

# Physical Environments as the Determinants of Passenger Delight at Airport. A SEM Approach

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## Abstract

In tourism development, the impact of demand for air transport by travellers affects new forms of tourism and new destinations. The airport is a consistent growth segment in the industry of travel and transportation. This paper aims to examine the relationship of airport physical environment elements and passengers' delight. Studies on the physical environment impact on passengers' delight are limited, especially in the context of international airports. Data were collected at Kota Kinabalu International Airport (KKIA), and 400 sets of questionnaires were distributed, out of which, 385 were completed and used for analysis. The data were analyzed using SPSS and AMOS statistical software. Throughout the study, it has been identified that airport's ambiance & aesthetics and cleanliness elements of the physical environment in an international airport influences passengers' delight. The implications of physical environment elements were discussed in detail. Overall, the findings of this study contributed to the broader literature, and it can be further replicated in other fields of study for future research.

**Keywords:** Physical Environment, Passengers' Delight, International Airports, SEM-AMOS

## Introduction

Abundant travellers are now traveling through the air, and the aviation industry has contributed to international tourism's booming. Tourists are seen taking long-haul and short haul trips for movements within countries using air transport to travel from and to their destinations (Bieger & Wittmer, 2006; Forsyth, 2006; Papatheodorou & Lei, 2006). To stay alongside with the increasing number of passengers and visitors to international airports, airports are determined to provide different prospects and services to passengers and business operators alike. Bogicevic (2014); Bilgihan & Bujisic (2013) reasoned that the increase in travel cosiness and technology has caused passengers' expectancy for an airport experience. Passengers today are vulnerable to various types of services that guide them to differentiate the performance of preferred carriers (Bogicevic, 2014). Airport functions as temporary point for passengers and each of them will have a diverse set of requirements and

requirements when they use various facilities at the airport (Jin-Woo & Se-Yeon, 2011). The airport's infrastructure is the initial point of contact for travellers before starting their holiday point to a destination. Thus, airport amenities provide them with the main picture about the value of time they expect (Martín-Cejas, 2006). In this context, airports focus on developing strategies to ensure delightful experiences among visitors and its physical environments that are becoming more important attention as part of that purpose (Ariffin & Yahaya, 2013; Moon et al., 2015).

Chen & Chang (2005), Bogicevic et al. (2013) and Martín-Cejas (2006) in their study revealed that in the nature of air transport, air travel is categorized into two parts: in-flight services and ground services. The ground services relate to the study of airport experiences, including when travellers are administered by airports that use numerous services such as information collection counters, booking and ticket purchases, check-in. Accordingly, functionality, layout accessibility, facility aesthetics and cleanliness are the four main elements of the physical environment (Ali, 2016; Moon et al., 2015). According to Bitner (1992), the physical environment is focused on the airport ground services and its operators and vendors. This includes restaurants, shop and retail outlets, banks, professional services such as money changers and more as it creates an apparent image and affects passenger behaviour. Moreover, physical environment has a legal effect on the customer's emotions, such as arousal and enjoyment (Moon et al., 2015; Han & Ryu, 2009).

The physical environment in service industries is a critical determinant of customer emotion and positive responses (Ryu et al., 2012), but few researches conducted to examined how the physical environment of international airports can develop customer delight and satisfaction (Jeon & Kim, 2012; Moon et al., 2015). Thus, this study was conducted to fill this gap by revealing how airport physical environments influence passenger delight in one of an international airport in Malaysia. Kota Kinabalu International Airport (KKIA) is one of the busiest international airports in Malaysia after the Kuala Lumpur International Airport (KLIA). The number of passengers at the KKIA in 2017 was 8,006,446 travellers and has increased by 743,107 travellers since 2016 (MAHB, 2018). Moreover, 8,622,488 are the number of passenger movements recorded in 2018 (MAHB, 2019). Therefore, this study investigates the relationship between airport physical environment elements and passengers' delight at Kota Kinabalu International Airport.

### **Literature Review**

Scholars have focused on a number of dimensions of the physical environment, revealing some disagreement over physical environment dimensions for all service organizations (Jeon & Kim, 2012). The first dimension, layout accessibility refers to how the spatial relations between these elements and also the layout of furniture and equipment, service areas, and routes (e.g. Bittner, 1992; Wakefield & Blodgett, 1996; Ryu & Jang, 2007; Moon et al., 2015; Ali et al., 2016; Ryu & Han, 2011). Next, facility ambience & aesthetics dimensions, according to Ryu & Han (2011), refers aesthetics of the facility to the architectural and interior design, décor that increases the attractiveness of the environment. The ambience elements are characterized as intangible environmental backgrounds that non-visual sensors tend to be affected, and customers may have an unconscious effect (Ryu & Jang, 2007; Ryu & Han, 2011). Functionality dimension refers to as physical object capabilities (e.g., physical machinery, equipment, furniture, and facilities) to help customers experience a pleasant experience by

performing their functions effectively (Moon et al., 2015; Bitner, 1992; Moon et al., 2015; Ali et al., 2016). Lastly, the cleanliness dimension is another crucial part of the service. For example, as Ali et al (2015) emphasized, the toilet's hygiene, food service area, and pedestrian route and exit at the airports positively impact customer excitement. Baker (1987) discussed the way these physical environment dimensions influences customers' judgments of services. Bitner (1992) further suggested that the physical environment found to be an important part of consumer evaluation of satisfaction of services. Furthermore, Ryu (2012) suggested that satisfaction with the physical environment leads to more favourable customers responses such as perception of comfort and increased positive word of mouth intentions.

Passenger delight is defined as a response that a customer can when the service or product provides unexpected value or unexpected satisfaction as the customer uses and also experiences it (Magnini, 2011). Schneider and Bowen (1999) indicated that surpassing customer expectations create customer delight. In this context, delight is often connected with emotional reaction like joy, excitement, and encouragement as elements of surprise amplifying this emotion. For this reason, delightful experience usually has a stronger memory effect and, thus, more effective than a satisfying experience (Magnini et al., 2011) and can determine the overall assessment of positive experience (Torres et al., 2014).

International airports basically are meant to provide international flights to tourists (Jeon & Kim, 2012). However, airports are now transformed into mini-cities equipped with different type of facilities and activities such as basic installations for aircraft, support buildings, security areas, retail malls, fitness centres, business centres, hotels, and restaurants (Yeo, 2010). These service environments of an airport must be managed well for excellent international airport services. Based on the literature review, this study supports the conceptualization of passenger delight as positive emotions elicited by a stimulus such as physical environment of an international airport (Finn, 2005; Schümmer, 2007). The four elements of the physical environment of the airport, layout accessibility, facility aesthetics, functionality, and cleanliness are essential elements that affect pleasure (Ali et al., 2016; Wakefield & Blodgett, 1996; Lin & Liang, 2011; Moon et al., 2015).

## **Methods**

To ensure the validity, all the measurement items were taken from previous studies; however, minor modifications to the statements were made to make them adequate for the present study. 'Layout accessibility', 'Facility ambiance & Aesthetics', 'Functionality', and 'Cleanliness' were all measured using 6 items each whereas 'passengers delight' was operationalized using 5-items adopted from Ariffin & Yahaya (2013) and Ali et al. (2016). All the items were measured using a five-point Likert scale starting from 1 (strongly disagree) to 5 (strongly agree). The researchers used a self-administered survey to collect data from customers at Kota Kinabalu International Airport, Malaysia. Based on convenience sampling, 400 questionnaires were distributed, 385 were returned and were deemed fit for further procedures.

Data analysis for this study applied SPSS version 21.0 to process the descriptive statistics and reliability analysis on the collected data and assess the demographic profile of the sample and the internal consistency of the constructs. Anderson and Gerbing (1988) suggested this study assessed the properties of measurement scales for convergent validity and discriminant

validity and constructed composite reliability by confirmatory factor analysis (CFA). The study then applied Structural Equation Modelling (SEM-AMOS) to test the hypotheses.

### Result

The measurement model was tested for the convergent validity of this study. This was assessed through factor loadings, composite reliability (CR) and average variance extracted (AVE) (Hair et al., 2013). In the layout accessibility construct, one item was removed due to low factor loading. Two items from Facility Ambiance & Aesthetics construct, and three items from Functionality constructs were removed. Table 1 shows the remaining item loadings that exceeded the recommended value of 0.6. Composite reliability values, which depict the degree to which the construct indicators indicate the latent construct, exceeded the recommended value of 0.7 (Hair et al., 2013) while average variance extracted, which reflects the overall amount of variance in the indicators accounted for by the latent construct, exceeded the recommended value of 0.5 (Hair et al., 2013). Discriminant validity, which is achieved when the measurement models are free from unnecessary items (Awang, 2012), indicated adequate discriminant validity and convergent validity. Consequently, this measurement model was used for further analyses and hypotheses testing using the structural model.

Table 1  
*Validity and Reliability for Construct.*

Constructs	Items	Factor Loadings	AVE	CR
Layout Aecessibility	The airports signs clearly directed me to services such as parking, car rentals, terminals, ATM, etc.	0.668	0.513	0.840
	Baggage trolleys were available and conveniently located	0.659		
	The layout was properly designed to cater passengers with specific needs, i.e., disabled, smokers, pregnant women, etc.,	0.770		
	Well-known retail and dining options were available and conveniently located.	0.715		
	The layout was properly managed to avoid passenger crowding and easy movement.	0.763		
Facility Ambiance & Aesthetics	The colour schemes within the airport were attractive.	0.834	0.623	0.868
	The architecture and decoration of the airport were appealing	0.850		
	The brightness within the airport was welcoming.	0.769		

	The aroma within the airport was pleasant	0.694		
Functionality			0.593	0.813
	This airport provided comfortable and spacious seating in the waiting areas	0.749		
	The signs and electronic displays provide information accurately and clearly	0.817		
	The electronic facilities (e.g., television screens, electronic billboards) add excitement to the airport	0.741		
Cleanliness			0.680	0.914
	Restrooms and bathrooms in the airport were kept clean	0.822		
	Retail, dining, and entertainment areas were kept clean.	0.875		
	Walkways, exits, and baggage claim areas were kept clean.	0.834		
	I feel comfortable with a clean environment.	0.767		
	Overall, the airport environment was hygienic.	0.822		
Passengers' Delight			0.679	0.914
	The terminal fulfilled my self-esteem needs satisfactorily.	0.887		
	The terminal staffs were highly driven by the desire to please the guests	0.913		
	The airport offerings manage to go beyond my expectation.	0.905		
	I was positively (joy) surprise with the overall experience with the airport.	0.872		
	I felt delighted at some time during my visit to this airport.	0.687		

To estimate the parameters, a structural model of airline physical environment and passengers delight was constructed. The aim of constructing a structural model was to test whether the four constructs of airline physical environment significantly influence passengers' delight. The results show that  $\chi^2$  is significant ( $\chi^2/df = 2.828$ ,  $p = 0.000$ ; IFI = 0.928, CFI = 0.928, TLI = 0.917; RMSEA = 0.069). The model had an RMSEA value of 0.069, which is also within the required range and is considered satisfactory. The structural results of the proposed model and the effect of predictors on passengers' delight are depicted in table 2.

Table 2:

*Results of Structural Model*

Hypothesised relationship	Standardised Coefficient	p	Decision
Layout Accessibility → Passengers' Delight	0.069	0.292	Not Significant
Facility Ambiance & Aesthetics → Passengers' Delight	0.409	0.000	Significant
Functionality → Passengers' Delight	0.147	0.096	Not Significant
Cleanliness → Passengers' Delight	0.282	0.000	Significant

The results indicate that Facility Ambiance & Aesthetics ( $\beta = 0.409$ ;  $p = 0.00$ ) and Cleanliness ( $\beta = 0.282$ ;  $p = 0.000$ ) exert a significant effect on passengers' delight. Meanwhile, Layout Accessibility and Functionality do not affect passenger delight where  $p$ -value  $> 0.05$ .

**Discussion, Conclusion and Implications of Research**

This research entailed an empirical study to investigate the effect of the physical environment on passengers' delight in an international airport. This study highlighted that the airport's ambiance & aesthetics, and cleanliness of its physical environment in an international airport influences passengers' delight.

The findings of this study provide some implications for airport managers and service operators to understand customers' needs concerning the international airports' physical environment. The study found that facility ambiance and aesthetics is the most important element affecting passengers' delight. Such findings align with Ryu and Jang (2007) and Ryu and Han (2011), who note that ambiance elements affect the five senses and influence state consumer sentiment, mood, or emotion. Moreover, emotions can be predicted by the facility's aesthetics (Ryu & Jang, 2007; Ali et al., 2016; & Ryu & Han, 2011). Therefore, the airport must ensure a cosy atmosphere and exciting architectural and interior design being offered to enhance passengers' delight with the airport further. Besides, the result of this study also found that cleanliness is another important element for passengers' delight. Therefore, airport service operators need to maintain and improve the aspects of cleanliness as passengers spend most of their time at the airport waiting for baggage check-in, security checks, and waiting before boarding.

To stay competitive, airports must also develop an attractive and convincing physical environment to delight their visitors. For example, adding other physical environments of the airport such as embedding state or country identity such as local art, local food, local merchandise, and souvenirs may act as a pull factor that may also enhance passengers' delight and develop revisit intentions. These would help create the atmosphere and feeling of being in the state and country while the tourists are still at the airport terminal. Similar to any research study, this study also had some limitations. Convenience sampling was employed to select the sample from only one international airport. Thus, results may not be generalized to a wider population. Additional studies with other airports and testing perceptions on their behavioural intentions should be conducted to increase the opportunity to make comparisons and gain further insights.



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