

PASSENGERS' EXPECTATIONS OF AIRPORT SERVICE QUALITY

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STRUCTURED ABSTRACT

Type of Paper

Research

Keywords

service quality, airports, expectations, air travelers, servicescape

Purpose

This study contributes to development of a conceptual model of service quality in airports via an empirical investigation into passengers' expectations for this service.

Design/methodology/approach

Qualitative exploration of the airport experience from the passengers' perspective was combined with a review of relevant literature to identify variables, clarify basic concepts and generate a conceptual model of airport service quality expectations. Quantitative research was used to develop a self-report scale to measure passenger expectations of airport service quality, test dimensionality and evaluate scale reliability and validity.

Findings

Qualitative and quantitative research on nearly 1,000 airport users provided results suggesting that passengers' expectations of airport service quality is a multidimensional, hierarchical construct that includes three key dimensions: *function*, *interaction* and *diversion*.

Research limitations/implications

By bringing together different literatures and research paradigms to conceptualize service quality in a novel environment, this study extends service quality research. It is limited insofar as efforts to define a global expectations construct may have "homogenized" results.

Practical implications

This study builds on the extant literature on service quality to propose an approach for measuring passengers' expectations of airport service quality that can serve as a foundation of a concise and easy-to-administer self-report measure for identifying and managing airport service quality strategies.

Originality/value

By going beyond traditional service performance measures used in the airport industry and by introducing new variables to the service quality literature, such as Csikszentmihalyi's (1997) taxonomy of activity, this study broadens and enriches both practice and theory.

Introduction

The airport industry is changing rapidly. Today's air travelers have meaningful choices among airports and there is an increasing urgency among airport marketers to differentiate themselves by meeting the needs of customers better than the competition. While passengers' perception of airport service quality is only one of several variables (e.g., routes, scheduling, location and prices) that contribute to overall airport attractiveness, it is nevertheless an important variable because of the increasing importance of a customer orientation to competitive advantage in this industry.

Aviation trade publications and airport press releases provide evidence that managers in the airport industry clearly understand the importance of their customers' perceptions of service quality (Aeroporti di Roma S.p.A., 2004; Bomenblit, 2002; Gooding, 1999). Academic and industry researchers regularly measure passenger perceptions of airport services quality to benchmark performance metrics directly from the "voice" of the customer (Chen, 2002), to identify opportunities for service improvement (Yeh and Kuo, 2002) and to avoid losing valuable passenger traffic (Rhoades *et al.*, 2000). In addition, airport marketers research passenger needs and wants for the purposes of enhancing non-aviation related revenues from restaurant and retail offerings (Danyliw and Cohen, 1997; Harrison, 1996).

The nature of the expectations underlying airport service quality perceptions is unclear. Unlike the more widely accepted gap-theory model for measuring service quality (i.e., subtracting a customer's perceived level of service received from what was expected), both academic and commercial airport researchers are more likely to measure service quality by establishing and

monitoring service performance measures which may or may not be informed by direct customer input (Yeh and Kuo, 2002). Often, these measures are internal (e.g., number of complaints, wait / service time for baggage delivery or check-in). Internal measures of service performance are useful for benchmarking processes, but at the same time suspect because these measures are typically derived from managers rather than from passengers, thus lacking a true customer perspective. Even when service performance measures are external – intended to measure the attitudes and opinions of customers directly – the lack of a systematic understanding of airport customers’ expectations makes it likely that what is measured will be those attributes that are the most obvious and easy to operationalize. The net result can be a misguided effort to improve service quality in ways that are unimportant to customers, thus failing to offer the value that drives customer choice among alternatives.

Not only has the airport research tradition largely ignored the gap-theory method of service quality measurement, the marketing and services literatures (the major proponents of gap-theory method service quality research) have focused little attention on airports or on passengers, a remarkably diverse group who consume in transit as they spend extended periods of time in elaborate servicescapes where they find themselves as the result of a highly limited process of decision making. As a result, while it is possible to describe passenger preferences on issues ranging from airport signage to restroom cleanliness, there is no generally accepted theory-based model of airport service quality nor is there a comprehensive profile of the experiences, expectations and perceptual influences of passengers in this setting.

We believe that the airport industry could benefit from the collective insights and the best practices of other service industries that have faced similar issues, and that the mainstream

service quality literature could learn from the extension of established and emergent theory to the airport's unique service environment. Therefore, the purpose of our study is to contribute to the development of a conceptual model of perceived service quality in airports by conducting an empirical investigation of the nature and role of expectations in this understudied service category. We proceed as follows. First, although airports are familiar to many, the airport business is not and so we begin with a brief industry overview. Second, we review the limited literature specific to airport quality management and passenger satisfaction. Third, we use a review of relevant literatures informed by qualitative research to categorize expectations of frequent airport users. Next, we describe the methods used to test our preliminary model, along with the results. Finally, we discuss interpretations of our findings, explore managerial implications and suggest directions for future research.

Airport industry overview

Airports have been a consistent growth segment in the travel and transportation industry (Danyliw and Cohen, 1997). Over the last several decades, the global aviation industry has sustained annual growth rates of five to six percent (Graham, 2003). More than 3.2 billion passengers passed through the world's airports in 2001 (Airports Council International, 2004). North American airports account for over 40 percent of the world's total air traffic and in excess of 3.2 million passengers transit through U.S. airports daily (Graham, 2003). (Compare this with a more familiar services industry, hospitality, where approximately 2.6 million hotel rooms are sold daily in the U.S. (Travel Industry Association of America, 2005).) Of the world's 20 busiest airports, thirteen are in the U.S. (Airports Council International, 2004). Estimates are that U.S. airports generate in excess of \$380 billion a year in economic activity (Rhoades *et al.*, 2000).

Demand for air transport slowed in recent years because of the global economic downturn. Following the events of September 11, 2001, airports experienced dramatic declines in passenger traffic with U.S. airports suffering the greatest losses (Graham, 2003). When growth returns, U.S. airport traffic is forecast to increase by nearly 60 percent by 2009, to over 1 billion passengers per year (Rhoades *et al.*, 2000). Anticipating the need for expanded airport capacity in the U.S., approximately \$60 billion is currently being spent on capital development projects such as runways, terminals, access roads, safety and security and noise mitigation (Federal Aviation Administration, 2005).

Airport customers are remarkably varied and include passengers, airlines, employees, concessionaires, tenants and others. This study focuses on passengers (air travelers) – the end users of airport facilities and services. Passenger behavior and expectations of the airport experience depend on the type of traveler, purpose of trip and his or her circumstances. Despite their differences, however, all these customers are at the airport for the sole purpose of transferring from ground-based to air modes of transportation. The airport is not a destination for air travelers. It is a transition point.

At the airport, passengers encounter a bundle of tangible and intangible services in a physical setting that Bitner (1992) might characterize as an “elaborate servicescape,” similar to a hospital, with many corridors, queues, signs and complex interactions. It is common for passengers to spend an extended period of time in the airport servicescape, averaging over one hour once they have entered the terminal (World Airport Week, 2000).

Passengers arrive at an airport as the result of a limited process of decision making. Research and common sense indicate that the primary drivers behind an individual's choice of airport are the air services the airport offers (a combination of routes, scheduling and prices) and location (Graham, 2003). In most cases – although this is changing – passengers' choice of airport is effectively constrained by the airlines' decision of where to provide services.

Marketing did not play a significant role in the management of airports until the 1980s, prior to which time the airport was commonly viewed as a free public service or utility provided by governmental or quasi-governmental entities. Deregulation of the airlines and other sectors of the air transport industry, however, motivated airports to begin competing for airline routing.

Marketing was first introduced at airports that sought to either enlarge or protect their airline customer base. As air travelers became more sophisticated and demanding, airports came to believe that they could influence airline routing decisions by a “pull” strategy of directing marketing efforts to end users, offering enhanced services or the promise of exceptional levels of customer satisfaction. As a result, by the 1990s, many airports were concentrating greater attention and investments on a wide array of marketing activities in an effort to survive in an increasingly competitive marketplace. Like many service industries, the airport industry turned to service quality as a strategy for achieving competitive advantage (Lee-Mortimer, 1993).

Airport Quality Management and Passenger Satisfaction

Airport service quality literature and research is distinguished from the mainstream service quality perspective (e.g., the gap theory model) by its focus on quality at the attribute level. Researchers attempting to measure airport service quality typically proceed from a list of objective indicators of service that are developed from discussions with airport stakeholders

rather than passengers, including airport and airline operators, consultants, regulators and travel industry managers. Only a limited amount of conceptual and empirical work on passengers' perceptions of airport service quality exists. Rhoades *et al.* (2000) reviewed existing literature to develop a list of "key airport quality factors" from the perspective of "various stakeholders." Survey data was collected from airport operators and consultants who were asked to weight the relative importance of the identified factors to airport service quality. Respondents were also asked to "rate the same factors from a passenger perspective in order to gauge the extent to which their perceptions were 'passenger-focused'" (p258). Passengers themselves were not included in this study. Factor analysis of the data from the 150 responses received (27 percent response rate) identified four factors: *passenger service issues*, *airport access*, *airline-airport interface* and *inter-terminal transport*.

Chen (2002) and Yeh and Kuo (2002), writing in the transportation literature, both approached airport service quality as a setting within which to test conceptual frameworks. Yeh and Kuo (2002) consulted Taiwanese airport managers, government officials, academics and travel agents to identify six airport service categories: *comfort*, *processing time*, *convenience*, *courtesy of staff*, *information visibility* and *security*. They used these categories as the basis for collecting data from 15 Taiwanese tour guides and operators. The data was analyzed using fuzzy multiattribute decision making analysis (MADM) to demonstrate "an effective alternative to performance evaluation of airport services involving subjective assessments of qualitative attributes" (p35). Passengers were not included in this study.

Chen (2002) used quality benchmarking deployment as an approach to organize airport quality elements and passenger quality requirements. Initial items were identified from face-to-face

interviews with various stakeholders (including but not limited to passengers) at Chaing Kai Shek International Airport (CKS). Items were rendered into survey questions to evaluate the performance of six major Asia-Pacific airports. The quantitative data collection sample included airline companies, forwarders, scholars and passengers. The findings indicated that “convenience of transport facilities connecting to the outside,” “interior design and layout” and “information service of the airport” were critical service quality attributes.

Moving from academic research to industry practice, lists of airport service attributes are developed by individual airports, industry associations and consultants for measuring airport “customer satisfaction” (Aeroporti di Roma S.p.A., 2004; Airports Council International, 2004; Bomenblitt, 2002; J.D. Power and Associates, 2000). A typical example is the syndicated AETRA customer satisfaction survey, a joint undertaking of Airports Council International (ACI) and the International Air Transport Association (IATA). According to the AETRA Web site, the information provided helps their users (airport managers) “understand how they perform and how to improve” as they “continue to adopt market oriented business strategies.” (AETRA, 2005) The ongoing AETRA study is based on a self-completion questionnaire distributed to passengers at departure gates and covers a number of aspects of passengers’ “on-the-day” airport experience including *navigation, airport services and facilities, security and immigration, airport environment and airline services*.

Lists of attributes such as these can and do provide airport managers with useful information, but do not represent service quality as the concept has come to be understood in marketing and services research and literature. Although the cited studies and others like them do a good job of identifying objective service attributes, they do not address passengers’ expectations or the

underlying dimensionality of the service quality construct from a theory-based perspective, which is at the heart of the mainstream service quality literature.

To summarize the current state-of-affairs of service quality theory and practice in the airport industry, compelling reasons for managing airport service quality exist and airport service attributes are commonly measured. However, a widely accepted, integrated theory / model of the dimensionality of passenger expectations driving airport service quality perceptions is lacking. Leaving aside the more academic questions this theory gap raises, from a practical airport marketing perspective airport managers need a valid and reliable scale (that is also concise and easily administered) for measuring airport service quality in order to:

- assess customer expectations about and perceptions of airport service quality at individual airports as well as at those of its competitors
- identify and prioritize service areas requiring managerial attention and action to ensure and improve service quality and customer satisfaction
- provide the airport's managers with indications of how to establish and sustain competitive advantage based on a service quality strategy.

In the remainder of this paper, research designed to develop and test a scale to investigate passengers' expectations of airport service quality is described. Both qualitative and quantitative studies using airport passengers as samples were performed to develop the expectations survey item pool, to investigate dimensionality of service quality expectations in the airport environment and to assess the resulting model's validity and reliability. We begin by combining a qualitative exploration of the airport experience from the passengers' perspective with a review of relevant literature to identify variables, to clarify basic concepts and to generate hypotheses in

the form of a preliminary conceptual model of airport service quality expectations. Quantitative research was used to develop a self-report scale to measure passenger expectations of airport service quality, to test for dimensionality and to evaluate reliability and validity as prescribed by Churchill's (1979) paradigm for the development of self-report scales.

Airport Service Quality Expectations: Model development

Generating Airport Service Quality Themes from Passengers

Consistent with accepted practice in marketing and service quality research (Brady and Cronin, 2001; Dabholkar *et al.*, 1996; Zeithaml *et al.*, 1993), we first conducted qualitative research on the passenger airport experience to gain an understanding of the dimensions of passengers' expectations of airport service quality. These studies were designed to develop rather than to test hypotheses because the airport quality management and passenger satisfaction literatures lack established theory suggesting formal relationships among the variables of interest. In addition, neither SERVQUAL nor any of its related operationalizations of the gap-theory model for measuring service quality have been suggested for or adapted to airports (see, however, Heung *et al.*, 2000 for an application of SERVQUAL to airport restaurants). Thus, the qualitative studies sought insights by collecting and analyzing observations about personal airport experiences and expectations from passengers. The approach of this qualitative research was to investigate quality factors the air traveler expects from an airport service encounter, to explore air traveler experiences and problems and to identify the importance of specific airport service expectations that might contribute to perceived service quality or to preferences for one airport over another. The research probed service quality outcomes, satisfaction and other intangibles of airport expectations, along with facilities and more tangible aspects of airports' physical settings. In

addition to providing the data for development of preliminary conceptual bases for passengers' expectations of airport service quality, this phase of the research generated an item pool for the construction of a related expectations measurement instrument.

Three different qualitative methodologies – in-depth interviews, focus groups and content analysis of verbatim comments – were used to focus on passenger expectations of airport service quality. The sampling frame, number of responses received and key respondent characteristics are indicated in the following table:

Take in Table I

Participants in the in-depth interviews and focus groups were asked about their expectations of and experiences at airports in general, as well as their attitudes toward and their opinions of specific airports with which they were familiar. Those who responded with comments at an airport Web site also were asked to respond to the open-ended question, “What is your favorite airport and why?” Content analysis was applied to the data generated from all three qualitative methodologies and, in accordance with Herek (1987), an airport service quality theme was defined by “any idea or complete thought somehow related to the respondent’s” reason for satisfaction or dissatisfaction with the airport experience. Results from the three qualitative studies were compiled to create a master list of airport service quality themes. Multiple mentions of the same theme were eliminated. The final list of 65 airport service quality themes appears in Table II.

Take in Table II

The Airport Service Quality Construct

We constructed out preliminary conceptual model of the expectations of the airport experience using data obtained from the passengers in our qualitative research and from the proscriptions provided by relevant literatures. The marketing and services literatures were chosen as appropriate. We also selected motivational psychology for its insights into how individuals allocate their waiting time, which passengers at airports often have in excess. This combination yielded both preliminary dimensions of airport service quality expectations and an item pool for developing a survey instrument. This approach is well documented in qualitative research in service quality (see Dabholkar *et al.*, 1996). It also resulted in the exclusion of some items from the original master list of airport service quality themes. For example, if passengers identified directional signage at the airport as a key expectation and the literature provided either conceptual or empirical support for this theme, it was included. If they mentioned expectations of higher prices at airports, it was excluded if not supported or suggested by our focal literatures. The literature itself suggested certain relevant concepts, such as whether interactions with fellow passengers influenced expectations of airport service quality. If, as in this case, such themes were not present in the qualitative findings, they were not included.

A Preliminary Conceptual Model of Airport Service Quality Expectations

Our resulting model of airport service quality expectations is composed of three primary dimensions – *servicescape*, *interaction* and *services*. Further, the model suggests that each dimensions has three subdimensions. Similar hierarchical structures for perceived service quality in other settings have been reported (Brady and Cronin, 2001; Dabholkar *et al.*, 1996). Brady and Cronin (2001) offer a plausible explanation:

“...customers form their service quality perceptions on the basis of an evaluation of performance at multiple levels and ultimately combine these evaluations to arrive at an overall service quality perception.” (p37)

Take in Figure 1

Dimension 1: Services

For services that require customers to be present in the service “factory” for extended periods of time, Bitner (1992) theorized that the facility itself – the “servicescape” – has a significant influence on overall service encounter quality perceptions. The servicescape includes all the objective factors controllable by the service provider that facilitate customer actions during the service encounter and enhance their overall service quality perception. Research has documented the influence of the physical environment on service quality perceptions in restaurants (Rys, Fredericks and Luery, 1987), retail stores (Dabholkar *et al.*, 1996), and a variety of other service businesses (Brady and Cronin, 2001). Because airports require passengers’ physical presence and often a significant time commitment, the physical environment of the airport can influence perceptions of the overall quality of the service encounter. For example,

... assume that a traveler enters an airport and (1) is confused because he or she cannot find signage giving directions to the assigned gate and (2) is emotionally distressed because of crowds, poor acoustics and high temperatures. Here the servicescape directly impacts the traveler’s evaluation of the quality of his or her airport experience. (Bitner, 1992, p61)

As approximately half of the airport service quality themes (Table II) were identified as representing Bitner's servicescape dimensions, the first primary airport service quality expectations dimension we propose is *servicescape*.

H₁: Passengers' expectations of the servicescape directly influence their airport service quality perceptions.

The basic servicescape construct includes three key elements: spatial layout and functionality, ambient conditions and signs / symbols. *Spatial layout and functionality* refers not only to the arrangement and relationships of machinery, equipment and furnishings, but also to the ability of these to facilitate performance and the accomplishment of service customer goals. This dimension is considered to be of particular importance because the physical settings of service encounters are purposeful environments that exist to fulfill specific needs of service customers. *Ambient conditions* are factors (e.g., temperature, lighting, noise, music and scent) that affect perceptions of the environment. Empirical studies confirm that these factors influence service quality perceptions of restaurants (Milliman, 1986) and retail venues (Milliman, 1986; Yalch and Spangenberg, 1988). *Signs and symbols* communicate explicit (i.e., posted labels, directions and rules) or implicit (quality of materials and furnishings) meaning about the physical environment.

Our qualitative research yielded clear evidence for all three components of servicescape. The first servicescape subdimension combines elements of both spatial layout and functionality, readily recognizable from Bitner's (1992) description of the servicescape. It makes intuitive sense that these two concepts should be very closely related as together they capture how well the airport layout "facilitate(s) performance and the accomplishment of goals." (Bitner, 1992)

The importance of facility layout to perceived service quality has been empirically established (Baker, Grewal and Parasuraman, 1994; Brady and Cronin, 2001; Dabholkar, *et al.* 1996).

Participants in the in-depth interviews and focus groups consistently stressed the critical importance of being able to find their way through the airport to either their departure gate, facilities (i.e., restrooms) or amenities (i.e., shops and snack bars). At the Web site, comments relevant to this dimension included, “I like the setting – it’s easy to find everything,” “easy access to everything,” and “Airport is designed so gates are close together.” As suggested by the literature review, and reinforced by the qualitative studies, *spatial layout and functionality* was proposed as the first servicescape subdimension of our model.

H₂: Passengers’ expectations of spatial layout and functionality influence their airport service quality perceptions.

Our second proposed servicescape subdimension is *ambient conditions*, similar to Bitner’s (1992) original dimension. While relatively few themes were generated around this aspect of the airport experience, passenger respondents in all three qualitative studies specifically mentioned them. Themes included: “An airport should be clean,” “An airport should have soothing music playing throughout its facilities and terminals,” and “An airport should offer as much natural light through windows, skylights, etc. as possible.” In other service settings, ambient conditions have been found to have either stressful or relaxing effects on customers (Milliman, 1982; 1986; Yalch and Spartenberg, 1988), and we propose that they also play a role in expectations underlying service quality perceptions of airports.

H₃: Passengers' expectations of ambient conditions influence their airport service quality perceptions.

The third subdimension we propose, *signs and symbols*, once again closely resembles the original Bitner (1992) dimension and addresses both explicit signals (signage) and implicit signals (décor). The role of signage in perceived service quality has been established in research (Callan and Kyndt, 2001). Passengers in the three qualitative studies stressed the importance of both informational signage (flight information displays or "FIDS") and directional signage "An airport's external signs should clearly direct me to airport services such as parking, car rentals, terminals, etc." As a symbol, airport décor was the sole implicit signal specifically mentioned by passengers in all three qualitative studies and it is a recurring theme in retail service quality research, as well (Dabholkar *et al.*, 1996). Comments included: "An airport should display art," "An airport's décor should reflect the local culture of the city at which it is located," and "An airport should have current décor." These themes, along with findings from related research, support our inclusion of *signs and symbols* as a servicescape subdimension in the model.

H₄: Passengers' expectations of signs and symbols influence their airport service quality perceptions.

Dimension 2: Service Providers

A second influence on service quality perceptions where customers' physical presence is required for service delivery is interactions with service personnel (Bitner, 1990, 1992; Brady and Cronin, 2001; Brown and Swartz, 1989; Dabholkar *et al.*, 1996; Elliott, 1995; Grönroos, 1982; Saleh and Ryan, 1991; Surprenant and Solomon, 1987). The most widely known and

discussed means used to measure consumer perceptions of service interaction quality is SERVQUAL, a multiattribute scale commonly comprised of five dimensions: *tangibles*, *reliability*, *responsiveness*, *assurance* and *empathy* (Cronin and Taylor, 1992; Oh and Parks, 1997). Although the intended scope of SERVQUAL extends beyond service customer – provider interactions, three of the dimensions explicitly focus on the relational aspects of service quality (responsiveness, assurance, empathy) and the remaining two (tangibles and reliability) touch upon customer contact personnel issues as well. SERVQUAL has been applied and tested in a number of empirical studies involving services with elaborate servicescapes, including hotels (Saleh and Ryan, 1991; Getty and Getty, 2003), restaurants (Bojanic and Rosen, 1994; Heung, Wong and Qu, 2000), health clinics (Babakus and Mangold, 1989), hospitals (Carman, 1990), banks (Spreng and Singh, 1993) and airlines (Elliott, 1995). Despite the lack of a previous application of SERVQUAL to airports, perceptions of service quality for other services with elaborate servicescapes and for airport environments are likely to share some common dimensions in the area of service interactions and similar influences on service quality perceptions. Therefore, the second dimension proposed for our model of airport service quality expectations is *service providers*.

H₅: Passengers’ expectations of the interactions with service providers directly influence their airport quality perceptions.

Our *service providers* dimension partially resembles the original Parasuraman et al., (1988) SERVQUAL construct. Nearly a quarter of the themes generated by passengers in the qualitative study were clearly identifiable as SERVQUAL dimensions. Included were cites to *tangibles* (“The way an airport employee is dressed should easily identify their function”), *responsiveness*

(“Employees at an airport should never be too busy to respond to my requests promptly”), *assurance* (“I expect employees at an airport to be courteous”) and *empathy* (“There should be employees at an airport available to offer me individualized attention”).

While our *service providers* dimension does contain elements of the original Parasuraman et al., (1988) SERVQUAL construct, there is an alternative that better fits the observed data. Cronin and Brady (2001), as well as others (Bitner 1990; Bitner *et al.* 1990; Czepiel *et al.* 1985; Gronroos 1990), have provided conceptual and empirical support for three distinct factors that underlie consumer perceptions of their interactions with service providers: attitudes, behavior and expertise of the service provider. Without exception, the service provider interaction themes generated by the qualitative sequence of studies referred to one of these three factors.

H₆: Passengers’ perceptions of the attitudes of service providers influence their airport quality perceptions.

H₇: Passengers’ perceptions of airport service quality are influenced by their expectations of employee behavior.

H₈: Expectations of employees’ expertise influence passengers’ perceptions of airport service quality.

Dimension 3: Services

The necessity for passengers to be physically present in the airport emphasizes issues of time and of how time is spent. Servicescape theory addresses this in terms of spatial layout and

functionality. SERVQUAL focuses on time spent waiting. Neither servicescape nor SERVQUAL, however, address larger issues of how the customer's time is allocated or invested. Because the airport experience demands a significant time commitment - and for many passengers time is the ultimate scarce resource - the extent to which the airport facilitates or frustrates their use of time can have a significant influence on perceptions of the overall quality of the service encounter. Research shows that once a passenger has entered the terminal his or her average wait can exceed one hour (Darko, 1999). Factors such as flight delays and cancellations due to security, breakdowns and weather, can prolong time spent at the airport. Research also has highlighted the importance of time spent waiting at airports (Darko, 1999), especially to business travelers. Given the value of time spent waiting to many passengers, more favorable perceptions of airport service quality may be associated with airport options that provide them with greater control over how they experience their waiting time. This raises the question, "What would passengers choose to do with the time they spend waiting in airports?"

A body of work (e.g., Csikszentmihalyi and Graf 1980; Larson and Richards 1994) documents that what people do with their time can be divided into three major activities: productive, maintenance and leisure. Depending on their stage in the life cycle and employment status, many people spend much of their time engaged in *productive activities* such as job-related work or education-related study. Another significant chunk of time is taken up by *maintenance activities* directed at both people's bodies (e.g., eating, resting, grooming) and their possessions (e.g., housework, shopping). Discretionary time left over from productive or maintenance activities is available for *leisure* pursuits. Three primary forms are: media consumption such as watching television, listening to music or reading; conversation; and more active leisure including hobbies, sports, exercise and going out to restaurants, movies and the mall. Thus, research suggests that

passengers at the airport have the potential for actively seeking to achieve goals and objectives related to work, related to keeping their body and possessions functioning properly and related to whatever they do with their free time. It is within these three domains of activity that the airport experience can facilitate or frustrate how passengers choose to use their precious time spent waiting. How well it does at either can have a significant influence on perceptions of the overall quality of the airport service encounter. Thus, the third dimension in our model of airport service quality expectations is the services offered by the airport.

H₉: Passengers' perceptions of airport service quality are directly influenced by their expectations of how airport services will facilitate their activities during the time that they are physically present at the airport.

Passengers in all three qualitative studies consistently generated themes that identified services needed or wanted during the time that they were at the airport. Comments such as "An airport should have business centers which provide personal computers, phones and faxes" and "Conference facilities should be available to me at an airport so that I can conduct meetings" all clearly relate to productive activities. Csikszentmihalyi's (1997) typology specifically identifies shopping and eating out as maintenance activities. Passengers in the qualitative research listed both. Comments included: "Nationally known retail outlets should be available at airports" and "A variety of food choices should be available at airports." Themes related to leisure activities identified in all three qualitative studies included "An airport should offer services such as massage booths, salons and recliner lounges" and "Airports should house educational museums for passengers to enjoy during layovers." Thus, our qualitative data support Csikszentmihalyi's

(1997) typology, because passengers consistently cited services that could be easily identified as important to activities in one of these activity areas.

To summarize, we propose a hierarchical factor structure for airport service quality with three basic dimensions, with overall service quality as a second-order factor. Further, each of the three dimensions have three subdimensions each (see Figure 1).

Airport Service Quality Expectations: Test of the model

Research Methodology

The purpose of this quantitative study was to design, implement and test an objective approach to measuring passengers' expectations of airport service quality.

Item generation and scale development

All 65 airport service quality themes generated by the in-depth interviews, focus group discussions and Web site comments (described in the qualitative sequence of studies) were rewritten as questionnaire items (See Table II) to form an original scale that was used to collect data from a sample of frequent flyers. Each airport service quality theme was paired with a 7-point scale ranging from "Strongly Agree" (7) to "Strongly Disagree" (1).

Data collection

Data for the quantitative sequence of analyses were collected from a purchased list of 1,765 frequent flyers (defined as three or more air trips per year) with an annual income over \$50,000.

The sampling frame was nationwide in scope and consisted of an equal percentage of males and females.

Approximately 33 percent, or 753, of the 1,765 surveys mailed out were returned. The analytic techniques used in this study are sensitive to missing data and for that reason casewise deletion was used to remove 53 cases. Even after removal of unusable cases, this response rate is high compared to other mail surveys reported in recent marketing literature, but about average for travel, tourism and hospitality studies. No incentive was offered to respondents.

The responses (n=700) contained a nearly equal number of females and males. The age of the respondents ranged from 17 to 75 with an average age of 48 years. Respondents reported an average of nearly four pleasure trips and nine business trips by air within the past year.

Approximately 55 percent of the respondents named one of ten airports as their home airport.

Included in the top ten airports mentioned were large hub airports (DFW, ATL, DEN) as well as smaller airports (DAL, HNL, LAS).

Analysis

To test the hypotheses, data were analyzed using both exploratory and confirmatory factor analysis (CFA). Exploratory factor analysis was used to explain the pattern of correlations within the set of observed variables and to compare those empirical results against each of the three dimensions in our expectations model (Figure 1). CFA was then used to confirm the second-order dimensionality suggested by the qualitative research and literature review, as modified by the results of the exploratory factor analysis.

Results

Exploratory factor analyses

The scales used to test our dimension / subdimension hypotheses were: servicescape (H2 – H4), service personnel (H6 – H8) and services (H10 – H12). In order to determine whether the items as we assigned them actually do represent the dimensionality suggested from the combined literature review and qualitative research, the items comprising each separate scale were subjected to a maximum likelihood exploratory factor analysis.

For each of the three scales, exploratory factor analysis initially resulted in a number of factors, retention of which was at first based on whether the individual factor had an eigenvalue greater than or equal to one. The reduced factor solution for each scale was then subjected to a varimax rotation seeking more easily interpretable results. While the varimax rotation produced interpretable loadings, each scale also contained items that loaded highly on more than one factor. As per Churchill (1979), only items that loaded on a single factor were selected for the final version of the scale. Also, in all three scale solutions some items failed to load on any factor at the 0.6 level or higher and were removed. Items were reduced and sub-dimensions were modified for each scale in an iterative process.

Next, coefficient alphas and item-to-total correlations were calculated for each scale. Where values of coefficient alpha indicated that further deletion of items would improve the alpha value, this was done. Recomputation of alphas and item-to-total correlations and reexamination of the factor structures were repeated. Final results are presented in Tables III, IV and V. Results both supported our preliminary conceptual model for passengers' expectations of airport service

quality and also suggested modifications. The following section details how and why our original model was re-specified to accommodate both theory and data.

Servicescape

Table III presents the results of an exploratory (maximum likelihood) factor analysis on the servicescape scale. A two-factor solution was identified. The first factor contains items from the original sub-dimensions of *spatial layout and functionality* and *signs and symbols*. As the servicescape's role in the effective movement of the passenger through the airport seems to be an underlying theme among the items loaded on the first factor, "*effectiveness*" provides an apt label for this factor. Items that loaded on the second factor represent passengers' concern with the timeliness of their movement through the airport and this factor has been labeled "*efficiency*." No items from the original *ambiance* sub-dimension were retained by the analysis. Based on these results, the primary *servicescape* dimension is retained in the re-specification of our original model, but has been renamed "*function*" to more accurately reflect the items retained and factors generated. In addition, the *effectiveness* and *efficiency* factors replace the original *spatial layout and functionality*, *ambient conditions* and *signs and symbols* sub-dimensions.

Take in Table III

Service personnel

Our original *service personnel* dimension specified three subdimensions: *attitudes*, *behavior* and *expertise*. The results of the exploratory factor analysis on the original *service personnel* scale, including items that failed to load meaningfully on either of the other two original scales, suggest an interesting modification that both contracts and expands our initial conceptualization. (See

Table IV) The items that loaded on all three factors are mainly related to the *behavior* subdimension from our initial model. The first factor is made up of items that, collectively, can be interpreted as service personal behaviors that facilitate *access* of passengers to them. The second factor is clearly about the service personnel's *problem-solving* behavior. The third factor is perhaps the most intriguing. It is mostly composed of items originally placed in the *signs and symbols* subdimension of the original model, where they failed to load meaningfully. When added to the *service personnel* scale, however, they combined with employee behavior related to *advice* on services available in the local area. In the re-specification of our initial model, the term “*service personnel*” is replaced with “*interaction*” to more accurately reflect the factors generated by our analysis: *access*, *problem-solving* and *advice*.

Take in Table IV

Services

Results from the exploratory factor analysis of the *services* scale are presented in Table V. As shown, a four-factor solution was generated. This factor pattern was produced when the items from the original *ambiance* subdimension – which failed to load as initially specified under the primary *servicescape* dimension – were added to the *services* scale. The first factor (*maintenance*) and the fourth factor (*productivity*), reflecting Csikszentmihalyi's domains of activity, remain relatively unchanged from the initial model. The items loaded on the second factor are all from the original *ambiance* subdimension and relate to the “feeling” of a particular airport setting. The third factor contains items also from the original *ambiance* scale, but of a more tangible nature, describing the *décor* of an airport.

Taken together, these four factors suggest an underlying construct more complex than the original *services* dimension. The combination of ambiance-related factors along with the activity-related factors may be describing an environment perceived by the passenger as offering opportunities for aesthetic, cognitive and sensory satisfaction. Such an environment is no doubt of special importance to consumers who, as a necessary condition of their consumption of a service product (the airport), are required to spend relatively large amounts of time there. This interpretation of the results led to a revision of the primary dimension label from “*services*” to “*diversion*,” reflecting a turning aside from focusing on the fact that the passenger is, in effect, “trapped” in the airport servicescape toward activities that redirect their attention or stimulate them aesthetically.

Take in Table V

Based on the results of the exploratory factor analysis, our preliminary airport service quality expectations model was revised and specified as a second-order factor model (see Figure 2).

Take in Figure 2

Confirmatory factor analysis

The revised structure pattern of the remaining items was evaluated through a confirmatory analysis using AMOS 4.01 (Analysis of Moment Structures). We applied the traditional structural equations approach, total disaggregation, using each item as a separate indicator of the relevant construct thus providing the most rigorous and detailed level of analysis. Submission of

the model specified by Figure 2 failed to achieve a feasible solution. Modifications were made by removing latent variables in an iterative fashion and re-testing the resulting model. As a result, *access*, *advice* and *ambiance* subdimensions were eliminated from the final model. *Access* and *ambiance*, upon closer inspection, were both concerned with generic service issues that were not specific to the airport. The items contained in *advice* were more focused on destinations than on airports.

The revised structure pattern of the remaining items was then evaluated and an acceptable fit was found ($\chi^2/df = 3.631$, GFI=.912, AGFI = 0.889, CFI = 0.894, RMSEA = 0.068) for the model shown in Figure 3. The unidimensionality and convergent validity of the scale is achieved if the AGFI is above 0.90, while the root mean square of approximation (RMSEA) is less than 0.08. The factor loadings and gamma values for the third-order factor model are detailed on Figure 3. One lambda value for each dimension and subdimension was set at 1.0. An examination of the modification indices did not suggest any changes in the model. The results led us to conclude that the proposed factor structure for airport service quality is supported.

Construct Reliability and Validity of the Airport Service Quality Expectations Scale

The alpha for the global construct was estimated at 0.85 and for the second-order constructs at 0.79 (Function), 0.74 (Interaction) and 0.80 (Diversion). Cronbach's alpha was computed for subdimensions and the values ranged from 0.81 to 0.61. Convergent validity of the airport service quality scale cannot be determined at this time by the normal practice of using different methods to test the construct since we only used one method. All of the items loaded highly on the factors to which they were assigned, however, which can be considered a test of convergent validity of the scale. A test of discriminant validity is especially important, given that some of

the dimensions are highly correlated. One accepted test of discriminant validity is to determine whether the covariance and two standard errors add to less than 1.00. We used this procedure on all possible pairs of the dimensions and found values ranging from 0.75 to 0.98. Thus, all dimensions are statistically distinct even after correcting for measurement error and do have discriminant validity. In a practical sense, they are highly correlated and this could explain why there is so much common variance to make a higher order factor structure appropriate.

Hypothesis results

Our findings suggest that passengers airport service quality expectations are structured according to three basic dimensions. In addition, overall service quality expectations are a higher order factor and the basic dimensions have subdimensions associated with them in the passengers' mind. Results for individual hypotheses are summarized as follows:

Servicescape hypotheses: Strong support was found for *function*, an airport service quality dimension resembling the *servicescape* construct of Bitner (1992) thus supporting H₁. Our subdimension hypotheses were partially supported. The *effectiveness* subdimension contains items from *spatial layout and functionality* and from *signs and symbols*, supporting H₂ & H₄. H₃ was not supported, however, as no evidence for an *ambiance* subdimension was found.

Service provider hypotheses: A basic dimension of airport service quality was found to be *interaction*, which consists largely of items from the *service providers* scale, as hypothesized in H₅. Subdimensionality was not confirmed. However, the items that were retained in the scale generally supported the hypothesized influence of airport service providers' problem-solving *behavior* on passenger perceptions of airport service quality (H₇).

Services hypotheses. Once again, strong support was found for a basic dimension of service quality related to airport *services*, supporting H₉ but further elaborated as *diversion*. Two of the three subdimensions hypothesized were found intact, *maintenance* (H₁₁) and *productivity* (H₁₀). A *leisure* subdimension (H₁₂) was not identified although it seems implicit in the dimension.

Discussion

Summary, Contributions and Limitations of the Research

The General Assembly of the Airports Council International (ACI), the “voice of the world’s airports”, representing 1,550 airports in over 170 countries in all regions of the world, has designated quality of service at airports a “vital factor in its own right” (ACI, 2004). This study has several implications for research and practice in this area. By following best practices from marketing and services research to identify and test the dimensionality of passengers’ expectations for airport service quality, we provide fresh insights for the measurement and management of service quality at airports.

By bringing together different literatures and research paradigms to conceptualize service quality in a novel environment with a unique group of consumers whose service experience takes place over an extended period of time within an elaborate servicescape, this study contributes to the ongoing extension of service quality research. Furthermore, by going beyond traditional service performance measures used in the airport industry and by introducing new variables to the service quality literature, such as Csikszentmihalyi’s (1997) taxonomy of activity, this study

broadens and enriches both practice and theory in this domain. For example, although the issue of waiting time has generated much interest among both marketing and service researchers (cf. Katz et al., 1991; Jones and Peppiatt, 1996), focus on how customers use or would prefer to use time spent waiting in prolonged service encounters is lacking. This study contributes to an understanding of the role of time spent waiting in service encounters in several ways. First, we showed that the services available to passengers as they wait at the airport are critical to their expectations of service quality. Second, we extend theory on the role of waiting time in service quality by examining what activities (productive, maintenance, leisure) passengers perceive to be facilitated by the services available to them as they wait. Third, we find empirically supported relationships not only directly between expectations of airport service quality as a higher order factor and a primary service dimension, but also between the primary dimension and two subdimensions composed of services that contribute to passengers' maintenance and productive activities, as well. While focused on the airport industry, other service industries with similar characteristics (e.g. healthcare) should benefit from the insights suggested by this research.

With the emergence of highly competitive markets and commoditization of the airport offering, differentiation through service quality is a strategic imperative for many airport managers. This study advances strategic thinking about airport service quality in three ways. First, it demonstrates empirically, using data collected from passengers, the structure underlying their expectations of airport service quality. Second, it contributes to airport marketing strategy by identifying the key roles of servicescape, service providers and services in the competitive landscape of the industry. Specifically, the study shows clearly what is and – perhaps more importantly – what is not important to passengers making choices among competing airports. Third, this study builds on the extant literature on service quality to propose a method for

measuring passengers' expectations of airport service quality that can serve as a foundation of a concise and easy-to-administer self-report measure for identifying and managing service quality strategies to gain and hold advantage in an increasingly competitive environment.

This study's contributions must be considered in light of its limitations. First and foremost, a single study of passenger expectations is not sufficient to inform a fully-developed conceptualization of airport service quality. Second, our efforts to define a global expectations construct may have inadvertently "homogenized" our results. Specifically, passenger data was collected in a contextual void. Respondents were asked to indicate their expectations for airports in general, without taking into consideration passenger, trip or airport characteristics. In terms of passenger characteristics, for example, cultural differences are known to affect perceived service quality (Espinoza, 1999). This study included only domestic (U.S.) passengers. Generalization of the model to a global market thus awaits replication across cultures. Trip characteristics - most importantly purpose-of-trip - is one of the most influential factors influencing traveler perceptions and behavior (Fodness, 1994). While this study included both business and leisure travelers, further insights could be gained from trip-specific passenger expectations research. There is great variability in airports (Graham, 2003). Some cater almost exclusively to business travelers (London City Airport) and others service primarily leisure travelers (Ft. Lauderdale International Airport). Some are nearly always crowded (JFK) while others have excess capacity and unused spaces (Kuala Lumpur International Airport). A comprehensive model of airport service quality expectations and perceptions will need to include airport characteristics in its conceptual underpinnings.

Managerial Implications

This study has clear implications for service quality measurement and management at airports. The most obvious is that in order for airport service quality strategies and tactics to yield the desired results, service quality of airports must be defined by and measured from passengers themselves and not by or from others. More specifically, researchers in this industry have sometimes relied on airport and travel professionals for specifying and even for measuring airport service quality “from a passengers’ perspective.” Table I shows many of the service attributes commonly measured by airports were left out of the focal model which was developed from passenger data. It is reasonable to interpret this outcome as reflecting the fact that service elements omitted from the model were unimportant, less important or invisible to the passenger. Instead of attributing more importance (or sole importance) to managers’ beliefs about what passengers expect from service quality at airports, this article recommends studying service quality perceptions in a customer-focused manner in order to best determine where and how airport service quality initiatives can make a significant difference to the customer. Thus, a key managerial implication of this study is a passenger-driven framework for the airport manager on how to enhance the quality of the service quality management process thereby improving service quality in the airport in ways that really do matter to the passenger.

The study offers direction for managers who seek to use service quality as a critical component of their airport’s competitive strategy. Customer-driven service quality enhancements affect not only passengers’ perceptions, but also the overall attractiveness of the airport relative to its competitors. Thus, allocating an appropriate amount of resources to the key factors of airport service quality can increase the likelihood of being perceived by a passenger as the best choice, relative to the alternatives available.

Our evidence of the dimensionality of passengers' expectations of airport service quality reiterates recent ACI calls for focusing managerial attention on the central importance passengers. "Passengers...demand higher standards of service, and, where they have a choice, they will tend to choose the ... airports ... which give the best quality of service (ACI, 2004; p 2). We provide strong support for developing an approach to airport service quality measurement that supports managers who need to make informed decisions as to how best to fulfill their industry mandate and to achieve competitive advantage in the marketing.

Implications for Future Research

This study holds implications for further research in the services, service quality and airport quality and passenger satisfaction domains. Significant contributions could result from additional study of the relationships among service quality, servicescape and Csikszentmihalyi's typology of how individuals use their time. Several authors have already added valuable insights into the role of the servicescape in service quality (Brady and Cronin 2001; Dabholkar *et al.* 1996). A more explicit and systematic investigation of how the servicescape facilitates or frustrates customers' activity goals (productivity, maintenance and leisure) should be of interest to researchers of service quality in servicescapes where customers spend extended periods of time and to services marketers who focus on waiting time and queuing issues (e.g., bus terminals, train stations and cruise ships).

Given that prior academic research in airport service quality is limited and primarily focused on service performance measure methodologies, that literature could benefit from further application of gap theory methodology for analyzing service quality. Two critical investigations needed are further study of the relationships between airport service quality and other important

airport performance measures. The relative importance of service quality in the passengers' airport choice decision is currently the subject of speculation requiring empirical inquiry and specification. In a related area, the influence of passenger preferences for airports on airline choice of airports requires further study.

Conclusion

Recent events underscore the immediacy of industry interest in the measurement and management of service quality at airports. There is a corresponding groundswell among academics in marketing and services of interest in how extant and evolving service quality theory "fits" in previously unexplored service settings. This study was developed to provide insights into the process of service quality measurement at airports and to contribute to the knowledge base in services quality theory and practice. To that end, this article (1) explores existing practitioner and academic perspectives on airport service quality; (2) develops and proposes a conceptual model of passengers' expectations of airport service quality from a juxtaposition of services, marketing and operational psychology literature against qualitative research on passengers; (3) empirically investigates the model using a sample of 700 frequent airport users; (4) discusses the implications of the study results for service quality theory and practice; and (5) offers implications and a set of recommendations for the measurement and management of service quality at airports.

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Table I Qualitative research

	Methodology		Verbatim Comments
	In-depth Interviews	Focus Groups	
Sampling Frame	Passengers in terminal waiting areas of a major Southwestern airport	Frequent flyers in Los Angeles, Dallas and Miami	Visitors to the Web site of a major Southwestern airport
n	100 passengers	72 frequent flyers (6 focus groups total; two in each location)	1,500 comments
Key Respondent Characteristics	Actively engaged in the airport experience at the time of interview	Platinum-level American Airlines frequent flyer status	Submitted comments at airport Web site without urging or incentive

Table II Airport service quality themes ^{1,2}

-
1. *An airport's physical layout should make it easy for passengers to find what they need (i.e. restaurants, restrooms, gates, etc.).*
 2. I do not expect to walk long distances to get where I am going in the airport terminal.
 3. *Conference facilities should be available to me at an airport so that I can conduct meetings.*
 4. I would use a church/chapel in an airport during a layover.
 5. *An airport should display art.*
 6. It upsets me when I have to go back-and-forth through security to access airport services (retail shops, food outlets, etc.).
 7. *An airport should have quiet areas in which to nap, read, or do business.*
 8. Airport employees should show an interest in solving my problems.
 9. I should expect to pay more in restaurants and snack bars at an airport.
 10. Banking services should be available at airports.
 11. *A variety of ground transportation options to the nearest city should be available.*
 12. Airport security measures are a waste of my time.
 13. I expect to pay more at retail outlets at an airport.
 14. *An airport's decor should match the local culture of the city at which it is located.*
 15. Airport facilities and amenities (i.e. restaurants, restrooms, and shops) should be conveniently located near gates and in every terminal.
 16. It is important to me for the public announcement / paging system to be audible in all areas of an airport terminal, including restaurants, retail stores, and curbside check-in.
 17. I feel airports should have more flight information displays in the terminals.
 18. A variety of food choices should be available at airports.
 19. I find electric passenger transfer carts to be convenient when changing planes.
 20. There should be an automated means of obtaining information on local attractions at an airport.
 21. *Opportunities to enjoy the local cuisine should be available at airports.*
 22. *Nationally known retail outlets should be available at airports.*
 23. *It upsets me when I have to wait more than ten minutes to receive my baggage after a flight.*
 24. I should be able to walk to the parking lot from the terminal at an airport.
 25. Children's play areas should be available in airport terminals.
 26. An airport's terminal should be designed so that waiting lines are minimized.
 27. *An airport should have business centers which provide personal computers, phones, and faxes.*
 28. An airport should offer services such as massage booths, salons, and recliner lounges.
 29. Employees at the airport should be neatly dressed.
 30. There should be an automated means of obtaining information on local hotels at an airport.
 31. *An airport's external signs should clearly direct me to airport services such as parking, car rentals, terminals, etc.*
 32. *I like many signs to be visible throughout an airport directing me to airport facilities (baggage, ticket counters, security, rest rooms, rental cars, transportation services, etc.)*

33. Employees at an airport should never be too busy to respond to my requests promptly.
34. *I expect baggage carts to be conveniently located.*
35. *It upsets me when I have to wait in line more than ten minutes during the check in process.*
36. I trust airport employees.
37. *I should be able to exit the airplane within ten minutes of landing.*
38. Moving walkways and escalators should be located throughout the terminal.
39. *An airport should have current decor.*
40. Employees at the airport should be able to direct me to any airport service.
41. There should be employees at an airport available to offer me individualized attention.
42. *National chain restaurants should be available at airports.*
43. An airport should be clean.
44. I am often confused by flight information displays.
45. An airport's waiting areas should provide comfortable seating.
46. An airport's rest rooms should offer baby changing tables.
47. *I expect to find a variety of specialty retail stores that portray the local culture at the airport.*
48. I feel airports should have flight information displays outside of the terminals (i.e. parking lots, access roads).
49. An airport should have soothing music playing throughout its facilities and terminals.
50. The way an airport employee is dressed should easily identify their function.
51. I would use a gym during a layover at an airport.
52. I expect employees at an airport to be courteous.
53. Airports should house educational museums for passengers to enjoy during layovers.
54. Employees at an airport should keep me informed of any changes that may occur.
55. At airports, the excessive number of signs often confuses me.
56. An airport should offer as much natural light through windows, skylights, etc. as possible.
57. I expect my complaints to be responded to immediately at an airport.
58. An airport should have many windows to view airplanes taking off and landing.
59. An airport should have plenty of open spaces to prevent crowding.
60. Employees at an airport should be knowledgeable about local areas of interest.
61. An airport should have designated smoking areas.
62. I expect employees at the airport to greet me with a smile.
63. I expect to find baggage claim services close to the gate.
64. Mail facilities should be available at airports, including postage machines and drop boxes.
65. *I should be able to easily reach my connecting flight.*

¹ Airport themes are presented as they were re-written for the questionnaire in order to save space.

² Italicized items were retained in the final model.

Table III Servicescape: Results of exploratory factor analysis

Items	Factor 1 <i>Effectiveness</i>	Factor 2 <i>Efficiency</i>
An airport's external signs should clearly direct me to airport services such as parking, car rentals, terminals, etc. (31)	.852	.103
I like many signs to be visible throughout an airport directing me to airport facilities (baggage, ticket counter, security, rest rooms, rental cars, transportation services, etc. (32)	.807	.149
An airport's physical layout should make it easy for passengers to find what they need (i.e., restaurants, rest rooms, gates, etc.) (1)	.748	.056
A variety of ground transportation options to the nearest city should be available. (11)	.651	.206
I expect baggage carts to be conveniently located. (34)	.648	.092
I should be able to easily reach my connecting flight. (65)	.616	.271
It upsets me when I have to wait more than ten minutes to receive my baggage after a flight. (23)	.055	.864
It upsets me when I have to wait in line more than ten minutes during the check-in process. (35)	.117	.860
I should be able to exit the airplane within ten minutes of landing. (37)	.295	.626
<i>Reliability coefficient (alphas)</i>	.81	.73
<i>Eigenvalue</i>	3.265	2.037
<i>Percent of variance explained</i>	36.277	22.630
<i>Cumulative percent of variance explained</i>	36.277	58.907

Table IV Service personnel: Results of exploratory factor analysis

Items	Factor 1 <i>Access</i>	Factor 2 <i>Problem-solving</i>	Factor 3 <i>Advice</i>
I expect employees at an airport to be courteous. (52)	.777	.239	-.065
Employees at an airport should be neatly dressed. (29)	.768	.139	.170
The way an airport employee is dressed should easily identify their function. (50)	.689	.133	.257
Employees at the airport should be able to direct me to any airport service. (40)	.615	.394	.256
I expect my complaints to be responded to immediately at an airport. (57)	.178	.823	.088
There should be employees at an airport available to offer me individualized attention. (41)	.131	.758	.266
Employees at an airport should never be too busy to respond to my requests promptly. (33)	.384	.697	.113
There should be an automated means of obtaining information on local attractions at an airport. (20)	.029	.100	.849
Employees at an airport should be knowledgeable about local areas of interest. (60)	.117	.247	.717
There should be an automated means of obtaining information on local hotels at an airport. (30)	.387	.097	.680
<i>Reliability coefficient (alphas)</i>	.76	.74	.70
<i>Eigenvalue</i>	2.407	2.069	1.953
<i>Percent of variance explained</i>	24.027	20.685	19.533
<i>Cumulative percent of variance explained</i>	24.027	44.757	64.291

Table V Services: Results of exploratory factor analysis

Items	Factor 1 <i>Maintenance</i>	Factor 2 <i>Ambiance</i>	Factor 3 <i>Decor</i>	Factor 4 <i>Productivity</i>
Nationally-known retail outlets should be available at airports. (22)	.827	-.049	.039	.238
National chain restaurants should be available at airports. (42)	.800	.195	.059	.129
Opportunities to enjoy the local cuisine should be available at airports. (21)	.684	.082	.343	.106
I expect to find a variety of specialty retail stores that portray the local culture at the airport. (47)	.656	.104	.384	.028
An airport's waiting areas should provide comfortable seating. (45)	.080	.817	.089	.093
An airport should be clean. (43)	.011	.809	.010	.025
An airport should have plenty of open spaces to prevent crowding. (59)	.152	.737	.191	.021
An airport's décor should match the local culture of the city at which it is located. (14)	.159	.213	.758	-.051
An airport should display art. (5)	.071	-.079	.682	.341
An airport should have current décor. (39)	.267	.154	.667	.060
Conference facilities should be available to me at an airport so that I can conduct meetings. (3)	.106	-.020	.098	.856
An airport should have business centers which provide personal computers, phones and faxes. (27)	.260	.184	.096	.727
An airport should have quiet areas in which to nap, read, or do business. (7)	.068	.426	.174	.547
<i>Reliability coefficient (alphas)</i>	.80	.72	.61	.61
<i>Eigenvalue</i>	4.074	1.762	1.203	1.074
<i>Percent of variance explained</i>	31.34	13.55	9.257	8.263
<i>Cumulative percent of variance explained</i>	31.34	44.890	54.147	62.410

Figure 1 Preliminary conceptual model for airport service quality



Figure 2 Re-specified model following exploratory factor analysis

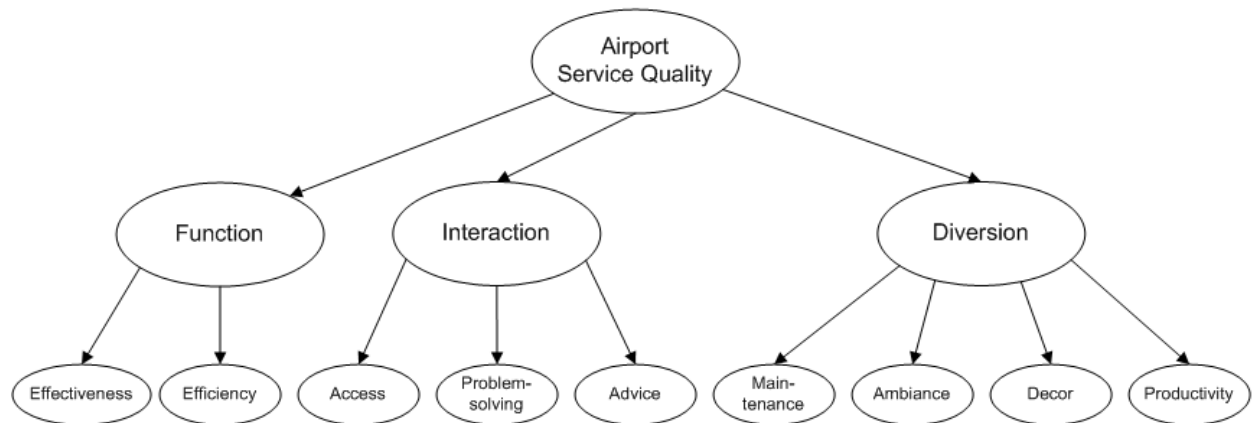


Figure 3 Final model - hierarchical structure for airport service quality expectations

