single-item and multi-items measures of these constructs (cf. Dabholkar et al., 2000; Mattila, 1999). Single-item indicator performance is equivalent to the performance of the multi-item scale for very high reliability levels and inter-item correlations (Diamantopoulos et al., 2012). This is evident in highly cited multi-item measures of overall service quality (e.g., Dabholkar et al., 2000; Taylor and Baker, 1994), satisfaction (e.g., Dabholkar et al., 2000; Gremler and Gwinner, 2000; Taylor and Baker, 1994), repurchase intentions (e.g., Taylor and Baker, 1994; Zeithaml et al., 1996), and intentions to recommend (e.g., Gremler and Gwinner, 2000). Survey items were pre-tested extensively with Asian and Western consumers and airline representatives. A full list of measures and their sources is provided in Appendix A.

4.3. Data collection and study group breakdown

The data come from a survey of international airline passengers conducted at a New Zealand international airport over multiple time periods. The questionnaire was distributed to departing passengers of several major airlines. They were required to be eighteen years and above and had travelled on an international flight within the last six months. Research assistants were instructed to approach every fifth individual arriving in the international departure hall. To aid recall, respondents were asked to relate their experiences with their last international flight.

Of the 750 questionnaires distributed, 488 returned the survey (65%). The final sample consists of 405 responses, 212 Western (primarily New Zealanders and Australians; also North Americans and Europeans) and 193 Asian (predominately Chinese, Singaporean, Malaysian, Thai and Hong Kongers); after eliminating questionnaires with missing data (83). For each sample, non-response bias is assessed, suggesting that no statistically significant differences ($p > .05$ in all cases) are found between respondents and non-respondents on several demographics. Table 1 presents a breakdown of the sample on key demographics and usage characteristics.

4.4. Preliminary measurement development and estimation

Exploratory factor analysis (EFA) was conducted in order to provide a preliminary examination of whether the items measure separate constructs. Six service performance factors were extracted from the data, with the knowledge and helpfulness items loading on the same factor. Consequently, these two dimensions are combined in the structural model analysis and labeled as 'personal interaction'. Separate confirmatory factor analyses (CFA) were estimated to assess the reliability and validity of the constructs in the model. These initial tests resulted in two items being deleted from the timeliness factor, and one item from the comfort factor. All factor loadings are statistically significant ($p < .01$). The reliability and average variance extracted (AVE) for each construct in both samples is over 0.70 and 0.50 respectively (see the Appendix for all reliability and AVE results). Discriminant validity tests were conducted. In both samples AVE is higher than the squared correlation between that construct and any other construct in the model. Table 2 provides the correlation matrix and descriptive statistics for both samples (Western sample results are above the diagonal).

Respondents were asked to report on their service performance perceptions, and attitudinal and behavioral responses. These correlations may be inflated by systematic error variance shared among the variables resulting from the use of the same measurement method. This is known as common method variance (CMV) bias. Harman's single factor test for CMV was conducted. Multiple factors were found in the EFA for both samples and the first factor did not account for the majority of variance. A CFA showed that a single-factor model for the service performance dimensions did not fit the data well in either sample (Western Sample: $\chi^2_{(493)} = 4530.08$; CFI = 0.41, IFI = 0.41;

Table 1
Sample characteristics.

	Western sample No. (%)	Asian sample No. (%)
Age		
18–29	86 (40.6)	133 (68.9)
30–39	29 (13.7)	26 (13.5)
40–49	39 (18.4)	22 (11.4)
50–59	29 (13.7)	10 (5.2)
60–69	18 (8.5)	2 (1.0)
70+	11 (5.2)	0 (0.0)
Sample Differences $\chi^2_{(5)} = 47.26$, $p < .01$		
Gender		
Male	100 (47.2)	89 (46.1)
Female	112 (52.8)	104 (53.9)
Sample Differences $\chi^2_{(1)} = 0.05$, $p > .80$		
Income (\$US)		
0–19999	66 (31.6)	124 (64.2)
20,000–29,999	33 (15.8)	16 (8.3)
30,000–39,999	23 (11.0)	13 (6.7)
40,000–49,999	22 (10.5)	6 (3.1)
50,000–59,999	18 (8.6)	12 (6.2)
60,000+	47 (22.5)	22 (11.4)
Sample Differences $\chi^2_{(5)} = 45.22$, $p < .01$		
Travel Experience^a		
1–2	110 (51.9)	136 (70.5)
3–5	56 (26.4)	39 (20.2)
6+	46 (21.7)	18 (9.3)
Sample Differences $\chi^2_{(2)} = 17.19$, $p < .01$		
Purpose of Visit		
Business	23 (10.8)	26 (13.6)
Pleasure	127 (59.9)	63 (33.8)
Study	15 (7.1)	38 (19.8)
Family	39 (18.4)	62 (32.3)
Other	8 (3.8)	3 (1.5)
Sample Differences $\chi^2_{(3)} = 36.44$, $p < .01$		

^a Measured by how many times the respondent travels internationally by air per year.

Asian Sample: $\chi^2_{(493)} = 4403.60$; CFI = 0.50, IFI = 0.50). The smallest observed correlation among the model variables offers a proxy for CMV bias. The values of 0.18 (Asian sample) and 0.04 (Western sample) are the smallest squared correlations between the model variables, indicating common method bias is not a problem.

4.5. Data equivalence

Hult et al. (2008) propose that three areas of data equivalence require attention in cross-cultural research: construct equivalence, data collection equivalence and measurement equivalence.

Construct equivalence is addressed through the use of focus groups with consumers of both cultures to understand how service performance is defined in international air travel. Existing scales are used for the service performance measures, and these have been previously validated in both cultures.³ They were pre-tested with Western and Asian consumers. The individual service dimensions encompass the five dimensions of SERVQUAL. These are adapted and expanded to better represent the airline industry context. Only positive worded items are used, given problems with mixed-worded scales in cross-cultural applications (Wong et al., 2003).

Data collection equivalence is addressed through using the same questionnaire, survey instructions, data collection techniques, interviewers and timing of collection with both sample groups. The pre-testing process focused on procedures that could increase cross-cultural

³ The measurement scales were found previously to be reliable in a single-population context only. The invariance requirements for covariance testing in multi-group analysis require a stronger test, in that the factor loadings are invariant across populations (metric invariance). This test can be undertaken only in a multi-group study.

Table 2
Descriptive statistics and correlation matrix of latent variables.

Construct	1	2	3	4	5	6	7	8	9	10	11
1. Timeliness	1.00	0.399	0.340	0.534	0.343	0.488	0.459	0.332	0.481	0.408	0.456
2. Personal Interaction	0.520	1.00	0.471	0.438	0.325	0.563	0.589	0.250	0.568	0.456	0.526
3. Convenience	0.508	0.588	1.00	0.329	0.249	0.524	0.432	0.189	0.457	0.370	0.409
4. Comfort	0.625	0.597	0.519	1.00	0.510	0.431	0.404	0.274	0.400	0.310	0.384
5. Meals	0.502	0.560	0.464	0.631	1.00	0.344	0.339	0.204	0.382	0.262	0.324
6. Safety and Security	0.606	0.732	0.507	0.684	0.523	1.00	0.683	0.322	0.588	0.598	0.607
7. Overall Service Quality	0.420	0.652	0.479	0.490	0.531	0.661	1.00	0.312	0.706	0.654	0.704
8. Price Satisfaction	0.483	0.582	0.442	0.577	0.558	0.570	0.562	1.00	0.410	0.437	0.473
9. Overall Satisfaction	0.484	0.658	0.523	0.556	0.530	0.637	0.671	0.723	1.00	0.684	0.799
10. Repatronize Intentions	0.395	0.543	0.462	0.425	0.436	0.503	0.643	0.645	0.710	1.00	0.807
11. Recommend Intentions	0.478	0.562	0.489	0.545	0.524	0.538	0.630	0.766	0.723	0.853	1.00
Mean (Asia)	3.48	3.74	3.61	3.29	3.34	3.84	3.61	3.30	3.41	3.60	3.52
Standard Deviation (Asia)	0.835	0.802	0.832	0.873	0.951	0.775	0.860	1.08	0.976	1.07	1.10
Mean (Western)	3.53	3.81	3.71	3.14	3.16	3.97	3.82	3.62	3.73	4.01	3.85
Standard Deviation (Western)	0.788	0.725	0.828	0.905	1.09	0.661	0.852	0.992	0.887	0.871	0.872

invariance in responses, including developing easily understandable and relevant instructions and questions. Interviewers fluent in English and at least one major Asian language were used to collect the data, and response rates are high. There are, however, some evident differences in the demographics across the two samples. This can be an important source of invariance failure (e.g., Yoo, 2002). Socio-demographics influence service performance perceptions and evaluation, and behavioral outcomes (e.g., Balcombe et al., 2009). Consequently, tests for statistical differences in the demographic composition of the two samples were conducted (see Table 1). Significant differences ($p < .01$) are found for age, income, purpose of visit and travel experience. ANOVA tests were conducted for each sample to examine the variance explained in each of the study constructs by age, income, purpose of visit and travel experience. In the Western sample, of the forty-eight ANOVA tests only two are significant at $p < .05$ (the effects of travel experience on convenience and comfort perceptions). Results from the Asian sample ANOVA tests also produce only two significant results (the

Table 3
Tests of measurement equivalence for service performance dimensions.

Variable/Model	df	χ^2	SRMSR	TLI	CFI	Δ df	$\Delta \chi^2$	Δ CFI
<i>Timeliness</i>								
Model 1	15	28.41	0.048	0.98	0.99	-	-	-
Model 2	10	95.98	0.034	0.84	0.92	-	-	-
Model 3	14	99.75	0.053	0.88	0.92	4	3.77	0.00
Model 4	15	100.18	0.069	0.89	0.92	1	0.43	0.00
<i>Personal Interaction</i>								
Model 1	36	597.96	0.204	0.84	0.90	-	-	-
Model 2	38	290.20	0.050	0.93	0.95	-	-	-
Model 3	44	317.44	0.103	0.92	0.93	6	27.24	0.02
Model 4	47	346.79	0.141	0.91	0.93	3	29.36	0.00
<i>Convenience</i>								
Model 1	6	34.35	0.057	0.94	0.94	-	-	-
Model 2	16	28.49	0.043	0.98	0.99	-	-	-
Model 3	18	45.64	0.056	0.97	0.98	2	17.16	0.01
Model 4	22	50.82	0.076	0.97	0.98	2	2.17	0.00
<i>Comfort</i>								
Model 1	21	66.65	0.041	0.97	0.98	-	-	-
Model 2	16	211.31	0.081	0.82	0.90	-	-	-
Model 3	21	215.41	0.086	0.86	0.90	5	4.10	0.00
Model 4	22	215.50	0.091	0.87	0.90	1	0.09	0.00
<i>Meals</i>								
Model 1	15	26.63	0.027	0.99	1.00	-	-	-
Model 2	10	117.37	0.061	0.91	0.96	-	-	-
Model 3	14	119.10	0.055	0.94	0.96	4	1.73	0.00
Model 4	15	119.16	0.058	0.94	0.96	1	0.06	0.00
<i>Safety and Security</i>								
Model 1	21	55.85	0.066	0.96	0.97	-	-	-
Model 2	16	84.87	0.072	0.91	0.95	-	-	-
Model 3	21	90.31	0.081	0.93	0.95	5	5.44	0.00
Model 4	22	92.09	0.110	0.93	0.95	1	1.78	0.00

effects of age on timeliness and safety and security). While the two samples differ on some demographics and in usage patterns, the ANOVA test results indicate negligible effects on the study constructs across both samples.

Measurement equivalence is examined through a four step procedure (Morales and Ladhari, 2011; Steenkamp and Baumgartner, 1998; Vandenberg and Lance, 2000). The four measurement equivalence tests in the order performed are:

1. An omnibus test of the equality of covariance matrices across the Asian and Western samples, that is a test of the null hypothesis of invariant covariance matrices ($\Sigma^A = \Sigma^W$).
2. A test of configural invariance, which is a test of a weak factorial invariance null hypothesis. In this test the same pattern of factor loadings is specified for each group.
3. A test of metric invariance, which is a test of a strong factorial invariance null hypothesis that factor loadings for like items are invariant across groups ($\Lambda^A = \Lambda^W$).
4. A test of factor variance invariance, which is a test of a strict factorial invariance null hypothesis that factor variances are invariant across groups ($\Phi^A = \Phi^W$)

The test for equality of covariance matrices (Model 1) examines whether the measures are invariant overall. The latter three tests establish whether there is a conceptual equivalence of measures (Model 2), equivalent calibration of measures to constructs across groups (Model 3), and whether population differences in the covariance structures for the measured variables can be attributed to the common factors rather than to other unknown influences (Model 4).

Congeneric one-factor models were specified for Timeliness, Comfort, Meals, and Safety and Security. A two-factor CFA is specified for Personal Interaction (knowledge and helpfulness) and to test for configural invariance and factor variance invariance for Convenience, as this factor had three items only.⁴ Table 3 provides the results.

In order to assess the differences between a more restricted model (e.g., Model 3 metric invariance test for equality of factor loadings) and a less restricted model (e.g., Model 2 configural invariance test for equivalent pattern of factor loadings) a chi-square difference test is used. However, a statistically significant chi-square value can occur even though there are only minor differences between the groups' factor patterns (Vandenberg and Lance, 2000). The chi-square test of

⁴The two-factor CFA tests for Convenience include the Knowledge sub-dimension items to permit identification. A separate analysis for metric invariance was examined for Convenience (see Table 3). The combined test for factor variance invariance was examined against a joint test of metric invariance ($\chi^2_{(20)} = 48.65, p < .01$).

Table 4
Hypothesis test results.

Hypothesized Relationship	Standardized Estimates		$\Delta\chi^2$	Hypothesis Supported	Western vs. Asian
	Western Sample	Asian Sample			
H ₁ Timeliness → Overall Service Quality	0.10*	-.15**	5.81**	Partial	W > A
H ₂ Personal Interaction → Overall Service Quality	0.28***	0.24**	0.13	Partial	W = A
H ₃ Convenience → Overall Service Quality	-0.01	0.15*	1.99	Partial	W = A
H ₄ Comfort → Overall Service Quality	#	#		No	
H ₅ Meals → Overall Service Quality	0.02	0.19***	3.4*	Partial	A > W
H ₆ Safety and Security → Overall Service Quality	0.50***	0.41***	0.5	Yes	W = A
H ₇ Overall Service Quality → Satisfaction	0.77***	0.49***	12.44***	Yes	W > A
H ₈ Price → Satisfaction	0.26***	0.58***	16.18***	Yes	A > W
H ₉ Satisfaction → Intentions to Repatronize	0.72***	0.75***	0.12	Yes	W = A
H ₁₀ Satisfaction → Intentions to Recommend	0.83***	0.78***	0.70	Partial	W = A

* $p < .10$.

** $p < .05$.

*** $p < .01$.

Insignificant in initial model and trimmed from final model.

model fit should be examined in conjunction with other practical fit indices (e.g., Bollen, 1989). The standardized root mean squared residual (SRMSR), Tucker-Lewis Index (TLI) and comparative fit index (CFI) are used (Steenkamp and Baumgartner, 1998; Vandenberg and Lance, 2000). The tenability of the more restrictive model is determined by examining whether there is a significant worsening of fit relative to the less restrictive model. Monte Carlo simulation studies examine the sensitivity of goodness of fit indexes to lack of measurement invariance. Changes in CFI between models of 0.01 or less, or RMSEA of 0.015 or less (Chen, 2007), indicate the invariance hypothesis should not be rejected. The chi-square difference tests between the configural and metric invariance models for all service performance dimensions, with the exception of convenience and personal interaction, are insignificant at $p > .10$. The Δ CFI for convenience is 0.01 and Δ RMSEA for personal interaction is 0.014. This supports full metric invariance across the Western and Asian samples for all service performance dimensions. Full factor variance invariance also is supported.

5. Results and discussion

5.1. Hypothesis test results

The conceptual research model is estimated using a multi-group structural equation model. One of the paths, Comfort → Overall Service Quality, was insignificant for both groups. A trimmed model was estimated without this path. The results also indicated that the equation errors of repatronize and recommendation intentions are correlated. This can be the case when a common cause of two variables is not included in a model. As there are many potential causes common to both behavioral intentions (e.g., emotions and CSR, Su et al., 2014) they are allowed to correlate in the model ($\psi_W = 0.23$, $p < .01$; $\psi_A = 0.33$, $p < .01$). Results are in Table 4.

Increasing model complexity and number of factors contribute to a downward bias of descriptive fit statistics (Sharma et al., 2005). Following Bollen (1989), for diagnostic purposes we rely on the more robust incremental fit (IFI) and comparative fit (CFI) indices. Although the chi-square test is significant, overall fit measures suggest the trimmed model provides a reasonable fit to the data ($\chi^2_{(50)} = 318.78$, $p < .01$; CFI = 0.89, IFI = 0.89). The squared multiple correlations for overall service quality for the Western (0.62) and Asian sample (0.58) provide support for the importance of these service performance dimensions in both cultures. The majority of the relationships are significant.⁵

⁵ With a large number of factors and sample size approximately 200 in each group, it is recommended that cutoff values less than 0.90 should be used

Prior to testing the difference hypotheses it was investigated whether full structural invariance could be supported. A structural model in which all hypothesized effects are constrained to be invariant across the samples was estimated ($\chi^2_{(59)} = 351.46$, $p < .01$). The chi-square difference for the unconstrained and constrained structural models indicates that full structural invariance cannot be supported ($\Delta\chi^2_{(9)} = 32.68$, $p < .01$). Consequently, hypotheses are tested by constraining the focal effect to be invariant across samples, and then performing a chi-square difference test on the values obtained for the constrained and unconstrained models.

There is homogeneity and heterogeneity in the effects of the service performance determinants across samples. Western air travelers indicate that timeliness, personal interaction, and safety and security are significant determinants of their overall service quality evaluations. Asian air travelers indicate personal interaction, convenience, meals, and safety and security are significant in their assessment of overall service quality. For both samples, 'safety and security' has the greatest influence on overall service quality. The samples differ significantly on the importance each attaches to timeliness and meals. The Western sample consider timeliness an important determinant of overall service quality. For Asian travelers timeliness has a small but significant negative effect on overall service quality. The timeliness construct focuses predominantly on speed of service delivery. Asian consumers may consider speed of delivery impacts their service quality negatively, as it can limit their ability to develop relationships, receive personalized attention or customization.

Hypotheses seven and eight examine the effects of overall service quality and price on customer satisfaction. While these relationships are significant for both groups, Western travelers place significantly greater importance on service quality, and Asian travelers greater importance on price, in their evaluations of customer satisfaction. Finally, hypotheses nine and ten investigate the effect of customer satisfaction on intentions to repatronize the airline and to recommend the airline. In both samples the effects were positive, large and significant. No significant differences are found between the groups.

5.2. Theoretical contribution

This study addresses calls for cross-cultural tourism research to investigate emerging markets and non-English speaking countries; and data equivalence issues (Cohen et al., 2014; Li, 2014). The study does not analyze yet another student sample and so permits added confidence that age-, income- and experience-related biases do not

(footnote continued)
(Sharma et al., 2005).

influence the findings. An empirical test for socio-demographic differences is undertaken to exclude these as potential reasons for substantive sample differences. The study takes an Asia-Pacific focus, deviating from the concentration on the United States and Europe.⁶ Study of predominantly non-American Western settings is relevant as Wong (2004) highlights that the response patterns relating to service recovery perceptions of Australians are more similar to those of Singaporeans than of Americans. A set of service performance measurement items is validated in a cross-cultural context, finding support for full measurement invariance. These dimensions are common to many service encounters and could form the basis for item generation in similar settings. The findings suggest the advantage of industry-specific measures in cross-cultural studies over the more generic and potentially ambiguous SERVQUAL and SERVPERF measures. The study also provides direct empirical evidence of significant similarities and differences in cross-cultural service performance evaluation and price/quality trade-offs in satisfaction assessment.

5.3. Implications for management

The existence of both homogeneity and heterogeneity in the determinants of overall service quality, indicates tentatively that there is both a global market for some dimensions of service performance (e.g., safety and security, personal interaction), and a need for customization of others (e.g., timeliness, meals). In this study, it is evident that some service quality dimensions may be hygiene factors: comfort in both samples, convenience and meals in the Western sample. United Airlines at one time focused on its meals service as an opportunity to differentiate its offering. However, many US and European airlines are downgrading their food and beverage services, especially for short-haul international flights. The findings provide support for recent moves by Boeing and some other carriers to reduce plane bathroom size, with resulting effects on passenger comfort, in order to accommodate extra seats. British Airways also is planning to introduce non-reclining seats on its short-haul international flights; a first for a non-US legacy carrier. The non-significant effect of convenience in the Western sample may be due to many Australian and New Zealand respondents focusing on a short-haul trans-Tasman flight that is a direct – approximately three hour – flight between major cities in each country. The role of comfort in service performance assessment could be affected by the duration of the flight; passenger comfort being more important on long-haul flights. Other travelers also may significantly influence passenger comfort. Attribution theory suggests that impacts arising as a result of other passenger actions may not be ascribed to the service provider. Hence, comfort evaluations may have a weak link with overall service provider quality perceptions. The findings indicate that personal interaction is an important element of service performance for both Asian and Western travelers, and equally valued in overall service quality evaluation. The speed of service delivery may in fact be received negatively by some Asian customers, although is a positive and significant factor in Western evaluations. Western and Asian travelers' expectations of airline timeliness may differ significantly. Asian airlines dominate the lists of the poorest international carriers for on-time performance. The importance of timeliness to Western travelers is perhaps behind Delta's recently introduced RFID (GPS) luggage tracking and industry-first baggage tracking mobile application. Western consumers consider service quality more important than do Asian consumers in evaluations of overall satisfaction. The converse effect is found for the effect of price on satisfaction. This has implications for cross-cultural pricing and service delivery strategies. The airline industry is moving towards individualized pricing using data such as postal codes and other personal

attributes known from frequent flyer programs, rather than pricing based on demand for a particular flight. The success of limited service budget airlines in Asia is also evident.

In light of these findings a key question is whether international airlines should adjust their services to cater simultaneously to diverse customer segments that often have specific service needs, and if so how should this be achieved. The level of variability in customer service processes and resulting business models in the airline industry often is a strategic decision (Wirtz and Zeithaml, 2018). Some airlines (e.g., Singapore Airlines) focus on service excellence across diverse groups, while others (e.g., JetBlue) tailor a single solution with highly structured processes and a few clear options to meet the exact needs of a specific segment. There are cost implications for providing greater options, flexibility, customization and added features and products if airlines target diverse customer segments. However, Asian and Western airline customers are willing to make price-service trade-offs and pay for some additional services (Balcombe et al., 2009; Chen and Wu, 2009). Singapore Airlines provide their best and newest inflight products on the most competitive routes and tier customers in order to prioritize service provision. Many low-cost options are available to meet the service quality needs of diverse customer groups without impacting negatively on other groups. Asian and Western style meal choices and use of multicultural and multilingual crew are common on Western airlines servicing Asian locations. Little innovation is evident in in-flight meal packaging and presentation. Sensory perceptions of food and beverage quality (e.g., flavor intensity) and quantity could be enhanced through greater attention to the shape and color of food containers and beverage glasses (Chandon and Ordabayeva, 2009; Piqueras-Fiszman et al., 2012). Convenience is enhanced through strategic alliances and code-share agreements.

Diverse customer groups have differing needs and this requires a high level of employee skill. This necessitates contextual ambidexterity, where individual level behavior is shaped by context, and employees are extensively trained and encouraged to exercise their own judgment in dealing with conflicting demands. Singapore Airlines training focuses explicitly on when to emphasize service excellence or cost-effectiveness (Wirtz and Zeithaml, 2018).

Asian travelers may be willing to trade off timeliness (e.g., a faster check-in) for other priorities. Asian tourists often are reluctant to utilize self-service technologies (SSTs) such as check-in kiosks in preference for interacting with service staff (Oh et al., 2013). Airlines targeting a diverse customer base should consider providing a variety of service delivery channels, including those that encourage social interaction between employees and travelers.

5.4. Limitations and directions for future research

The empirical tests in this study are limited to a single service context, so caution must be applied in generalizing the findings. The study is not representative of all Asian or Western countries as it takes a predominantly Asia-Pacific regional focus. Although cultural differences exist among Asian nations, following Mattila (1999) and others, this study grouped airline customers from a number of Asian ethnic backgrounds including China, Singapore, Malaysia, Thailand and Hong Kong. These societies often share common values resulting from the influence of Confucian philosophy, and conformity to traditional values has been maintained despite recent modernization and growing exposure to Western values and culture. While there is support for a greater tendency to display certain characteristics in some ethnic groups, the degree to which individuals exemplify these qualities falls within a spectrum rather than being categorized in an either-or manner. Direct measures of key cultural dimensions could be used in future studies. However, the use of cultural values only as the basis for group discrimination, could limit the ability of managers to segment the travel market. This arises from difficulty in the identification of an individual's cultural values. A middle ground may be more appropriate, where

⁶ The Western sample was dominated by New Zealanders (n = 134) and Australians (n = 47). Americans and Europeans were minority contributors, with twenty-four and seven respondents respectively.

individual cultural value data is collected as a consistency check for cultural attributions. Erdem et al. (2006) provide a modified version of Hofstede's key dimensions suitable for application to general consumer contexts. In practical applications, onomastics (name analysis) has potential as a reliable and efficient means of describing the cultural origin of individuals.

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Appendix A. Scale Items and Reliability Estimates

Timeliness (Cunningham et al., 2004; Ostrowski et al., 1993)

1. The ticketing process is quick and reliable*
2. The flights are always punctual (i.e. on-time departure and arrivals)
3. The baggage arrived with me on my flight*
4. The speed of the ticket reservation service is quick
5. The check-in procedure is quick^R
6. The queues are not overly long
7. The baggage claim service is quick

Western Sample $r_c = 0.88$, $\alpha = 0.82$, $AVE = 0.59$; Asian Sample $r_c = 0.91$, $\alpha = 0.87$, $AVE = 0.68$

Personal Interaction (Comm, 1993; Gilbert and Wong, 2003; Sultan and Simpson, 2000)

Knowledge

1. Airline employees are able to understand your specific needs
2. Airline employees are able to transmit a high degree of trust^R
3. Airline employees display a high level of knowledge when responding to passengers' questions

Helpfulness

4. The air stewards/stewardesses are friendly, courteous and professional
5. Airline employees are willing to attend to your needs at all times
6. Airline employees always try their best to solve your problems
7. Airline employees are courteous and kind^R
8. Airline employees are able to provide you with individualized attention

Western Sample $r_c = 0.96$, $\alpha = 0.92$, $AVE = 0.73$; Asian Sample $r_c = 0.97$, $\alpha = 0.94$, $AVE = 0.81$

Convenience (Cunningham et al., 2004)

1. The airline provides a convenient flight schedule for departure and arrival
2. The airline provides sufficient flight frequency
3. The airline provides convenient connecting flights^R

Western Sample $r_c = 0.90$, $\alpha = 0.77$, $AVE = 0.74$; Asian Sample $r_c = 0.84$, $\alpha = 0.78$, $AVE = 0.64$

Comfort (Cunningham et al., 2004; JD Power & Associates, 1993; Ostrowski et al., 1993)

1. The aircraft has comfortable seats
2. There is adequate leg and knee room
3. There is adequate arm and shoulder room
4. There is enough hand luggage space in the closed overhead compartment
5. There is enough hand luggage space under the seats
6. There is enough room in the aisles^R
7. The aircraft's engine is quiet*

Western Sample $r_c = 0.95$, $\alpha = 0.90$, $AVE = 0.77$; Asian Sample $r_c = 0.97$, $\alpha = 0.92$, $AVE = 0.83$

Meals (Cunningham et al., 2004; Gilbert and Wong, 2003; Ostrowski et al., 1993)

1. The quality of in-flight meals is high^R
2. The in-flight meals look appetizing
3. The in-flight meals taste good
4. The amount of food served is adequate
5. The variety of food and beverage on the menu is adequate

Western Sample $r_c = 0.96$, $\alpha = 0.94$, $AVE = 0.82$; Asian Sample $r_c = 0.95$, $\alpha = 0.93$, $AVE = 0.79$

Safety and Security (Comm, 1993; Gilbert and Wong, 2003; Sultan and Simpson, 2000)

1. The security check before boarding the airplane is reliable
2. The aircraft looks modern
3. The aircraft is clean
4. There is clear identification of the aircraft's emergency equipment
5. There is clear communication of the security procedures^R
6. The safety reputation of this airline is good

Western Sample $r_c = 0.92$, $\alpha = 0.81$, $AVE = 0.67$; Asian Sample $r_c = 0.95$, $\alpha = 0.89$, $AVE = 0.75$

Overall Service Quality (Dabholkar et al., 2000)

1. The overall service quality provided by this airline is excellent

Price Satisfaction (Matzler et al., 2006)

1. I am highly satisfied with the price I paid for this flight

Overall Satisfaction (Cunningham et al., 2004)

1. I am highly satisfied with this airline

Intention to Repatronize (Dabholkar et al., 2000)

1. I would travel with this airline again

Intention to Recommend (Dabholkar et al., 2000)

1. I would recommend this airline to others

Items scored on 5-point scales ranging from “Strongly Disagree” to “Strongly Agree”.

* Item was deleted based on measurement scale refinement procedure.

^R Reference item – factor loading fixed to unity in both samples to define the scale.^{r_c} The composite scale reliability; AVE = Average variance extracted.**References**

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Gregory J. Brush is an Associate Professor of Marketing at the University of Western Australia Business School. His research interests focus on services, customer value, relationship development, cross-cultural and measurement issues. He has published in the *Journal of Business Research*, *Psychology and Marketing* and the *Journal of International Marketing*, and is currently on the Editorial Review Board of *Industrial Marketing Management*.