Measuring service quality and a comparative analysis in airline industry

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A R T I C L E I N F O	A B S T R A C T
	Quality of services in airline industry plays an important role in market penetration and customer retention. In this paper, we present a factor analysis to find important factors in Iranian Airline industry. The study designs a questionnaire consist of 35 questions and distribute it among 200 customers who regularly use services from 16 different airlines and they are investigated based on the implementation of factor analysis. The results of our survey determines seven important factors including physical features of the environment, Kettering, Pre-flight passenger services, Ability to respond, Reliability, Passenger service flight and Virtual Passenger Services. The paper discusses that improving these seven factors can significantly improve service quality in this sector.

1. Introduction

For year, airline industry was monopolized by governmental firms in Iran and there was no competition in this industry. During the past few years, governmental deregulations have created the opportunities to let private sector as well as foreign airlines participate in this sector. The primary advantage of having more private and foreign firms is to have more competitive services and customer will definitely benefit from it. In such circumstances, service quality must be constantly measured and monitored.

During the past few years, there are various studies proposed to measure service quality in literature. Han et al. (2012) investigated passengers' perceptions of airline lounges by measuring the relative importance of attributes, which determine usage and service quality in those facilities. They collected the necessary data based on a survey of airline lounge users at the Incheon International Airport, South Korea. The attributes, which determine airline lounge usage categorize as: image and accessibility, atmosphere, food and beverage (F&B) service, and facility's dimensions. Among the service quality dimensions, F&B service was determined as the most important predictor of overall

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satisfaction and lounge revisit intention. The study also considered the relationship of overall satisfaction and lounge revisit intention based on airline selection.

Kuo (2011) presents an efficient method based on combining VIKOR, GRA, and interval-valued fuzzy sets to make an assessment on service quality of Chinese cross-strait passenger airlines via customer surveys. The proposed approach helps understand the gaps between alternatives and aspired levels. A practical case study was also adopted to build a complete service quality evaluation framework for reducing the gaps to achieve the aspired level. Liou and Tzeng (2007) presented a non-additive model for evaluating airline service quality. Archana and Subha (2012) presented a study on service quality and passenger satisfaction on Indian airlines. Gilbert and Wong (2003) presented similar work on Taiwan airport industry.

Liou et al. (2011) implemented a modified VIKOR approach to improve service quality among domestic airlines in Taiwan. The model helps decision-makers understand the gaps between alternatives and aspired-levels in practice. A big case study was implemented to build a complete service quality evaluation framework for reducing the gaps to reach the aspired-level. They also implemented the modified VIKOR method to build the gaps in priorities between alternatives and aspired-levels. They provided managerial implications to improve various carriers for satisfying the customers' needs to achieve the aspired-level based on these gaps in priorities.

Espino et al. (2008) investigated various model specifications to determine the presence of preference heterogeneity in an airline choice context. They analyzed the most important route connecting the Canary Islands archipelago with the Iberian Peninsula. They conducted a stated preference (SP) experiment to investigate individual's preference for the main attributes defining the service offered by the airlines. They reported consistent specifications for multinomial logit and mixed logit models. They also considered taste variations in the preferences of passengers using mixed logit models. In these cases, they found that most of the parameters were random. To analyze the impact of preference homogeneity/heterogeneity assumptions, they found the willingness to pay for improving the service quality attributes under each scenario. They recommended the advantage measures at the individual level were really sensitive to preference heterogeneity assumptions.

Kudou et al. (2012) studied some claims associated with the originality of implementing a modified grey relationship combined with technique for preference by similarity to the ideal solutions with reference to improved airline service management. Chang and Yeh (2001) used another multi criteria decision making to measure the level of service quality.

Erdil and Yıldız (2011) measured service quality and a comparative analysis in the passenger carriage of airline industry. They concluded that the weighted Servperf scale had explained perceived service quality more much than the weighted Servqual scale did in the research. Chen et al. (2011) applied fuzzy-grey method based to deal with the vagueness and uncertainty in airline industry. They dealt with domestic airline in-flight service quality with uncertainty and considered some key strategic direction of domestic airlines in Taiwan.

In this paper, we present an empirical study based on factor analysis to detect important factors influencing service quality in Airline industry. The proposed study of this paper first presents details of the proposed study in section 2 and section 3 demonstrates details of our findings. Finally, concluding remarks are given in the last to summarize the contribution of the paper.

2. The proposed study

During the past few years, there have been growing establishments of airline industry in Iran. The industry grows rapidly and there more people travel using airlines. Table 1 shows the number of passengers travelled in 2010 using domestic and international flights using various airlines.

Table 1
Number of passengers travelled with different airlines in 2010

Row	Firm	Domestic	International	Total
1	Homa	3,950,470	981,887	4,932,357
2	Mahan	2,813,268	590,655	3,403,923
3	Aseman	3,297,334	216,444	3,513,778
4	Kish Air	1,038,343	190,848	1,229,191
5	Caspian	228,884	193,707	422,591
6	Taban	574,276	160,436	734,712
7	Zagros	527,890	1,8256	546,146
8	Naft	317,889	184	318,073
9	Airtour	2,220,491	35,589	2,256,080
10	Saha	265,573	0	265,573
11	Fars Air	142,646	39,773	182,419
12	Aria	34,499	0	34,499
13	Eram	0	-	0
14	Ata	650,912	8,628	659,540
15	Sahand	37,547	0	3,7547
16	Hasa	3,982	0	3,982
Sum		16,104,004	2,436,407	18,540,411

First, we determine different factors influencing efficiencies of services. The proposed study of this paper designs and distributes a questionnaire among 200 people and among 35 variables; we have determined seven factors based on factor analysis.

3. The results

In this section, we present details of our findings using factor analysis to find important factors.

3.1. Physical features of the environment

The first variable is associated with Physical features of the environment and Table 1 shows details of our findings.

Table 1
The results of our factor analysis for the first factor (Physical features of the environment)

Item	Factor loading	Variances	Significant factor
Staff Uniforms and appearance	0.85	0.72	11.32
Aircraft cabin cleaning and sanitary services	0.76	0.58	9.57
The cleaning crew	0.81	0.66	10.48
Adaptability of food served with local culture	0.44	0.19	4.97

As we see from the results of Table, there are four important factors influencing physical features of the environment. The results indicate that staff uniforms and appearance is number one important factor followed by the cleaning crew, aircraft cabin cleaning and sanitary services and adaptability of food served with local culture.

3.2. Kettering

The second variable is associated with Kettering and Table 2 demonstrates details of our findings.

Table 2
The results of our factor analysis for the second factor (Kettering)

Item	Factor loading	Variances	Significant factor
Quality of food and flying	0.73	0.53	8.94
The amount and size of meals	0.74	0.55	9.10
The choice of food choices	0.82	0.67	10.43

The results of Table 2 shows that there are three factors including quality of food and flying, the amount and size of meals and the choice of food choices, which influence the most on Kettering.

3.3. Pre-flight passenger services

The third variable is associated with Pre-flight passenger services and Table 3 presents details of our findings.

Table 3
The results of our factor analysis for the second factor (Pre-flight passenger services)

Item	Factor loading	Variances	Significant factor
Get the boarding pass	0.65	0.42	7.88
The efficiency of airport services and air passenger transport	0.65	0.42	7.88
Follow the bars are missing or delayed	0.69	0.48	8.41
Properly accomplishing tasks once and with no repeat	0.65	0.42.	7.85
The ability of staff to deal with emergency situations	0.63	0.40	7.47
Proper and timely notice of the Travelers Special Services	0.59	0.35	6.90

The results of Table 3 demonstrates that there are six factors impacting pre-flight passenger services and taking care of these factors play important role on improving quality of services.

3.4. Ability to respond

The fourth variable is associated with ability to respond and Table 4 shows details of our findings.

Table 4
The results of our factor analysis for the second factor (Ability to respond)

Item	Factor loading	Variances	Significant factor
On time schedule	0.75	0.56	9.69
Staff attentive and responsive to requests and complaints	0.72	0.52	9.10
Capacity of staff to meet the delay and cancellation of flights	0.66	0.44	8.15
Patience and ability to solve employee problems	0.57	0.32	6.85
The ability of staff to deal with emergency situations	0.61	0.37	7.35
Possibility of technical fault plane	0.77	0.60	10.05
Airline safety quality	0.74	0.55	9.56
Knowledge and skills of employees in service	0.63	0.40	7.73
Induce relaxation to passengers	0.74	0.55	9.52
Courtesy staff	0.75	0.56	9.69

The results of Table 4 shows that there are many factors impacting ability to respond such as Possibility of technical fault plane and on time schedule and we need to carefully take care of these issues in order to improve the quality of services.

3.5. Reliability

The fifth variable is associated with reliability and Table 5 demonstrates details of our findings.

Table 5
The results of our factor analysis for the second factor (Reliability)

Item	Factor loading	Variances	Significant factor
Awareness and knowledge to answer travelers' questions	0.88	0.77	11.71
Easy access to purchase tickets	0.70	0.49	8.62
Planning for a comfortable flight	0.74	0.55	9.15

The results of Table 5 shows that there are three factors influencing reliability of quality of services in airline industry including Awareness and knowledge to answer travelers' questions, Planning for a comfortable flight and Easy access to purchase tickets.

3.6. Passenger service flight

There are six factors associated with passenger service flight and Table 6 shows details of our findings.

Table 6
The results of our factor analysis for the second factor (Passenger service flight)

Item	Factor loading	Variances	Significant factor
Concern and compassion for the needs of passengers involuntarily staff	0.53	0.28	7.67
Planning ahead for passengers who travel more often	0.73	0.53	9.36
Existence of long-range flights	0.54	0.29	6.26
The presence and distribution of newspapers	0.77	0.59	10.07
Existence of in-flight magazine	0.80	0.64	10.49
Variety of children's entertainment content	0.80	0.64	10.53
Options for choosing seat	0.63	0.40	7.59

According to the results of Table 6, six factors impact passenger service flight, significantly and there must be care about accomplishing these tasks, properly.

3.7. Virtual Passenger Services

The second variable is associated with virtual passenger services and Table 7 demonstrates details of our findings.

Table 7
The results of our factor analysis for the seventh factor (Virtual Passenger Services)

Item	Factor loading	Variances	Significant factor
Language option on the airline website	0.78	0.61	9.71
Ease of use of the Website Airlines	0.81	0.66	10.21
Possible to get a boarding pass via the website	0.59	0.35	6.77

As we can observe from the results of Table 7, Language option on the airline website along with Ease of use of the Website Airlines and Possible to get a boarding pass via the website are considered as the most important items, which play significant important as virtual passenger services.

4. Conclusion

Quality of services in airline industry plays an important role in market penetration and customer retention. In this paper, we have present factor analysis to find important factors in Iranian Airline industry. The results of our survey determined seven important factors including physical features of the environment, Kettering, Pre-flight passenger services, Ability to respond, Reliability, Passenger service flight and Virtual Passenger Services. The results indicated that staff uniforms and appearance was number one important factor followed by the cleaning crew, aircraft cabin cleaning and sanitary services and adaptability of food served with local culture. Our survey showed that there were three factors including quality of food and flying, the amount and size of meals and the choice of food choices, which influence the most on Kettering. There were also six factors impacting pre-flight passenger services and taking care of these factors play important role on improving quality of services. In addition, there were many factors impacting ability to respond such as possibility of technical fault plane and on time schedule and we need to carefully take care of these issues in order to improve the quality of services. There were three factors influencing reliability of quality of services in airline industry including awareness and knowledge to answer travelers' questions, planning for a comfortable flight and easy access to purchase tickets. Finally, Language option on the

airline website along with Ease of use of the Website Airlines and Possible to get a boarding pass via the website were the most important items, which play significant important as virtual passenger services.

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