

NON-GENERIC MEASUREMENT STRUCTURE OF AIRPORT SERVICE QUALITY: A LITERATURE REVIEW

HAVALİMANI HİZMET KALİTESİNİN GENEL OLMAYAN ÖLÇÜM YAPISI: ALAN YAZIN TARAMASI

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ABSTRACT

Due to many driving forces, the aviation industry advance and grow significantly. Concordantly, the airport service infrastructures and related passenger services also diversify. Considering the processes that the passengers go through the airport and the time, the airports as business space gain important both for the airport business and the passengers. Therefore, the diversifying airport passenger services rise to prominence. In so far as the efforts to measure airport service quality with a wide range of heterogeneous services are an ongoing area of research, the purpose of this study is to present a systematic literature review on non-generic measurement structure of airport service quality with preservative context dependency discussions. As per the findings, it is determined that the most explored dimensions are servicescape, services, facilities, information, security and check-in; the less ones are access, comfort, convenience, ticketing, functional, ICQ. Moreover; It has been observed that the services offered are complementary and subsequently. Since many services, associated with the influence of cultural, geographical and technological factors, are produced simultaneously, it can differ the dimensions. In the light of findings, the current study presents a conceptual airport service quality model.

Keywords: *Multidimensionality, SERVQUAL, Quality Management, Airport Service Quality, Airport*

Jel Codes: *M10; M31; L93*

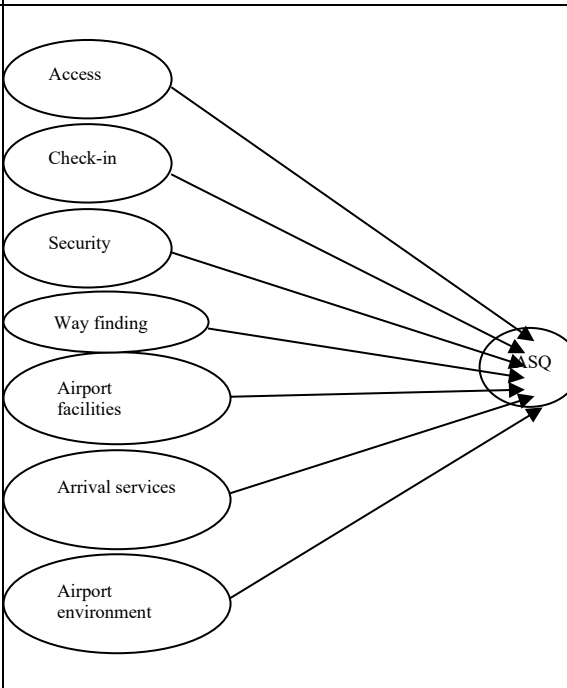
ÖZ

Birçok itici güç nedeni ile havacılık endüstrisi, önemli ölçüde ilerlemekte ve büyümektedir. Bu bağlamda havalimanı hizmet alt yapıları ve ilgili yolcu hizmetleri de çeşitlenmektedir. Yolcuların havalimanında geçtikleri süreçler ve zaman dikkate alındığında, havalimanları iş alanı olarak hem işletmecilik için hem de yolcular için önem kazanmaktadır. Bu nedenle çeşitlenmeye devam eden havalimanı yolcu hizmetleri ön plana çıkmaktadır. Havalimanı hizmet kalitesini çeşitli sayıda hizmetlerle ölçmeye yönelik çabaların içerik bağımlı tartışmalar eşliğinde süregelen bir araştırma alanı olması sebebiyle, bu çalışmanın amacı yolcu hizmetlerine ilişkin genel olmayan ölçüm yapısı hakkında sistematik bir literatür taraması sunmaktır. Bu çalışma 2020 yılında gerçekleştirilmiştir. Bulgulara göre en çok keşfedilen boyutların hizmet ortamı, hizmetler, olanaklar, bilgi, güvenlik ve check-in; daha azının ise erişim, konfor, rahatlık, biletleme, işlevsellik, ICQ olduğu değerlendirilmektedir. Ayrıca sunulan hizmetlerin birbirini tamamlayıcı ve peşi sıra geldiği görülmüştür. Kültürel, coğrafi ve teknolojik faktörlerin etkisi ile ilgili birçok hizmet aynı anda üretildiği için boyutlar farklılık göstermektedir. Bulgular ışığında çalışma kavramsal bir havalimanı hizmet kalitesi modeli sunmaktadır.

Anahtar Kelimeler: *Çok Boyutluluk, SERVQUAL, Kalite yönetimi, Havalimanı Hizmet Kalitesi, Havalimanı*

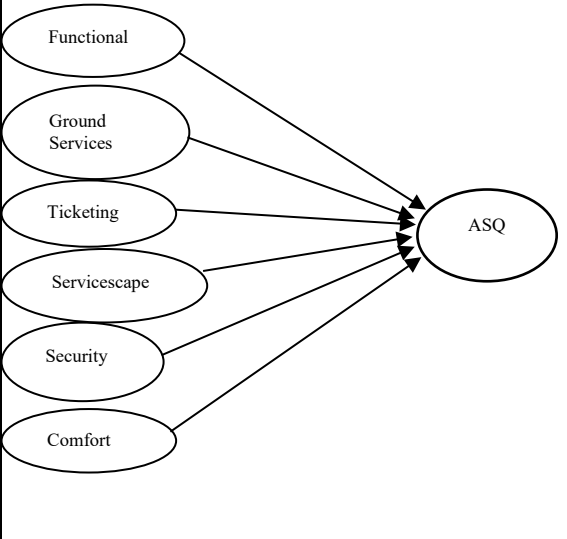
Jel Kodları: *M10; M31; L93.*

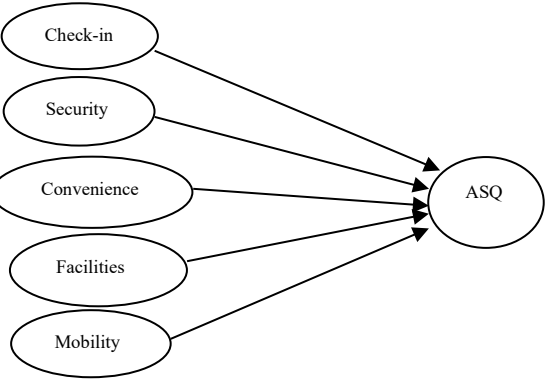
Appendix 1; The Great Scheme of ASQ Measurement Structures

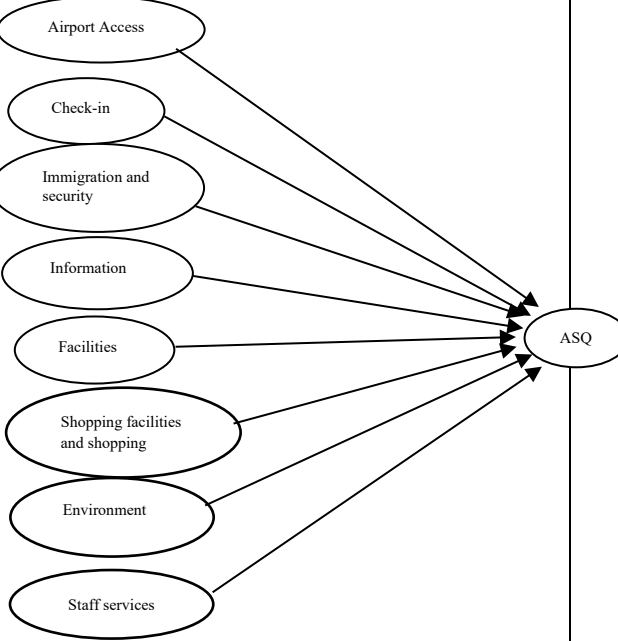
Research info	Attributes	Research Design and Sample	Research Model	
1.Chonsalasin et al. 2020; International Journal of Transportation Science and Technology	Access; Land transportation has a variety of alternatives, both to and from the airport	Method of collecting data from 1037 passengers through questionnaire at four regional airports of Thailand (Southern, northern, central, and northeastern),		
	Check-in; Waiting time in check-in line Efficiency of check-in staff Courtesy and helpfulness of check-in staff			Sufficient parking spaces Value for money of Parking facilities Availability of baggage carts/ trolley
	Security; Courtesy and helpfulness of security staff Effectiveness of security inspection			Waiting time at passport inspection Courtesy and helpfulness of inspection staff Waiting time for safety inspection Feeling of being safe and secure
	Way finding; Ease of finding directions at the airport Flight information screen Walking distance in the passenger terminal			Ease of connecting other flights Courtesy and helpfulness of airport staff
	Airport facilities; Sufficiency and quality of restaurants/ shops inside the airport Value for money of restaurant/ eating facilities Availability of ATM/ Bank/ Money changers			Shopping facilities Value for money of shopping facilities Availability of Business/ Executive Lounges
	Arrival services; Checking passport/ Identification card at the Immigration checkpoint			Speed of Baggage delivery service Custom inspections
	Airport Environment; Availability and adequacy of restrooms Cleanliness of washrooms/ restrooms			Comfort in the waiting area for passengers Cleanliness of airport terminal Atmosphere or decoration of the airport

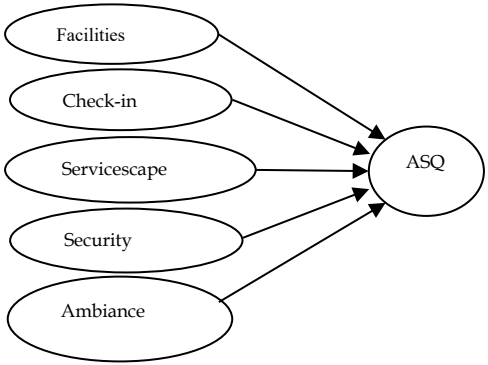
Research info	The Attributes	Research Design and Sample	Research Model
2.Tsai et al., 2011; Total Quality Management and Business Excellence	Physical environment; Airport facilities planning Sanitary condition of lavatory Environment beauty and cleanliness Facilities allocation and space design	Airport circulation planning Internal direction line arrangement Exterior surrounding circulation planning Convenience of public transportation	
	Interaction and outcome; Basically, procedural service Airport receptionist's attitude	Security inspection procedure Check-in and baggage delivery service	
	Flight information; On-time departure of flights Clarity of broadcasting system	Accuracy of flight information board	
		Method of collecting qualitative data from the executives and experienced airline passengers, through questionnaire 226 responders at Taoyuan International Airport in Taiwan	

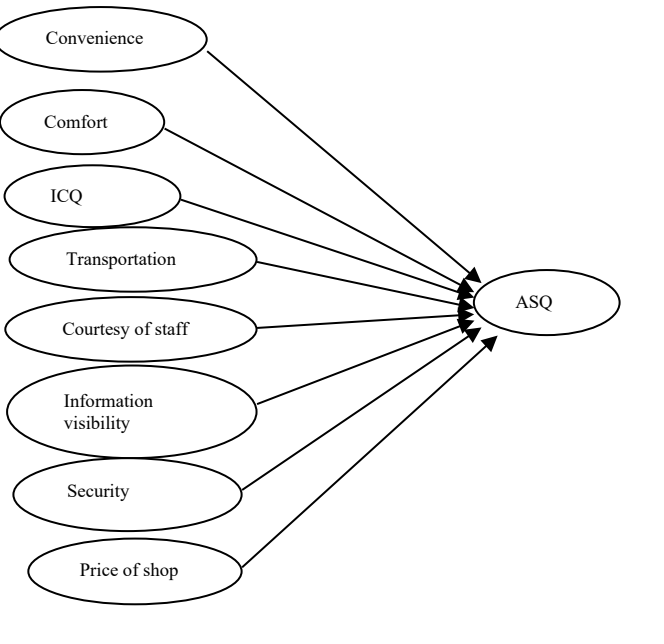
Research info	The Attributes	Research Design and Sample	Research Model	
3.Fodness and Muray, 2007; Journal of Services Marketing	Servicescape; Sp Layout and function Ambient conditions	Signs and symbols		
	Service Personnel; Attitudes Behaviors			Expertise
	Services; Productivity Maintenance			Leisure
		Method of collecting data from 1765 passengers through questionnaire at Airport		

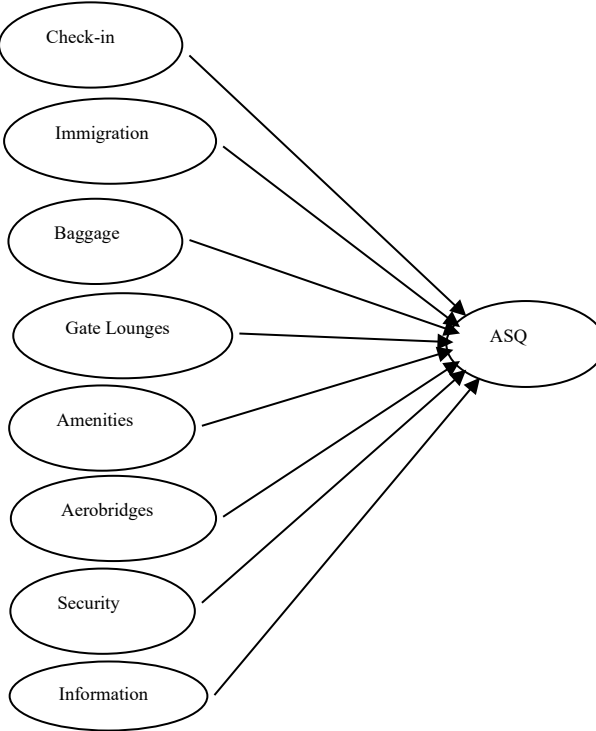
Research info	Attributes	Research Design and Sample	Research Model	
4.Bulut and Aydogan, 2020; Journal of Aviation	Functional quality; VIP passenger services Access to rent a car service	Method of collecting data from 250 passengers through questionnaire at İzmir international airport	 <pre> graph LR Functional --> ASQ GroundServices --> ASQ Ticketing --> ASQ Servicescape --> ASQ Security --> ASQ Comfort --> ASQ </pre>	
	Ground services quality; Transit speed between gate and plane Transportation safety of airport vehicles Transportation quality of airport vehicles			Overall cleanness/hygiene during the transportation Easy transit between car parking place and terminal
	Ticketing quality; Speed of reissuing the tickets Easy access to the ticket sales office for refunding			Speed of ticketing Speed of controlling/stamping the tickets
	Servicescape quality; The temperature level of the terminal building Sound comfort of the terminal building			The brightness level of the terminal building The comfort of the terminal building Flight information screens at the terminal building
	Security quality; Access to Information Desks The efficiency of security points			Respond quality of Information Desks Efficient management of the queues
	Comfort quality; Children's play facilities are adequate in recreational /entertainment places Internet access to terminal buildings is sufficient			The prices at the airport shops are convenient There are no queues during the departure procedures for passenger services.

Research info	The Attributes	Research Design and Sample	Research Model										
5.Kratudnak and Tippiyawong, 2018; Proceedings of the International Conference on Industrial Engineering and Operations Management Bandung, Indonesia	<table border="1"> <tr> <td>Check-in; Check-in process efficiency Courtesy and helpfulness of check-in</td> <td>Wait time at check-in</td> </tr> <tr> <td>Security; Thoroughness of security screening Feeling of begin safe and secure</td> <td>Wait-time at security checkpoint Courtesy and helpfulness of security staff</td> </tr> <tr> <td>Convenience; Courtesy and helpfulness of airport staff Availability and quality of stores</td> <td>Availability of Bank/ATM/Exchange Availability and quality of food facilities</td> </tr> <tr> <td>Facilities; Cleanliness of washroom/toilets Availability of washroom/toilets</td> <td>Enough available seats in waiting area</td> </tr> <tr> <td>Mobility; Walking distance in airport Clarity of airport signs</td> <td>Flight information display</td> </tr> </table>	Check-in; Check-in process efficiency Courtesy and helpfulness of check-in	Wait time at check-in	Security; Thoroughness of security screening Feeling of begin safe and secure	Wait-time at security checkpoint Courtesy and helpfulness of security staff	Convenience; Courtesy and helpfulness of airport staff Availability and quality of stores	Availability of Bank/ATM/Exchange Availability and quality of food facilities	Facilities; Cleanliness of washroom/toilets Availability of washroom/toilets	Enough available seats in waiting area	Mobility; Walking distance in airport Clarity of airport signs	Flight information display	Method of collecting data from 300 travelers through questionnaire at three regional airports in Thailand	 <pre> graph LR A([Check-in]) --> ASQ((ASQ)) B([Security]) --> ASQ C([Convenience]) --> ASQ D([Facilities]) --> ASQ E([Mobility]) --> ASQ </pre>
Check-in; Check-in process efficiency Courtesy and helpfulness of check-in	Wait time at check-in												
Security; Thoroughness of security screening Feeling of begin safe and secure	Wait-time at security checkpoint Courtesy and helpfulness of security staff												
Convenience; Courtesy and helpfulness of airport staff Availability and quality of stores	Availability of Bank/ATM/Exchange Availability and quality of food facilities												
Facilities; Cleanliness of washroom/toilets Availability of washroom/toilets	Enough available seats in waiting area												
Mobility; Walking distance in airport Clarity of airport signs	Flight information display												

Research info	Attributes	Research Design and Sample	Research Model
<p>6.Jiang and Liang, 2019; International Journal of Business, Economics and Management</p>	<p>Airport Access; Public transportation to/from airport. Clarity of external signage indicating directions to terminals; parking areas Waiting time and cost of car parking Convenient location and sufficient number of baggage trolleys Car park availability and standard Service quality of car rental facilities</p>	<p>Method of collecting data from 390 passengers through questionnaire at Pudong international airport and Hongqiao international airport at Shanghai</p>	 <pre> graph TD AA([Airport Access]) --> ASQ((ASQ)) CI([Check-in]) --> ASQ IS([Immigration and security]) --> ASQ I([Information]) --> ASQ F([Facilities]) --> ASQ SFS([Shopping facilities and shopping]) --> ASQ E([Environment]) --> ASQ SS([Staff services]) --> ASQ </pre>
	<p>Check-in; Check-in waiting time Transfer connection time Efficiency of check-in procedures Waiting time for next flight Self-check-in facilities</p>		
	<p>Immigration and security; Immigration inspection waiting time Security clearance processing time Immigration inspection processing time Information visibility Security clearance waiting time</p>		
	<p>Information; Information desk availability Accuracy of flight information board Ease of access to flight information Departure punctuality Clarity of airport services signs</p>		
	<p>General Airport facilities Washroom availability Walking distance and time spent between check-in desk to immigration Adequate seating in departure lounges Walking distance and time spent between immigration and departure gate Availability of lifts, passenger conveyors, escalators and air-bridges Duration of unloading passengers from the aircraft Comfort of departure lounges Free Wi-Fi Play areas for children Internet kiosk availability Baggage delivery time Charging station availability</p>		
	<p>Shopping facilities and shopping; Commercial services e.g., banks, post office Various restaurant providing different kinds of food Money exchange Shop and restaurant prices Various shops providing different kinds of products Shops and restaurants' services quality</p>		
	<p>Environment; Overall airport physical layout Presence of silence zones Airport terminal cleanliness and beauty Presence of business centers Airport terminal lighting Sanitary condition of washrooms Airport facilities allocation and space design Airport terminal safety</p>		
	<p>Staff services; Response to passengers' complaints and comments Service efficiency Friendliness of the staff</p>		

Research info	Attributes	Research Design and Sample	Research Model
<p>7. Prentice and Kadan, 2019; Journal of retailing a consumer service</p>	<p>Facilities; The airport provided comfortable and spacious seating around the terminal</p> <p>Check-in; The check-in process was efficient. Check-in staff were helpful, friendly and courteous</p> <p>Servicescape; The airport's signs clearly directed me to services/facilities. The airport's layout was properly designed to cater for passenger's special needs.</p> <p>Security; I felt safe and secure during security screening. Security screening was thorough</p> <p>Ambiance; The airport maintained clean facilities. The temperature at this airport was comfortable</p>	<p>The airport provided aero-bridges that eased access from the terminal to the aircraft</p> <p>Retail and dining options/Restaurants offered a wide range of products</p> <p>The self-check-in kiosks were appropriately designed</p> <p>The airport's physical layout avoided crowding and enabled easy movement</p> <p>Security staff were helpful, friendly, and courteous</p> <p>The noise levels at this airport were acceptable</p> <p>The aroma at this airport was fitting</p> <p>Overall, I was satisfied with the ambiance of this airport</p>	<p>Method of collecting data from 373 passengers through questionnaire at Australian major airports.</p>  <pre> graph LR F([Facilities]) --> ASQ((ASQ)) C([Check-in]) --> ASQ S([Servicescape]) --> ASQ Sec([Security]) --> ASQ A([Ambiance]) --> ASQ </pre>

Research info	Attributes	Research Design and Sample	Research Model
8.Liou et al; 2011; Expert Systems with Applications	Convenience; Washroom facilities Shops-variety Restaurants-variety Money exchange Cash machines Luggage carts Telephone and Internet	Method of collecting data from 503 passengers through questionnaire at Taoyuan International Airport, Taiwan	 <pre> graph LR C1(Convenience) --> ASQ(ASQ) C2(Comfort) --> ASQ C3(ICQ) --> ASQ C4(Transportation) --> ASQ C5(Courtesy of staff) --> ASQ C6(Information visibility) --> ASQ C7(Security) --> ASQ C8(Price of shop) --> ASQ </pre>
	Comfort; Cleanliness of the environment Lighting of the terminal Congestion level Walking distance		
	ICQ; Immigration Customs and quarantine Baggage claim		
	Transportation; Ground transportation Parking Rental facilities		
	Courtesy of staff; Helpfulness of the information desk Friendliness of the staff		
	Information visibility; Guidance/sign/directions Flight displays		
	Security; Efficiency of inspection Courtesy of inspectors		
	Price of shop; Prices at shops and restaurants		

Research info	Attributes	Research Design and Sample	Research Model	
<p>9.Trischler and Lohman, 2018; Journal of Airline and Airport Management</p>	<p>Check-in; Check-in availability Check-in standard Check-in waiting time</p>	<p>Number of departing passengers per check-in desk, kiosk and bag drop facility (peak hour)</p>	 <pre> graph LR C((Check-in)) --> ASQ((ASQ)) I((Immigration)) --> ASQ B((Baggage)) --> ASQ GL((Gate Lounges)) --> ASQ A((Amenities)) --> ASQ AB((Aerobridges)) --> ASQ S((Security)) --> ASQ Inf((Information)) --> ASQ </pre>	
	<p>Immigration; Waiting time in outbound Immigration area Number of departing passengers per outbound immigration desk (per hour) Waiting time in inbound Immigration area</p>	<p>Number of arriving passengers per inbound Immigration desk (peak hour) Waiting time in inbound baggage inspection area Number of arriving passengers per baggage inspection desk (peak hour)</p>		
	<p>Information; Flight information display screens Number of passengers per flight information display screen (peak hour)</p>	<p>Number of passengers per information point (peak hour) Signage and wayfinding</p>		
	<p>Baggage; Baggage processing facilities availability Baggage processing facilities standard Average throughput of outbound baggage system (per hour) Circulation space for inbound baggage reclaim</p>	<p>Information display for inbound baggage reclaim Number of arriving passengers per m² of inbound baggage reclaim area (peak hour) Findability of baggage trolleys Number of passengers per baggage trolley (peak hour)</p>		
	<p>Gate lounges; Seating in lounge area (quality and availability) Number of departing passengers per seat in gate lounges (peak hour)</p>	<p>Crowding in lounge area Number of departing passengers per m² of lounge area (peak hour)</p>		
	<p>Amenities; Standard of washrooms</p>	<p>Number of departing passengers per washroom (peak hour)</p>		
	<p>Aerobridges; Aerobridges availability Aerobridges standard Percentage of international passengers arriving using an aerobridge Percentage of international passengers departing using an aerobridge</p>	<p>Number of arriving domestic passengers per aerobridge (peak hour) Number of departing domestic passengers per aerobridge (peak hour)</p>		
	<p>Security; Quality of security search process</p>	<p>Number of departing passengers per security clearance system (peak hour)</p>		
	<p>Method of collecting data from 21 stakeholder groups through questionnaire at four largest airports, Australian</p>			

Research info	Attributes	Research Design and Sample	Research Model
10.Bezerra and Gomes, 2016; Journal of Air Transport Management	Check-in; Availability of luggage carts Courtesy and helpfulness of check-in staff Check-in process efficiency	Method of collecting data through questionnaire 1155 passengers Guarulhos International Airport in Brazil	<pre> graph LR A1([Check-in]) --> ASQ([ASQ]) A2([Security]) --> ASQ A3([Convenience]) --> ASQ A4([Ambience]) --> ASQ A5([Basic facilities]) --> ASQ A6([Mobility]) --> ASQ A7([Price]) --> ASQ </pre>
	Security; Thoroughness of security screening Feeling of being safe and secure Wait-time at security checkpoints Courtesy and helpfulness of security staff		
	Convenience; Availability of Banks/ATM/Exchange Courtesy and helpfulness of airport staff Availability and quality of food facilities Availability and quality of stores		
	Ambience; Acoustic comfort Cleanliness of airport facilities Thermal comfort		
	Basic facilities; Departure lounge comfort Cleanliness of washroom/toilets Availability of washroom/toilets		
	Mobility; Flight information Walking distance inside terminal Way finding		
	Price; Prices at food facilities Prices at stores		

Research info	Attributes	Research Design and Sample	Research Model
11.Pantouvakis and Renzi, 2016; Journal of Air Transport Management	Servicescape and image; The cleanliness at the airport The adequate airport lighting The efficacy of airport air conditioning The adequate assistance during luggage control The comfort of security control	I feel safe at the airport I have a positive impression about the level of comfort at the airport I have the impression that waiting times at the airport are short I have a positive impression of the airport's employees I have a positive impression about the information provided	
	Signage; The clarity of external signs The ease of finding external airport signs The clarity of internal signs	The ease of finding internal airport signs The ease of finding screens for video announcements	
	Services; The speed of security control The courtesy of security control employees	The competence of security control employees The ease of finding the people in charge of giving information	
		Method of collecting data through questionnaire 922 passengers Fiumicino Airport, Italy	

Research info	The Attributes	Research Design and Sample	Research Model
12.Lubbe et al; 2011; Journal of Air Transport Management	Function; External signs Signs to airport facilities Physical layout Variety of ground transportation Convenient location of baggage carts	Accessibility of connecting flights Baggage waiting time Speed of check in process Duration of exit from airplane	
	Diversions; Availability of national retail outlets Availability of national chain restaurants Availability of local cuisine Stores portraying local culture Decor match local culture	Art display Current decor Availability of conference facilities Availability of business centers Availability of quiet areas	
	Interaction; Respond promptly to requests Offer individualized attention	Complaints responded to immediately	
		Method of collecting data from 100 passengers through questionnaire at O.R. Tambo International Airport, South Africa	

Research info	The Attributes		Research Design and Sample	Research Model
13.Jiang and Zhang, 2016; Journal of Air Transport Management	Essential Airport Services; Airport service items Surface transport to/from airport Airport parking Baggage carts/trolleys Check-in waiting time Courtesy and helpfulness of check-in staff Self-check-in facilities Waiting time at immigration	Courtesy and helpfulness of immigration Waiting time at security check Courtesy and helpfulness of security Clear directional signs Flight information screens Flight transfer Internet/Wi-Fi access Boarding gate seating	Method of collecting data from 1000 passengers through questionnaire at Melbourne International Airport in Australia	
	Service items for comfort, convenience and enjoyment; Moving walkways and escalators Children's playing area Speed of baggage delivery Battery recharge facilities Airport shopping	Art displays Music in the terminal Natural light in the terminal Smoking area Temperature in the terminal		
	Service related to business travel and baby changing facilities; Bank/ATM facilities Baby changing facilities	Business lounge Business center		

Research info	Attributes		Research Design and Sample	Research Model
14.Brida et al; 2016; Tourism Management Perspectives	Image Perception (IMG); Modern infrastructure Innovation capacity High-tech usage level Terminal crowding Terminal size	Disabled passenger facilities Willingness to assist customers Identification with local culture Airport safety Terminal maintenance	Method of collecting data from 995 travelers through questionnaire at Santiago de Chile's Arturo Merino Benítez International Airport	
	Airport Information (INF); Accurate information Orientation ease Clearness of signage	Size of signage Quantity of signage		
	Terminal Servicescape (SRV); Lightning Temperature Noise level	Safety perception Terminal cleanliness		
	Airport sound information systems (SIN); Sound information accuracy Timely information	Sound volume Sound clearness		

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Research info	Attributes	Research Design and Sample	Research Model	
15.Pandey, 2016; Journal of Air Transport Management	Access; Ground transportation to/from airport Vehicle Parking Facilities	Method of collecting data from 625 passengers through questionnaire at Suvarnabhumi and Don Mueang airport, Thailand		
	Value for money of Parking facilities Availability of baggage carts/ trolley			
	Check-in; Waiting time in check-in line Efficiency of check-in staff			Courtesy and helpfulness of check-in staff
	Security; Waiting time at passport inspection Courtesy and helpfulness of inspection			Waiting time at security inspection Feeling of being safe and secure
	Finding your way; Ease of finding your way through airport Flight information screen			Walking distance inside terminal Ease of making connections with other flights
	Facilities; Restaurant/Eating Facilities Availability of ATM/Bank/Money char			Internet access/Wi-fi Business/Executive Lounges
	Environment; Availability of washrooms/toilets Cleanliness of washrooms/toilet			Comfort of waiting/gate area
Arrival Services; Passport/Personal ID inspection	Speed of Baggage delivery service			