Airline service quality: Exploratory analysis of consumer perceptions and operational performance in the US and EU

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Abstract: The purpose of this paper is to examine consumer perceptions of airline quality indicators and compare them to actual data reported by the Department of Transportation, in the USA and the Association of European Airlines (AEA) in the EU. The objective is to determine whether there is a discrepancy between reported performance metrics of service quality and consumer perception. This paper compares actual reported data on service quality with results of an exploratory questionnaire on the perceived frequency of service failures in three key areas of airline service quality: on time flight arrivals, baggage reports and flight cancellations. Similarities and differences both within and between the USA and EU markets are discussed. Preliminary findings indicate that actual consumer perceptions of airline performance on key areas of airline service quality are in fact far worse than the data reported in the US Air Travel Consumer Report or AEA Consumer Report. Consumer perceptions fail to come close to many of the service standards the industry is actually reaching. The only exception to this can be seen in the EU where the perceived and actual scores are virtually the same for on time arrivals. It's also interesting to note that the EU perception scores are generally higher than those of the US sample, indicating a marginally more positive disposition towards the industry. This paper represents a exploratory attempt to integrate the two dominant approaches to airline service quality - perceptual survey and reported secondary data - in an effort to understand the challenge facing international airlines. It also examines the perceptual and performance differences across key Western cultures.

Links: Linking Service

Full text: In the USA, 2007 shows all the signs of being one of the worst years on record for airline service quality performance. On-time arrival rates have dropped to 72 per cent, an all-time low ([47] Yu, 2007a). The rate of mishandled baggage which stood at 6.5 per 1,000 passengers in 2006 is rising as an increasing number of passengers are checking baggage in the wake of the new regulations on liquids in handheld carry-on luggage ([44] The Associated Press, 2007). In addition, the industry has witnessed several very high profile service failures including the very public meltdown of JetBlue Airways, a former darling of the US airline industry. Bad weather and lean operations over the Valentine's Day holiday resulted in the stranding of over 5,000 passengers, primarily at the New York hub. This event is projected to cost JetBlue US$14 million in refunds and overtime. It remains to be seen whether the cost in terms of reputation and goodwill will be even greater ([40] Sloan and Ehrenfeld, 2007).

Within Europe the rapid expansion of the low cost airline sector has increased the number of passengers travelling within the EU to over 450 million (www.eccdublin.ie). At the same time interest in airline service quality has become more pronounced due to the introduction of a series of measures designed to compensate passengers for service failures. In 2005 European Regulation (261/04) gave EU consumers rights when denied boarding or when a flight is either cancelled or delayed ([14] Europa, 2006). Since the introduction of these new measures the European Consumer Centre (EDC) has reported a significant rise in complaints relating to luggage, delays and cancellations.

The events of the summer of 2006 in the UK, but with knock-on affects across all of Europe, also highlighted some of the problems experienced by passengers. A failed terror plot uncovered in the UK led to much stricter security arrangements and a ban on all hand luggage. The impact on overall airline service quality was significant as British Airways (BA) was forced to cancel flights due to long delays at check in. It is estimated that
at least 10,000 bags were misplaced by BA and over 700 flights cancelled in the immediate aftermath of the security threat ([2] BBC News, 2006).

The purpose of this study is to examine consumer perceptions of airline service quality and compare them to actual data reported by the Department of Transportation (DOT) in the USA, and the Association of European Airlines (AEA) in the EU. The study sought to determine whether consumer perception are in fact an accurate representation of quality levels or whether there is a discrepancy between reported performance and perception on the part of consumers. A general overview of the international airline industry is provided along with an analysis of approaches to assessing airline service quality. The research methodology used in this study is then discussed, and results and findings are then analysed.

The international airline industry

The airline industry plays an important role in the global economy. It is a vital component of the leisure/tourism industry and remains essential to the conduct of international business. It represents one of the biggest industries worldwide with global airline revenues exceeding $12.9 billion in 2006 ([24] IATA, 2007a). The direct contribution to national GDP on a global basis is estimated to be $140-145 billion ([25] IATA, 2007b). It is also experiencing unprecedented and sustained levels of demand (exceptions to this include the 1986 Libyan crisis, the two Gulf Wars and September 11) that are straining the existing aviation infrastructure to the breaking point ([33] Reed, 2007). Yet despite this growth, profitability has remained elusive and marginal and is one of the many contradictions within the industry which has experienced only four periods of profitability; 1963-1968, 1975-1978, 1987-88 and 1995-2000 over the past five decades ([11] Doganis, 2002).

Several factors account for the overall profitability problems of the industry. First among them is the cyclical nature of the industry, which is a leading indicator of economic downturn. The demand for the product is derived, that is, it is dependent on demand for related activities (for e.g. holidays, business). The product is perishable and demand varies by season, day of the week, and time of day. High fixed costs relative to variable costs make volume crucial ([43] Taneja, 2003). As recent event have shown, the industry is very sensitive to environmental influences. In fact, the Air Transport Association has labelled the constellation of events that started with the September 11 attacks and included war in Afghanistan and Iraq and disease outbreaks such as SARS and Foot and Mouth as the "perfect economic storm" for international airlines ([1] Air Transport Association, 2002). Rising fuel costs and competition from other modes of transport are adding further pressure.

Deregulation and liberalization in the airline industry has been transformed competition and led to the emergence of a variety of new entrants into the airline industry. The removal of restrictions on fares, as well as legislative and regulatory changes to encourage new entrant low cost carriers, has changed the competitive landscape. Ryanair and EasyJet in the EU and Jetblue and Spirit in the USA highlight the new breed of air carrier. These factors have contributed to already complex nature of the industry and created some unique managerial challenges.

The business model used by Low Cost Carriers (LCCs) is that of price leadership. In direct contrast, the traditional scheduled carriers, also known as Legacy Carriers, have pursued a full service differentiation strategy with emphasis on hub and spoke networks, primary airport use and Frequent Flyer Programmes, all augmented through alliance membership. Such carriers target short and long haul, leisure and business passengers. The nature of the Legacy Carriers operations tends to make the cost structure higher than that of other airlines. In recent years we have seen many of the larger Legacy Carriers compete on the basis of price on short haul routes in direct competition with the low cost sector. At the same time, the Legacy Carriers have sought to concentrate on service differentiation strategies for their long haul routes (Aer Lingus, British Airways and United and Delta in the USA).

However, even on long haul routes incumbent carriers are becoming more exposed to competition. In 2005 two new carriers applied a focused strategy model ([39] Shaw, 2007) to the lucrative transatlantic business market.

Airline service quality and the role it plays in a business strategy of differentiation, has therefore assumed greater importance in recent years. This is particularly noticeable on the higher yield international long haul routes where service quality is viewed, not only as an important part of competitive strategy, but a key resource for building competitive advantage over rivals.

**Airline service quality**

According to [9] Clifford et al. (1994) in the pre deregulation era airline service quality was assessed with respect to industry and managerial variables such as flight frequency, load factors, transit times and aircraft type (see also [27] Jordan, 1970; [13] Douglas and Miller, 1974). However, in the post deregulation and liberalised environment the provision of superior service quality has been accepted as an important source of customer retention and loyalty, which may ultimately lead to superior competitive performance (see [29] Parasuraman et al. , 1985, [30], [31] 1988, 1991a; [51] Zeithaml et al. , 1996; [10] Dawkins and Reichheld, 1990; [34] Reichheld and Sasser, 1990; [3] Berry and Parasuraman, 1994). According to [32] Parasuraman et al. (1991b) customer loyalty can be achieved by organisations that display consistency, reliability and fairness in the provision of their service. They further argue organisations making realistic promises about delivery are more likely to capitalize on superior service delivery.

However, according to [7] Carman (1990) the conceptualisation and measurement of the quality of a service has long been problematic for researchers. Service intangibility, simultaneous production and consumption and differences between mechanistic and humanistic quality have further complicated the issue. [29] Parasuraman et al. (1985) argued that service quality is the difference or gap between customer expectations and perceptions of the service. Understanding such gaps it was believed could enable managers to identify potential shortfalls from a consumer perspective. [29] Parasuraman et al. (1985) then developed the SERVQUAL instrument designed to assess perceived service quality. This was one of the first models to offer organisations guidance and help in the analysis of dimensions of service quality. The SERVQUAL instrument was operationalised in the form of five dimensions; tangibles, reliability, responsiveness, assurance and empathy ([30], [31] Parasuraman et al. 1988, 1991a). [38] Rosen and Karwan (1994) have challenged the universal application of the model arguing that much depends on the level of customisation found within a service. Despite criticisms the SERVQUAL model has remained popular within service quality research.

Only a few of studies have attempted to integrate a scale such as SERVQUAL or SERVPERF into the airline service research literature ([8] Change and Yeh, 2002; [17] Fick and Ritchie, 1991). Another study utilized the SERVQUAL scale adopted for an airline situation in 1994 ([41] Sultan and Simpson, 2000) and found the SERVQUAL factor of reliability (one example: excellent airlines will provide their services at the time they promise to do so) was the most important dimension among air passengers. [9] Clifford et al. (1994) also using the SERQUAL scale on a sample 105 respondents found that reliability was the dominant predictor of satisfaction while both reliability and empathy influenced customer intention. However, there has been no longitudinal perceptual study on airline service quality published in the academic realm. This lack of follow-up study or an update of the work done is common in much of marketing research, not just airline service quality research.

Even in the commercial market research realm there is a paucity of studies of a longitudinal nature. Two examples of this gap in comparative research in the US can be found in 2005. [50] Zagat Research (2005) released a report in 2005 (www.zagat.com) on airline service quality. The study divided carriers into US domestic carriers and international carriers into the US (which included most of the major international airlines).
The Zagat data was presented in four categories: comfort, service, food and web site. Three of the factors are clearly service delivery issues, but the web site score relates more to the ease of using the airline web site when purchasing. Zagat readers are left to examine each airline service category or add the four scores themselves for an overall score. Also in 2005, J.D. Power released the firm's first study on airline service quality since 2000 ([26] J.D. Power, 2005). The study and its findings concentrated on only 11 of the US major airlines with no reported information on regional, emerging low costs or international carriers. A 1,000 point index score used in the study reported that JetBlue and Southwest came out on top.

Since 1987 the United States DOT has published information relating to various aspects of airline service quality including on-time performance, overbooking, mishandled baggage, and customer complaints. This information, contained in the Air Travel Consumer Report, has served as the basis for ongoing research by two groups of scholars interested in airline service quality. [4] Bowen and Headley (2005) have published an annual Airline Quality Rating (AQR), report since 1991. According to their rating system, airline quality among US major carriers has posted an overall negative rating each year of the AQR ([4] Bowen and Headley, 2005). [35], [36], [37] Rhoades and Waguespack (2001, 2004, 2005) have used similar data in a somewhat different ranking system to report that service quality for the major US carriers improved from 1987-1993, then deteriorated between 1994-2001, and showed a marked improvement since 2001. The improvement since 2001 was mainly attributable to reductions in flight scheduling and reduced passenger load factor following the September 11th terrorist attacks ([37] Rhoades and Waguespack, 2005). Prior to the events of September 11, US consumer dissatisfaction with airline service quality had reached its lowest level since such data became publicly available through the US Department of Transportation ([36] Rhoades and Waguespack, 2004). While criticism of airline service quality was muted after 9/11, issues still remain and the Christmas 2004 problems of US Airways and Comair have helped to reignite the debate with recent problems in 2007 discussed earlier putting the issues back on the front pages of the newspapers and web sites ([33] Reed, 2007).

In reviewing the airline service quality literature, both Bowen and Headley and Rhoades and Waguespack have been criticized for their use of secondary data in a field that is often seen as primarily a matter of customer perception. A 2000 article in Business Week focusing on the US service sector cited a study by the University of Michigan School of Business that found that consumer satisfaction with airline service had declined more than all of the other industries examined, 12.5 per cent since 1994 ([5] Brady, 2000). The most recent results of the University of Michigan's America Customer Satisfaction Index (ACSI) found that airlines ranked below the International Revenue System in terms of customer satisfaction ([48] Yu, 2007b). If, in fact, it is perception rather than performance that drives consumer attitudes, then the airline industry may need to do even more than address specific areas of service failure as it is possible that perception is even worse than secondary metrics suggest.

Until recently comparisons across regions of the world was difficult. Some EU airlines did self report statistics on the levels of customer service maintained and made the measures available on the airline's web site, however, making comparisons was very difficult due to reporting methods and metrics. The Association of European Airlines, whose members include the major network carriers operating in the region, has begun producing a Consumer Report detailing punctuality (on-time arrival and departure), flight cancellation, and missing baggage statistics for 26 of its member airlines. Monthly and annual Consumer Reports are published on the AEA web site (http:/aea.be). This new data makes comparisons between EU and US airlines performance on the key service quality indicators possible ([49] Waguespack et al. , 2005).

Current study: methods and results

Questionnaires were conducted with graduate students at the researcher's home institutions in 2006 in both the USA and the EU. Graduate students were utilised due to the older age range and greater likelihood of experiencing air travel. At total of 217 respondents completed the questionnaire, 104 from the USA and 113 from the EU, allowing sufficient responses for comparative purposes.
There are three common airline operational measures between the two data sources, the US DOT Air Travel Consumer Report and AEA Consumer Report that can be examined to provide measures of airline service quality. The three measures in common between the data reports are on-time flight arrival percentage, flights operated as scheduled (not cancelled) and percentage of passengers filing baggage reports (bags lost damaged, delayed or pilfered) as shown below:
- Flights arriving on time.
- Flights that operate as scheduled, are not cancelled.
- Bags delivered without any problems i.e. lost damaged, delayed or pilfered.

The questionnaire asked respondents their perception of the three-airline service quality factors that make-up the core of the research. Respondents were asked to provide, based on their beliefs, the percentage (from 0 to 100 per cent) of occurrence for each of the items.

**The results**

Before examining the results of the questionnaire it is necessary to consider the profile of the respondents and the extent of similarities or differences that exist. Table I [Figure omitted. See Article Image.] displays the gender breakdown of the sample. As can be seen the biggest difference lies within the US sample where only 25 respondents were female accounting for 24.3 per cent of the US sample. Within the EU the sample is more balanced at 43.8 per cent female and the remaining 56.3 per cent male. Given the differences within the US sample in terms of gender it was decided to perform a cross tabulation of the US results to test for significant differences across the responses based on gender. The findings will be presented later in the paper. The mean age of the US sample was 28.22 (n =94) and 29.72 (n =101) for the EU sample, illustrating a very similar age profile.

In terms of membership of a Frequent Flyer Programme (FFP) the profiles are presented in Table II [Figure omitted. See Article Image.]. As can be seen, membership of a FFP is much higher in the USA than the EU. Given the existence of such a difference it was decided to further examine the impact this had on responses. This will be presented and discussed at the end of the results.

Moving on to the results on aspects of airline service quality Table III [Figure omitted. See Article Image.] presents the results of both the EU and US sample on their perceptions of the three components of airline service quality. Table III [Figure omitted. See Article Image.] reports the respondent's mean percentage by country of origin for the three airline service measures.

The US sample generally perceives that fewer flights arrive on time and that fewer flights operate as scheduled when compared to the EU sample. A statistically significant difference exists between the US and EU perception of the percentage of on time arrivals, with the EU displaying a more positive perception. However, the US sample believes that a higher percentage of bags are delivered without problems. It must be remembered that this is an extremely small difference of a half a percentage point. While not being able to generalize beyond this study, overall, the EU passengers have a more positive perception of arrivals and scheduled operation of flights, the former a statistically significant result. The USA has a more positive perception in relation to baggage, but only marginally.

Having examined the consumer perception percentages reported against the county of origin, the next analysis (Tables IV [Figure omitted. See Article Image.]-V [Figure omitted. See Article Image.]) examines perceptions against reported operational measures of service quality delivered by the airlines. The mean values for the service quality measures are derived from the US DOT Air Travel Consumer Report for US airlines and the AEA Consumer Report for EU airlines for 2006. The analysis of these factors is presented in two ways:

- a comparison of the percentages provided by the survey respondent populations, in either the US or EU consumers on the three common measures; and
- a comparison of the reported operational actual measures from the US DOT of EU AEA percentages for 2006.

Table IV [Figure omitted. See Article Image.] compares the perceptions of the US sample on all three measures.
against the reported operational data from the US DOT. What is striking is the level and extent of the difference between perceptions and reality. In each case the US sample perceives the figures to be much worse than they are in reality. In relation to flights operating as scheduled and baggage reports the results are highly statistically significant. In relation to on time flight arrivals there is a statistically significant difference but not as pronounced as in the case of the previous two measures. Table V [Figure omitted. See Article Image.] presents the results from the EU.

In relation to on time arrivals the EU sample result of 77.58 is extremely close to the actual 76.51 per cent. It would appear that the perceptions of the EU sample are very accurate when it comes to the percentage of on time arrivals. In relation to the other two measures however there is a significant difference between the perception and actual scores. The EU respondents perceive that that both the percentage of flights operating as scheduled and baggage reports are significantly poorer than they actually are. While both are statistically significant the most extreme difference at over 15 per cent points is that of the baggage reports.

Finally, the potential for significant differences in responses based on gender or membership of a FFP must be considered. In terms of gender 74 were female whereas there were 141 males in our sample. Table VI [Figure omitted. See Article Image.] provides the results of the tests for significant differences in responses based on gender.

As can been seen from the data presented in Table VI [Figure omitted. See Article Image.] there are no statistically significant differences in responses based on gender. The final potential cause of difference is that of FFP membership which is presented in Table VII [Figure omitted. See Article Image.]. In common with the findings from Table VI [Figure omitted. See Article Image.] on gender, there are no significant differences in responses based on FFP membership.

Discussion
Based on our findings, the perception of airline quality is for the most part far worse than the secondary metrics of performance would suggest. The perception found among the graduate student population in this study, one set of which comes from a university with an industry focus only, highlights the difficulty the airlines face. As former Delta CEO Leo Mullin commented ([45] Thurston, 2000), the airlines suffer from the "challenge of crowds." Even when service levels are reaching over 99 per cent, there are still many customers that are having an unpleasant service experience. In examining the data for the year 2006, two service factors reported a 99 per cent "success" factor - scheduled operations and baggage delivered. Clearly the airline industry faces service quality failures on a consumer personal level on a daily basis. Trying to market a consistent service quality experience has become a challenging proposition for any individual firm, although some individual airlines still manage to so in the face of such industry problems.

No study is without its limitations. While the student sample in this study was somewhat older due to the general demographics of graduate students, it does not reflect the general travelling public and most of the travel undertaken by our sample was for leisure rather than business purposes. Business travellers tend to have very different requirements for travel and are more highly valued by airlines than the economy class leisure traveller, thus they are "rewarded" with a somewhat higher level of service. The sample also did not include respondents from a wide cross-section of either the US or the EU. Future research should focus on broadening and extending the sample size and demographic.

Managerial implications
Given the continuing perceptual and metric-based declines in airline service quality, airlines should be stepping forward to address the factors within their control, but it is not clear that a few high profile efforts to create executive-level positions in the airlines or new voluntary commitments to customer satisfaction will be enough. It has been suggested that airlines suffer from a "business culture in which the costs of fuel and labor are viewed as more important than happy customers in determining profitability" ([33] Reed, 2007) is to blame for the current consumer woes. One industry executive has even suggested that airlines will never "rank at the
average, and certainly not above the average, in customer satisfaction because of some of the intrinsic factors ... that never change" (quoted in [33] Reed, 2007). Such comments seem to indicate that airlines are not yet convinced that satisfaction is a key to their success, but the growing list of competitive alternatives might change industry minds. If competition does not change hearts and minds, then the threat of government regulation might.

Still, changing performance metrics may not be enough to change consumer perceptions. If airlines are becoming the service consumers love to hate, then airlines may need to find new ways to inspire love. From the perspective of the five factors of the SERVQUAL model - reliability, assurance, tangible actions, empathy, responsiveness - Continental's recent performance with a diverted and delayed flight does not pass any of the basic criteria for service quality performance ([29] Parasuraman et al., 1985). The Continental flight from Venezuela to New York sat on the tarmac in Baltimore after weather forced its diversion to that airport. After five hours without food or drink, passengers revolted and demanded to be taken off the aircraft. They were taken off - by canine accompanied police - and held in a closed room for another two hours where they were fed chips and pretzels before re-boarding the flight. Continental blames the airport and custom officials for the problems and has offered passengers a $200 voucher for their next Continental flight. The airport denies the Continental version while passengers complain of kidnapping ([23] Howard, 2007). In this case, the "promised service" was not provided to customers in the time or manner that they expected. Further, customers were not informed of the situation or made to feel safe, secure, and confident in their chosen provider. In fact, there appears to be little or no empathy demonstrated toward customers at all and it is doubtful that the $200 voucher will be considered a sufficient recovery after service failure. Flight delays are not a new problem for US airlines and should have been the subject of a service recovery plan. Service recovery should include:
- training employees to resolve customer issues;
- empowering them to do so;
- recognizing success stories; and

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References


Further Reading


Appendix

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Illustration
Table I: Profile of respondents by gender
Table II: Profile of respondents - member of frequent flyer programme (FFP)
Table III: US-EU Respondents perceptions of airline quality (percentages)
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