The effect of airport and in-flight service quality on customer satisfaction

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Abstract
The study aims to evaluate the airline service quality dimensions during the travel cycle perceived with the respect to passenger's needs, and to determine which passengers’ perceived service quality dimensions have a positive influence on customer satisfaction. Therefore, this paper will evaluate the airline service quality, the customer satisfaction with airport and on board services by a survey.

Keywords: service, quality, customer satisfaction, on board services, Airport services.

Introduction
The air industry sector has become the most important segment in the economic development of a nation. It plays a vital role in moving people or products from one place to another, be it domestic or international, especially when the distances involved are far (Archana & Subha, 2012).

In addition, investments and volume of business are increasing each day, and depending on this, competition increasingly deepens. Airline companies must be financially strong to find a place for themselves and survive in this deeply competitive world since in today's world (Upadhyaya, 2012).

Accordingly, there are three main characteristics define an airline. These are financial, operational and political. These characteristics consist of five critical success factors: financial strength, cost structure, size, internationalization and political support (Smit, 1997).

Today, there is a highly competition in the airline market, the major players are evenly matched in terms of core services, they operate similar schedules and have comparable punctuality and safety records (Westwood, Pritchard, & Morgan, 1999).

As the services can be defined as: “processes that consist of a set of activities which take place in interactions between a customer and the service provider, which aim at solving customers problems.”, the measurement and management of service quality is the fundamental issue for the survival and growth of airline companies (Venkatesh & Nargundkar, 2006), so the quality of the airline service is difficult to describe and measure due to its heterogeneity, intangibility, inseparability and it involves customer perception of what it should be or define service quality (Chang & Yeh,2002).

Therefore, It is vital to have customer satisfaction because customers bring lots of revenue with them and only then it will be possible for the airlines to operate profitably if airlines have satisfied customers as not only the
customers will reuse the service but will also create good will for the company (Khan & Khan, 2014).

Accordingly, Airline companies are making efforts to build long-term relationships with their customers and strategically maintain their airline loyalty (Johan, Noor, Bahar, Yan, and Ping, 2014).

On the other hand, not all customers’ needs are alike, and the market characteristics found in the air industry may influence customers' attitudes. In addition, the most airlines do not take into account the customer needs, in other words, there is a gap between customer needs and the airline services (Retnaningsih, 2013; Naik, Gantasala, and Prabhakar, 2010). Accordingly, it affects directly on the customer satisfaction and therefore their loyalty.

Thus, this study examines the relative importance of perceived service quality and the relationship between perceived service quality, customer satisfaction and customer loyalty using various methods.

Therefore, the main aim of this study is to examine the airline service dimensions that are perceived to be important by airline passengers, and determines which passengers perceived service quality dimensions have a positive influence on customer satisfaction.

As ensuring high rates of satisfaction should be the goal of every airline marketing department, since satisfaction has been positively correlated to customer, so the study demonstrates and tests empirically the existence of different relationships between airline service quality, passenger satisfaction. In addition, the study develops a framework (theoretical and conceptual model) that identifies the main elements of each construct and examines possible relationships between the two concepts based on the discussion and review of the related studies in service quality and customer satisfaction.

**Literature review**

**Quality**

Quality has been considered as being an attribute of an entity (as in property and character), a peculiar and essential character of a product or a person (as in nature and capacity), a degree of excellence (as in grade) and as a social status (as in rank and aristocracy) and in order to control and improve its dimensions it must first be defined and measured (Daniel & Berinyuy, 2010).

Therefore, there are various definitions of quality as following (Kurniawan, 2010; Daniel & Berinyuy, 2010):

1. Quality is the extent to which the customers or users believe the product or service surpasses their needs and expectations.
2. The totality of features and characteristics of a product that bear on its ability to satisfy stated or implied needs.
3. Quality is the total composite product and service characteristics of marketing, engineering, manufacture, and maintenance through which the product in use will meet the expectations of the customer.
**Service quality**
It is defined as the difference between customer's expectation for service performance prior to the service encounter and their perception of the service received (Daniel & Berinyuy, 2010, p125).

Simply, service quality is “the extent of discrepancy between the customers” expectations and perceptions” (Deng, Lu, Wei, & Zhang, 2010, p32).

According to the previous definitions Understanding exactly what customers expect is the most crucial step in defining and delivering high-quality service (Huang, 2009) as Customer's expectation serves as a foundation for evaluating service quality because, quality is high when performance exceeds expectation and quality is low when performance does not meet their expectation ( Daniel & Berinyuy, 2010).

**Airline Service process attributes**
The airlines business is characterized by high fixed costs; unit costs of an airline are therefore strongly influenced by the strategic to tactical planning decisions airlines make (Eggermond, 2007) and it has a sizeable impact on regional economic growth and airport activities generate a considerable number of jobs ( Fageda & Fillol, 2011).

Therefore, the airline product is not a physical item at all, but services that consumers find useful and there was a general understanding for goods but that there was no clear description defining services. It is defined “goods as a thing and services as an act” (Wilfing, 2012).

The process of airline services passes with a several phases after the reservation process and the most important phases are the airport facilities and on board facilities as following:

**Airport Services**
Like any business, airlines seek to maximize profitability, and do so by establishing and operating routes that make a positive contribution to their bottom line (The Federal Aviation Administratio, 2009). So, The airport access may influence the proportion of business travelers on a route, as they are highly sensitive to trip time and, so, airports at some distance from the city center will be less attractive for them ( Grandeau, 1995).

Decisions are governed by an internal process that starts with route planners who make their initial assessments before examining more in-depth considerations of market size and forecasts in addition evaluating competitive route opportunities and select those expected to provide the greatest return, considering the cost of deploying a specific aircraft on each route (The Federal Aviation Administratio, 2009).

Airports are also in a unique position to monitor, respond, and improve customer experience in many functional areas of the airport, including (the Federal Aviation Administration, 2013); (DKMA & Airports Council International, 2011):
- **Restaurants**: Whether fast food/take-out, table service, or sports bar, restaurants can generate a substantial amount of revenue for an airport.

- **Specialized services**: These facilities cater to a relatively narrow group of travelers with specific business or personal needs.

- **Airline clubs, business centers, cell phone/Wi-Fi providers, post offices, medical services, and auto services.**

- **Advertising**: Various organizations see great value in advertising to a captive audience of airport passengers that generally have highly sought-after demographic characteristics. Advertising includes signs and video displays throughout the terminal.

- **Rental car fees**: Revenues from this source can be significant because rental facilities tend to be land intensive.

- **Airports provide an airport map, flight information, and have interactive kiosks in the arrivals area, mainly to provide city tourism information.**

- **Phone for information as passengers can call customer service team from the interactive kiosk.**

- **Possibility to give feedback as passengers can fill in complaint cards or satisfaction surveys using the kiosks.**

- **Passengers can print the information they get.**

**On board Services**

Services onboard have evolved recently, with introduction of in-flight shopping and developing technology that led to introduction of interactive audio and video entertainment system (Tolpa, 2012).

Airlines are constantly looking to differentiate themselves from their competitors, while simultaneously finding ways to cut costs (Booth, 2010). On short-haul flights, many legacy airlines have significantly scaled down their economy passenger offering and only offer BOB (Booth, 2010).

Some airlines use food as a marketing tool. A number of airlines advertise their product by making food the focal point. However, food as a marketing tool has only a limited impact (Jones, 2007).

In addition, the behavior of the flight attendants of an airline can directly influence customer satisfaction, even when they are off-duty or on a break. If they are unprofessional or make rude remarks about or to a customer, the latter's perceptions of the airline will suffer even though the employee is not on duty at that instant (Oyewole et al., 2007).

**Customer**

A customer is the person who buys a product or a service offered by a business organization (Grigoroudis & Siskos, 2010).

When we use the term "buyer," we are referring to an individual, group, or organization that engages in market exchange (Burnett, 2003).
In airlines, the customer is called passenger, which is defined as meaning anyone who is not a member of the flight crew or cabin crew (Secretary & Legal Adviser’s Office, 2010). Therefore, the customer lifecycle begins when he feels that there are (Grigoroudis & Siskos, 2010):
1. The need or desire to purchase the product or the service.
2. The motive to proceed to this particular purchase.
3. The necessary financial resources (cash or credit).
4. The ability to access the locations where the products or the services are made available.

Therefore, the customers start shopping for airfare, hotels, car rentals, and other travel products and services (Oracle, 2008), as he can get such information can come from family, friends, personal observation, of other sources, such as Consumer Reports, salespeople, or mass media (Burnett, 2012).

After buying a ticket, carriers have a broad array of strategies they can select to enhance customer loyalty (Oracle, 2008).

**Customer satisfaction**

It can be defined as “a judgment made on the basis of a specific service encounter” (Huang, 2009, p.53) or “customer overall dis/satisfaction with the organization based on all encounters and experiences with that particular organization” (Dovalienė, Gadeikienė, & Piligrimienė, 2007) or “A person feelings of pleasure of disappointment resulting from comparing a product”’s perceived performance (or outcome) in relation to his or her expectations”. (Mostaghel, 2006)

A customer can receive satisfaction from an organization through several different channels, whether it is a service provided, a product purchased, a relationship established, or a value received in any form from the contributing organization (Kendall, 2007) and also it is achieved at different stages of consumption as upon purchase, during consumption or after service consumption (Yeoh & Chan, 2011).

Therefore, the conceptualization of customer satisfaction can be interpreted by focusing on a specific transaction or from an accumulative perspective (Gil et al., 2007).

The more the customer satisfaction is, the lower the transaction costs are and the higher the fidelity is (Degirmenci et al., 2012).

**Customer satisfaction importance**

The importance of customer satisfaction is derived from the generally accepted philosophy that for a business to be successful and profitable, it must satisfy customers, in addition there are a lot of benefits are gained from this as following (Clemes, Gan, Kao, & Choong, 2008; Dovalienė et al.,
2015; Okumu, 2012; Byambaa & Chang, 2012; Rafati & Shokrollahi, 2011; Naik, Gantasala, & Prabhakar, 2010; Okumou, 2012):

- It has a great influence in longevity of customer relationships with service provider.
- It has a positive effect on the profitability of a company.
- The customer who is satisfied due to the good customer relation marketing will repurchase, be loyal to the brand and will give positive word of mouth.
- Satisfying customers helps in customer loyalty to the point that it becomes the prerequisite for maintaining a good customer relationship
- Reduces price sensitivity, increases cross-buying, increases positive word of mouth, and increases customer loyalty.
- The organizations keep current customers, which is more profitable than having to win new ones to replace those lost.
- The organization receives fewer complaints, hence reducing costs in handling failures.

The theoretical model and hypotheses
The basic theoretical model of the study is shown in figure 1. The model represents the relationships between perceived service quality of airport and on board services and passenger satisfaction. These relationships can be drawn in the following manner: Perceived airline service quality during the travel cycle influences customer satisfaction. This proposed model has its origin in the literature of service quality and customer satisfaction.

Figure 1: The proposed theoretical model

In this study, it is assumed that a high perception of airline service quality will increase the levels of customer satisfaction; this means that service quality is an antecedent to passenger satisfaction. The proposed model has two main hypotheses, these are:
H1. There is a significant relationship between airport services and the customer satisfaction
H2. There is a significant relationship between on board services and the customer satisfaction

Methodology
The study adopts the quantitative method to test pre-determined hypotheses and produce generalizable results.
In this study, the questionnaire survey was adopted to collect the wanted data, as the questionnaire is one of the most important data collection methods. The questionnaire was divided into two sections. In the first part, items on the questionnaires were developed by the researcher based on the literature review. The first section asked respondents to evaluate their overall experiences they received from their last international airline flight about Airport services, which is presented by Egypt Air in the Cairo International Airport, and On-board services and customer satisfaction. The questions were phrased in the form of statements scored on a 5-point Likert type scale, ranking from 1 “strongly agree” to 5 “strongly disagree” for all the questions. The second part contained questions regarding respondents’ socio demographic characteristics including age, gender, nationality, purpose of visit, education, frequency of flying, and the decision maker.

Sampling
The target sample was air passengers traveling via Egypt Air. The reason for selecting Egypt Air is due to the popularity and market share in Egypt. Using random sample, respondents from this airline set of population were approached and requested to fill in a non-disguised questionnaire prepared for this purpose.
The questionnaire was distributed in Cairo International Airport, different organizations, and online.

Table1: The response rate

<table>
<thead>
<tr>
<th>Distributed questionnaire</th>
<th>Received questionnaire</th>
<th>Response rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>400</td>
<td>80</td>
</tr>
</tbody>
</table>

The questionnaire was distributed during the period from November 2015 to February 2016. Sampling is done by interviewing randomly selected passengers, at different times of the day and by online questionnaire. After the data collection, the data was entered into SPSS programme version 16 to be analysed and interpreted.
Validity and reliability

Face validity
The initial questionnaire was reviewed by four experts in the air industry to ensure the completeness, and wording of the questionnaire. Most of the feedback related to the order of the questions on the questionnaire form and adding additional important questions, which resulted in the design of a new form, which was revised again by the experts.
Then four non-specialized persons checked the questionnaire in order to ensure that the questionnaire is readable.

Construct validity
The questionnaire was piloted by 50 randomly selected passengers. Corrected item-total correlations were used to measure the constructs of the study and their indicators, which revealed values between 0.3 and 0.80 (Netemeyer, Bearden, & Sharma, 2003) shows that the retained indicators are valid for measuring the related constructs.
As for airport services construct, one indicator had value below 0.3. This indicator was excluded and it is: Airport accessibility is very easy.
Regarding the on-board services construct, the 13 on board service indicators are within target values.
Regarding the satisfaction level construct, the four satisfaction indicators are within target values.
The final form included 22 items to measure 3 constructs: 5 items for airport services, 13 items for on board services, and 4 items for customer satisfaction.

Survey Reliability
In this study, the Cronbach's alpha was used to assess the reliability of the data. This is due to the fact that Cronbach's alpha is a meaningful measure of internal consistency of a survey.
In determining acceptable reliability levels for Cronbach’s alpha, George and in determining acceptable reliability levels for Cronbach’s alpha, it is cited that 0.7 is acceptable (Field, 2009). All the questionnaire indicators are higher than .7 which means good reliability.

Results and discussions
The Descriptive statistics of respondent characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>67.8</td>
<td>272</td>
</tr>
<tr>
<td>Female</td>
<td>31.9</td>
<td>128</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-10</td>
<td>6.0</td>
<td>24</td>
</tr>
<tr>
<td>21-30</td>
<td>20.9</td>
<td>84</td>
</tr>
<tr>
<td>31-40</td>
<td>61.6</td>
<td>247</td>
</tr>
<tr>
<td>41-50</td>
<td>6.2</td>
<td>25</td>
</tr>
<tr>
<td>51-70</td>
<td>5.0</td>
<td>20</td>
</tr>
<tr>
<td>Selling channel</td>
<td>Travel agent</td>
<td>68.8</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------</td>
<td>------</td>
</tr>
<tr>
<td></td>
<td>Airport ticket counter</td>
<td>10.0</td>
</tr>
<tr>
<td></td>
<td>Airline ticket</td>
<td>12.0</td>
</tr>
<tr>
<td></td>
<td>online</td>
<td>9.0</td>
</tr>
<tr>
<td>Traveling frequency</td>
<td>None</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>1-3</td>
<td>54.1</td>
</tr>
<tr>
<td></td>
<td>More than 3</td>
<td>41.1</td>
</tr>
<tr>
<td>Purpose of traveling</td>
<td>Company business or professional practice</td>
<td>23.9</td>
</tr>
<tr>
<td></td>
<td>Government related business</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>Visit family or friends</td>
<td>17.7</td>
</tr>
<tr>
<td></td>
<td>Tourism</td>
<td>47.6</td>
</tr>
<tr>
<td></td>
<td>Studying</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>Studying</td>
<td>6.0</td>
</tr>
<tr>
<td>Education level</td>
<td>High school</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>College</td>
<td>68.6</td>
</tr>
<tr>
<td></td>
<td>Undergraduate</td>
<td>4.7</td>
</tr>
<tr>
<td></td>
<td>Post graduate</td>
<td>24.9</td>
</tr>
<tr>
<td>Traveling class</td>
<td>First class</td>
<td>8.2</td>
</tr>
<tr>
<td></td>
<td>Business class</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td>Economic class</td>
<td>74.8</td>
</tr>
<tr>
<td>Travel Decision maker</td>
<td>Yourself</td>
<td>66.3</td>
</tr>
<tr>
<td></td>
<td>Secretary</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Travel agent</td>
<td>16.0</td>
</tr>
<tr>
<td></td>
<td>Family</td>
<td>16.0</td>
</tr>
</tbody>
</table>

An analysis of the data can provide guidelines for participating airline in terms of strategies to improve their services and customer satisfaction as following:

**Airport services**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground staff is very helpful</td>
<td>8.7</td>
<td>34.9</td>
<td>22.4</td>
<td>30.7</td>
<td>3.0</td>
<td>2.8</td>
<td>1.1</td>
</tr>
<tr>
<td>There is a variety of retail outlets</td>
<td>10.2</td>
<td>36.9</td>
<td>20.9</td>
<td>26.2</td>
<td>5.5</td>
<td>2.8</td>
<td>1.1</td>
</tr>
<tr>
<td>Terminal announcements at QAIP are very clear</td>
<td>7.2</td>
<td>30.7</td>
<td>32.4</td>
<td>25.7</td>
<td>3.7</td>
<td>2.9</td>
<td>1.0</td>
</tr>
<tr>
<td>Airport facilities maintain quality standards</td>
<td>10.2</td>
<td>30.7</td>
<td>26.4</td>
<td>22.4</td>
<td>10.0</td>
<td>2.9</td>
<td>1.2</td>
</tr>
<tr>
<td>The airline has comfortable waiting lounges</td>
<td>7.5</td>
<td>39.2</td>
<td>20.9</td>
<td>24.2</td>
<td>8.0</td>
<td>2.9</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Regarding Airport services phase, we report the mean scores (1 being strongly agree and 5 being strongly disagree). After asking the respondents about their opinion on the airport service quality indicators, we found that the indicator which ranked on the top is "Ground staff is very helpful" with the
mean 2.8 (Indicating neutral) as 43.6% of respondents are agreed on Egypt Air has helpful Ground staff, while 33.7% are disagreed on that. While availability of retail outlets has 2.8 (Indicating neutral), as 31.7% of respondents are disagreed on this, 20.9% are neutral and the remaining percentage is agreed on that. While as 37.9% are agreed on Terminal announcements at QAIP are very clear, 32.4% are neutral, and 29.4% are disagreed with the mean 2.9 (Indicating neutral).

40.9% of respondents are agreed on Airport facilities maintain quality standards, 26.4% are neutral, and 32.4% are disagreed with the mean 2.9 (Indicating neutral), while as 46.7% are agreed on Egypt Air has comfortable waiting lounges, 20.9% are neutral, and the remaining percentage is disagreed with that with the mean 2.9 (Indicating neutral).

### On-board services

Table 4: Respondents’ opinions on on board services

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabin-crew has a smart appearance</td>
<td>16.5</td>
<td>53.6</td>
<td>14.5</td>
<td>5.7</td>
<td>9.5</td>
<td>2.4</td>
<td>1.1</td>
</tr>
<tr>
<td>The airline follows acceptable smoking regulations</td>
<td>10.7</td>
<td>48.1</td>
<td>20.9</td>
<td>17.0</td>
<td>3.0</td>
<td>2.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Employees of the airline have the knowledge to answer your questions and fulfill your needs in good behavior</td>
<td>12.0</td>
<td>54.9</td>
<td>9.7</td>
<td>18.5</td>
<td>4.7</td>
<td>2.5</td>
<td>1.1</td>
</tr>
<tr>
<td>Cabin announcements are clear</td>
<td>13.5</td>
<td>48.6</td>
<td>21.7</td>
<td>11.2</td>
<td>4.7</td>
<td>2.5</td>
<td>1.0</td>
</tr>
<tr>
<td>The airline offers good quality food and beverages.</td>
<td>16.2</td>
<td>46.4</td>
<td>16.2</td>
<td>4.7</td>
<td>2.5</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>Cabin crew show an awareness of different cultures</td>
<td>9.7</td>
<td>46.9</td>
<td>22.2</td>
<td>18.0</td>
<td>3.0</td>
<td>2.6</td>
<td>1.0</td>
</tr>
<tr>
<td>The aircraft has clean and comfortable facilities and seats</td>
<td>5.7</td>
<td>42.9</td>
<td>16.2</td>
<td>34.2</td>
<td>.7</td>
<td>2.8</td>
<td>1.0</td>
</tr>
<tr>
<td>The airline offers a sufficient quantity of food</td>
<td>10.7</td>
<td>37.4</td>
<td>25.2</td>
<td>18.5</td>
<td>8.0</td>
<td>2.8</td>
<td>1.1</td>
</tr>
<tr>
<td>The airline performs the right service at the first time.</td>
<td>5.7</td>
<td>34.7</td>
<td>18.2</td>
<td>35.4</td>
<td>5.7</td>
<td>3.0</td>
<td>1.1</td>
</tr>
<tr>
<td>The airline has up-to-date in-flight facilities and programmes &quot;entertainment facilities and internet/email/fax/phone services&quot;</td>
<td>4.2</td>
<td>36.4</td>
<td>21.7</td>
<td>31.7</td>
<td>5.7</td>
<td>3.0</td>
<td>1.0</td>
</tr>
<tr>
<td>The airline offers appropriate services for children</td>
<td>1.5</td>
<td>29.4</td>
<td>30.2</td>
<td>33.2</td>
<td>5.5</td>
<td>3.1</td>
<td>0.9</td>
</tr>
<tr>
<td>A menu selection is available</td>
<td>5.7</td>
<td>28.2</td>
<td>27.4</td>
<td>18.7</td>
<td>19.7</td>
<td>3.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Airline updates its fleet regularly</td>
<td>24.2</td>
<td>34.2</td>
<td>28.7</td>
<td>12.7</td>
<td>3.3</td>
<td>3.3</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Regarding On-board phase, we report the mean scores (1 being strongly agree and 5 being strongly disagree). After asking the respondents about their
opinion on the on board service quality indicators, we found that the indicator which ranked on the top is "Cabin-crew has a smart appearance " with the mean 2.4(Indicating agreement) as 70.1% of respondents are agreed on Egypt Air Cabin-crew has a smart appearance, while 15.2% are disagreed on that. While following acceptable smoking regulations has 2.5 (Indicating neutral), as 58.8% of respondents are agreed on this, 20.9% are neutral and the remaining percentage is disagreed on that.

On the other hand, the Egypt Air employees have the knowledge to answer their questions and fulfill their needs in good behavior as the mean 2.5 (Indicating neutral) as 66.9% are agreed on that, 9.7% are neutral and 23.2% are disagreed on that. Hence, 62.1 of respondents are agreed on Egypt Air Cabin announcements are clear, while 21.7% are neutral and the remaining percentage is disagreed. It was also found that 62.6% of respondents are agreed on Egypt Air offers good quality food and beverages, compared to 20.9%, who are disagreed. While as 56.6% are agreed on Egypt Air Cabin crew show an awareness of different cultures, 22.2% are neutral, and 21% are disagreed with the mean 2.6 (Indicating Neutral). 48.6% of respondents are agreed on The aircraft has clean and comfortable facilities and seats, 16.2% are neutral, and 34.9% are disagreed on the mean 2.8(Indicating neutral), while as 26.5% are agreed on Egypt Air doesn't offer a sufficient quantity of food, 25.2% are neutral, and the remaining percentage is disagreed on that with the mean 2.8 (Indicating neutral). It was also found that, 41.1% are disagreed on Egypt Air performs the right service at the first time, 18.2% are neutral, and 40.4% are agreed, with the mean 3 (Indicating neutral).

On the other hand the up-to-date in-flight facilities and programmes "entertainment facilities and internet/email/fax/phone services" get 3 (Indicating neutral) as 40.6% are agreed with that, 21.7% are neutral and 37.4% are disagreed on that. When as 30.9% of respondents are agreed on Egypt Air offers appropriate services for children, while 30.2% are neutral and the remaining percentage is disagreed. It was also found, that 33.9% of respondents are agreed on availability of menu selection, compared to 38.4%, who are disagreed. While as 24.2% agreed on Egypt Air updates its fleet regularly, 34.2% are neutral, and 41.4% are disagreed, with the mean 3.3 (Indicating Neutral).

Evaluation of the dimension of on board services is the second after the airport services, the results showed that features related with employees had higher scores and this is because Egypt Air has increased the training of cabin crew based on this idea. In addition, meals and flight entertainment programs had higher scores after the employee's indicators. However, the findings of this study are consistent with recent study by Archana and Subha (2012).
The study results of employee indicators show that they have a significant influence on customer satisfaction such as "The airline employees show a friendly and helpful response to reservation calls, The front line employees show a friendly and helpful response, Ground staff is very helpful, Employees of the airline have the knowledge to answer your questions and fulfill your needs in good behavior, Cabin crew show an awareness of different cultures, and Cabin-crew has a smart appearance" and this doesn't match with Retnaningsih (2013) study as he found that the assurance services such as the level of employees knowledge and level of courtesy, in addition to their ability to give confidence to the customers does not have a significant effect on customer satisfaction. While as this study matches with Retnaningsih (2013) study in the remaining similar indicators. The results do not support the findings of Bahraini, Akbar, Azad, and Izadi (2013) who found 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, meanwhile these factors are number four in affecting the customer satisfaction in this study.

Flight entertainment program and fleet updating are neutral for overall satisfaction, and it still needs to be improved to achieve the customer satisfaction.

Customer satisfaction
In this section, there were four indicators to measure customer satisfaction towards the airline services as shown below:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>My decision to fly with Egypt Air was a wise one.</td>
<td>17.0</td>
<td>40.6</td>
<td>22.7</td>
<td>14.2</td>
<td>5.2</td>
<td>2.5</td>
<td>1.1</td>
</tr>
<tr>
<td>I think I had a safe journey while travelling with the airline</td>
<td>26.9</td>
<td>33.9</td>
<td>32.7</td>
<td>6.2</td>
<td>3.2</td>
<td>3.2</td>
<td>0.9</td>
</tr>
<tr>
<td>The airline services exceeded my expectations.</td>
<td>5.7</td>
<td>22.4</td>
<td>26.9</td>
<td>32.2</td>
<td>12.5</td>
<td>3.2</td>
<td>1.1</td>
</tr>
<tr>
<td>The airline has a good reputation among passengers</td>
<td>20.7</td>
<td>20.9</td>
<td>47.9</td>
<td>10.2</td>
<td>3.5</td>
<td>3.5</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Regarding customer satisfaction, we report the mean scores (1 being strongly agree and 5 being strongly disagree). After asking the respondents about their opinion, we found that the customer decision to fly with Egypt Air was a wise one has the mean 2.5 (Indicating neutral) as 47.6% of respondents are agreed, while 19.4% are disagreed on that. While the respondents who had a safe
journey while travelling with Egypt Air, are 108 with a percentage 26.9%, and the others who hadn't are 156 with a percentage 38.9%, with the mean 3.2 (indicating neutral).

On the other hand, 28.1% of respondents see that Egypt Air services exceeded their expectation, while as the 44.7% of respondents see that Egypt Air services did not exceed their expectation, with the mean 3.2 (indicating neutral). It was also found that, 20.7% of respondents see that the good reputation of Egypt air made them choose it, compared to 48.1% disagreed on this with the mean 3.5 (indicating disagreement).

Analysis of the findings

For testing the proposed model, the regression analyses was performed by using SPSS version 16. It is between the service quality as the independent variable and, the customer satisfaction as the dependent variable.

Table 6: Service quality and customer satisfaction Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.730</td>
<td>.533</td>
<td>.530</td>
<td>.49764</td>
</tr>
</tbody>
</table>

The previous table provides the R and R-square values. The R value represents the correlation coefficient between the travel cycle predictors and customer satisfaction (R= 0.730). It indicates a strong positive correlation between the airport and on board services and customer satisfaction. 53.3% of the customer satisfaction can be explained by the airport and on board services. This result reflects the influence of airport and on board services on customer satisfaction.

Table 7: Service quality and customer satisfaction ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>112.019</td>
<td>2</td>
<td>56.010</td>
<td>226.164</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>98.317</td>
<td>397</td>
<td>.248</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>210.336</td>
<td>399</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With F value =226.164 and p<0.001, the regression model is significantly predicting the dependent variable.

Table 8: Service quality and customer satisfaction Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>.874</td>
<td>.114</td>
<td>7.686</td>
</tr>
<tr>
<td></td>
<td>AISMEAN</td>
<td>.401</td>
<td>.038</td>
<td>.467</td>
</tr>
<tr>
<td></td>
<td>OBSMEAN</td>
<td>.389</td>
<td>.051</td>
<td>.339</td>
</tr>
</tbody>
</table>
The Coefficients table provides the extent to which predictors are significantly affecting customer satisfaction. Using the "B values" it is found that:

- **Airport Services**: The b coefficient for Airport Services is 0.401 and p<0.01 and it is significantly affecting customer satisfaction.
- **On board services**: The b coefficient for on board services is 0.389 and p< 0.01, which refers to a positive effect on customer satisfaction.

The study agreed with various studies as it shows that perceptions of service quality were significantly related to passenger satisfaction. It is important also to mention here that a key objective for airlines should be to guarantee satisfaction over repeated service encounters, since satisfaction overtime, results in perceptions of service quality.

In addition, Clemes, Gan, Kao, and Choong (2008) suggested that there is a presence of significant positive relationships between perceived service quality and the air travel service quality dimensions identified in the study: these dimensions include assurance, convenience, helpfulness, comfort, meals, safety and security.

However, the findings of this study are consistent with recent study by Archana and Subha (2012).

The results do not support the findings of Adeola and Adebiyi (2007) and Naik, Gantasala, and Prabhakar (2010), who found that the operations and safety dimension were the least important.

The results do not support the findings of Bahraini, Akbar, Azad, and Izadi (2013) who found 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,
meanwhile these factors are number four in affecting the customer satisfaction in this study.

**Hypotheses validity**

After testing the first hypothesis, which is "**There is a significant relationship between airport services and the customer satisfaction**", it is accepted, as the p value is less than .01, which means there is a significant relationship between airport services and customer satisfaction and any increase of the quality of the airport services will lead to more customer satisfaction.

After testing the second hypothesis, which is "**There is a significant relationship between on board services and the customer satisfaction**", it is accepted. As the p value is less than .01 which means there is a significant relationship between on board services and customer satisfaction and any increase of the quality of the on board services will lead to more customer satisfaction.

**Conclusion**

To develop a better understanding of the relationship between the quality of airline services and passenger satisfaction, an empirical investigation of Egypt Air passengers was conducted. This study was carried out using survey questionnaire, which was distributed to 500 passengers. From the original sample, 400 questionnaires were used, representing 80% response rate.

The major purpose of this study was to identify service quality of airport and on board services and customer satisfaction levels in the airline industry and also to define most significant factors of the customer satisfaction.

It was found that higher perceived service quality in terms of meeting or exceeding customer expectations leads to customer satisfaction and there are many phases to understand the service quality from the passenger want to repurchase the airline service, therefore, the study assumed that the airline service as a flight consists of five phases “Reservation, scheduling, check-in, airport, and on board services”, and every phase consists of many indicators which effects on the airline service quality.

The airport services ranked in the first level, which has a positive effect in the customer satisfaction and therefore the customer loyalty.

On board services ranked in the second level, which have a certain effect on the customer satisfaction, as services such as helpful crew, clear announcements, updated fleet, updated in-flight services, children activities, and good food quality have a positive effect on the customer satisfaction and therefore the customer loyalty.

Accordingly, for upgrading Egypt Air service quality, the airline should investigate return customer satisfaction levels through examining those areas of weak evaluations of the quality of services as perceived by different categories of passengers as it will help in solving the problems and providing
certain kinds of services that were not covered before. Moreover, it will affect passenger's satisfaction and their willingness to fly with the airline in the future.

In addition, airline administrators should focus their effort on specific areas of quality that had greater influence in explaining the customer’s intent to behave and their satisfaction. If only limited resources are available to implement service quality improvements, ensuring that the promised service is performed accurately, dependably, and with great care of individual's needs, will offer the best return in passenger satisfaction and passenger intentions for repeat business (loyalty) in the future. A follow-up study after implementing changes should be conducted at Egypt Air for comparative analysis to identify improvements.

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الملخص العربي

اثر الخدمات المطار والخدمات على الطائرة على رضاء العملاء

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اصبحت رغبات عملاء شركات الطيران معقدة وعديدة وبالتالي فإن سقف توقعاتهم في زيادة مستمرة وبالتالي فإن تجانس الخدمات التي تقدمها شركات الطيران من الأشياء الأساسية اللازمة لوضع استراتيجيات المنافسة. وبالتالي نجد أن جودة الخدمات التي تقدم في كل كم المطار وعلى الطائرة من الاشياء الهامة والتي تؤثر مباشرة على رضاء العملاء وبالتالي ولائهم، ولكن نجد أن شركات الطيران لا تأخذ في اعتبارها احتياجات العملاء بمعنى أخر هناك فجوة بين كل من احتياجات العملاء والخدمات المقدمة مما يؤثر مباشرة في رضائهم وبالتالي إن الهدف الرئيسي من هذه الدراسة هو دراسة أبعاد خدمات شركات الطيران وتحديد أبعاد جودة خدمات المطار والخدمات على الطائرة المقدمة للركاب والتي لها تأثير على كل من رضاء العملاء وولاء العملاء. وتم توزيع 500 استمارة إستقصاء على عينة عشوائية من المسافرين وتم تحليل البيانات عن طريق برنامج SPSS وأشارت نتائج الدراسة إلى أنه يوجد تأثير معنوي لتلك الخدمات على رضاء العملاء.

الكلمات الدالة: جودة الخدمات، رضا العملاء، خدمات المطار، خدمات على الطائرة