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# WHAT LEADS GUESTS TO SATISFACTION AND LOYALTY IN UAE FIVE-STAR HOTELS? AHP ANALYSIS TO SERVICE QUALITY DIMENSIONS

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## ABSTRACT

*The hospitality industry has witnessed an impressive growth in the recent past. However, this has also led to fierce competition resulting in an enhanced focus on customer satisfaction. This study investigates and identifies critical service dimensions for five-star hotels in United Arab Emirates (UAE). The objective of the study is to examine the intricacies of customer satisfaction and loyalty with regard to service quality in the five-star hotels of UAE. Following a quantitative and empirical approach, the data was collected by a structured questionnaire and tested on Analytic Hierarchy*

*Process (AHP). Results support the impact of service quality dimensions on both Customer Satisfaction and Customer Loyalty. The "Personal Contact" dimensions (Responsiveness and Empathy) and the "Service Performance" dimensions (Reliability and Assurance) were found to be significant factor impacting the perception of the hotels guests towards Service Quality. The findings are useful particularly to the hotel industry to analyze the gaps in service quality and thereafter put more efforts into developing appropriate strategies for achieving customer satisfaction and customer loyalty.*

**KEYWORDS**

*Service Quality; Customer Satisfaction; Customer Loyalty; UAE five-star hotels; Analytic Hierarchy Process (AHP).*

**ECONLIT KEYS**

*M30, L15, L80*

## **1. INTRODUCTION**

A federation of seven emirates, the United Arab Emirates (UAE) has made significant efforts to diversify its economy from oil and petroleum to non-petroleum sectors and industries, including tourism and hospitality. A large number of attractions such as theme parks, skyscrapers, museums and malls have been constructed in the country, along with infrastructural developments in the transportation and accommodation sectors. This progress is fueled by year-round shopping festivals and many events throughout the country. In 2013, the emirate of Dubai won the bid to organize the prestigious mega event, World Exposition 2020, hoping to receive 25 million visitors during the event (Vij, Upadhya, Vij and Kumar, 2019). Although the event has been postponed due to the recent outbreak of corona virus, the country is confident in its ability to revive the tourism and hospitality sector as a priority. As an outcome of such developments, the country received more than 21 million international tourists in 2018. Amongst the seven emirates, the emirate of Dubai with 16.8 million international tourists leads in terms of international tourist arrivals (Visitdubai, 2019), followed by the capital Abu Dhabi which received 11.35 million, including 2.83 million overnight visitors in 2019 (Emirates 24X7, 27 June, 2020). Owing to these developments, the UAE tourism sector contributes 11.9% and 11.1% to the country's GDP and employment respectively (WTTC, 2020).

However, this impressive growth also attracted huge influx of investments in the accommodation sector resulting in an over-supplied market. In 2019, around 7,200 new hotel rooms were added in Dubai, with 3,200 of these in the fourth quarter alone

(Grovertt, 2019). This oversupply was also reflected in the Average Daily Rate (ADR) of hotels in Dubai, which dropped close to 4% in December 2017 compared to the previous year (Maceda, 2018). Amidst other factors such as upcoming technologies and new types of entrants like Airbnb, over-supplied, market-led competition poses new challenges for the hotels. Achieving customer satisfaction becomes increasingly imperative for the hotels as customers often use social media to review and rate services of a hotel. The impact of such reviews has been established in previous studies (Berezina, et al., 2015; Xiang and Gretzel, 2010). Satisfied customers visit repeatedly and spread positive word of mouth. Therefore, attaining customer satisfaction is imperative for the hotels and requires that measures be taken towards ensuring customer satisfaction. The relationship between customer satisfaction and loyalty has also been established in the service sector, including hospitality generally (Dimitriades, 2006, Lin and Wang, 2006; Chen and Tsai, 2008), and hotels specifically (Kandampully and Suhartanto, 2000; Radojevic, et al., 2015; Jani and Han, 2014).

Based on prior research, we found that the hotels in UAE have been unexplored and under-researched on service quality dimensions. Given the increasing competition by a large number of hotel properties, the UAE hospitality sector appears to be important and worthy of investigation in the context of “service dimensions, customer service, and customer loyalty”. An investigation of UAE hotels is important to bring meaningful insights for hotel managers to cope with competition by addressing the gaps identified by this research. Furthermore, previous research has focused primarily on the hotels either in the West or East. Relatively less attention has been paid to the hotels in the Middle East, especially UAE. Although a few studies have addressed customer satisfaction related issues and concerns in luxury hotels, such studies are scarce in the context of five star hotels in UAE. Earlier research revealed a need for improvement in managerial and operational areas due to gaps in customer service in luxury hotels (Mohsin et al., 2011; A-Alak, 2011). Cetin and Walls (2016) revealed physical environment and social interactions as two major factors influencing guest experience. The significance of the current study can also be gauged from the fact that UAE has been named as one of the leading destinations for luxury family travelers (Hotelier Middle East, 8 March 2020). The UAE Government also sees it as an

opportunity and invests in luxury tourism projects (CPPLUXURY, 16 May 2017). A study conducted by Ahmad et al. (2019) on small and medium sized hotels in UAE indicated that three out of the five dimensions of the service quality assessment instrument SERVQUAL, namely, tangibility, responsiveness and assurance, have significant positive impact on visitors' satisfaction.

The current study aims at examining what service quality dimensions of UAE five star hotels lead to customer satisfaction and loyalty. More precisely, the study seeks to assess and analyze empirically the relationship between service quality and customer satisfaction and loyalty in the five star hotels in United Arab Emirates through AHP analysis.

The study is divided into three sections. First, service quality dimensions, customer satisfaction, and customer loyalty are discussed. Secondly, in the study design section, we propose the study model, hypothesis, and methodology with a brief description of Analytic Hierarchy Process. Finally, hypothesis testing, findings, discussion and managerial implications are addressed in the results discussion section.

## **2. LITERATURE REVIEW AND THEORETICAL CONCEPTUALIZATION**

Customer satisfaction is considered to be the key to sustained growth and competitive advantage, particularly in the luxury market (Padma and Ahn, 2020; Dubois et al., 2005). Cheng, et al. (2014) revealed that high customer satisfaction in hotels leads to greater customer loyalty, which, in turn, leads to future revenue. Measuring customer satisfaction is a firm's largest annual market research expenditure (Wilson, et al., 2002). Apparently, the organizations follow the process of customer orientation, which includes designing, collecting, analyzing, making decisions, and improving offerings based on customer satisfaction data (Morgan and Rego, 2006). In the below section we attempt to explain service quality dimensions, customer satisfaction, customer loyalty in the context of UAE hotels.

### **2.1) SERVICE QUALITY DIMENSIONS**

Recent studies confirm that service quality involves not only an outcome but also the emotions that the customers experience. Customers' emotional experience while using services can be used to assess the service encounter and eventually the overall relationship quality (Alsaggaf and Althonayan, 2018, Edvardsson, 2005). To measure and explain service quality in different scenarios of business operations, there are many different types of Service Quality Models (Seth, et al., 2005). Gronroos (1993) proposed a technical and functional quality model in which the technical quality is what a consumer receives from the firm and which is important for the evaluation of the quality of service; whereas the functional quality is the technical outcome important to views of service received.

The very popular quantitative survey instrument SERVQUAL was proposed by Parasuraman et al. (1985), to study the gaps between service expectation and service performance relating to service quality dimensions. Most research on customer satisfaction in the hotel sector has been based on the SERVQUAL approach (Tontini and Bento, 2020; Chaturvedi, 2017). The reasoning behind using the SERVQUAL approach is due to its ability to assess satisfaction from many dimensions. The model enables an examination of the relationship between the service quality and customer satisfaction by taking into account such variables as reliability, responsiveness, assurance, empathy and tangibility. Wilkins et al. (2007) categorized three main areas of service quality, namely, physical conduct, service experience, and food and beverage quality; whereas Kimpakorn and Tocquer (2009) revealed the role played by the employees in this context. Mmutle and Shonhe, (2017) found a positive correlation between the personality traits of the front-line staff and guests' perceptions of service quality. Ineson et al. (2013) found that the key areas of quality service were mostly related to employee characteristics such as passion, honesty, trustworthiness and ability to handle emergencies. AlKhattab and Aldehayyat (2011) found that customers perceived quality of services from the "tangible" aspect of service, which included hotel facilities and equipment and employees' appearance. Therefore, the current study adopts two major dimensions of service quality viz. "personal contact" and "service performance" with further sub-dimensions, leading to customer satisfaction and customer loyalty (see Figure 1). However, the importance of these dimensions remains

unknown in the context of UAE five-star hotels. Accordingly, the first hypothesis is developed as follows:

H<sub>01</sub>: There is no difference in the importance of service quality dimensions (responsiveness, empathy, reliability, assurance) in UAE five star hotels.

## **2.2) CUSTOMER SATISFACTION**

Customer satisfaction has received a lot of attention in management and marketing research over the past two decades, mostly regarding the relationship between customer satisfaction and service quality (Ramseook-Munhurrun and Naidoo, 2011; Sudin, 2011). Although much previous research was based on overall customer satisfaction or used only one dimension, later studies determined that three types of customer satisfaction needed to be explored. These three types are overall customer satisfaction, functional customer satisfaction, and technical customer satisfaction (Anderson and Sullivan, 1994; Lervik-Olsen and Johnson, 2003; Dimitriades, 2006). However, when examining the satisfaction-loyalty link, previous research (Bolton, et al., 2000; Walsh, et al., 2008) distinguished between customer satisfaction resulting from the service outcomes (i.e. satisfaction with the assortment/service) and satisfaction resulting from the service delivery process (i.e. satisfaction with functional process, for example employees' friendliness) and indicated that customer satisfaction affects positive word-of-mouth and future repeat purchase. In yet another extension of such phenomenon in tourism, Malik et al. (2020) surveyed the satisfaction of tourists visiting heritage sites in Sultanate of Oman and found that four dimensions (facilities, appearance and maintenance, accessibility, and quality) at a heritage site play a critical role in the overall satisfaction of the tourists. As to reputation and quality of hotels, Nasution and Mavondo (2008) found that customers expect superior value from luxury hotels compared to that of standard hotels. Customer satisfaction in luxury hotels emerges from quality services, pleasant atmosphere and an entertaining experience (Wu and Liang, 2009). Cadotte and Turgeon (1988) concluded in their study that food quality and hotel lobby atmosphere were the major factors, followed by cleanliness, service quality, and employees' knowledge. Therefore, the second hypothesis of the



study is based on the relationship between service quality dimensions and customer satisfaction.

H<sub>02</sub>: The service quality dimensions do not impact customer satisfaction in the UAE five-star hotels.

### **2.3) CUSTOMER LOYALTY**

In most research, customer loyalty has been found to be driven by customer satisfaction. Min et al. (2002) found that regular customers to the hotels were conversant with the service quality of a hotel and preferred to visit the same hotel if they were satisfied with the services of the hotel staff (Alshurideh et al., 2020). In marketing theory, there is strong empirical evidence, conducted mainly in western business environments, which shows that customer satisfaction is a strong antecedent to customer loyalty (Zeithaml et al., 1996; Anderson and Sullivan, 1994; Xu et al., 2006; Chadha and Kapoor, 2009; Alrubaiee et al., 2015). Hence, many firms use customer satisfaction metrics to evaluate the performance of goods, services and employees and try to link them to customer attitudes and behavior (Peterson et al., 1992; Gustafsson, A. and Johnson, 2002). However, it is easier said than done due to the integration of many other attributes into the concept of customer satisfaction and its context. For this reason, such metrics are divided into many sub-themes such as the experience of service encounters, image, price, the evidence of service and so on. These attributes form a customer's overall perception of satisfaction, value and quality (Ryu et al., 2012; Zeithaml et al., 1996). A higher level of customer satisfaction leading to loyalty was also observed amongst tourists who perceived festivals as having quality (Amorim, Jiménez-Caballero and Almeida, 2019).

Early studies (Palmer and Maani, 1995; Fornell et al., 1996; Alrubaiee et al., 2013) have supported a positive relationship between satisfaction and behavioral intention. Getty and Thompson (1994) conducted a study on hotel customers' intention to recommend the hotel based on the service quality and found a positive relationship between customer satisfaction and customer loyalty. Saleem and Raja (2014) showed a positive relationship between brand image and customer loyalty. In another study

conducted on luxury hotels in Ghana, Allan (2016) found the “responsiveness” dimension of service quality as a major factor in customer retention. Gil et al., (2006) found that loyal customers of hotels in Spain evaluated the service quality as higher than did non-loyal customers. Cheng and Rashid (2013), in a qualitative research on hotels in Malaysia, found that perceived service quality was related to customer satisfaction, leading to increased loyalty. Hence, this study explores the impact of service quality dimensions on customer loyalty as one of its hypotheses:

H<sub>03</sub>: The service quality dimensions do not impact customer loyalty in the UAE five-star hotels.

#### **2.4) THEORETICAL FRAMEWORK**

This study attempts to build on the literature review in the field of service quality and its implications on customer satisfaction and loyalty, and to bridge gaps that have identified. Primarily, there is a scarcity of empirical research examining the association of service quality, customer satisfaction and loyalty in the context of five star hotels in the UAE. In addition, hotels' focus on providing better service quality in the face of the growing number of hotels and changing market dynamics also needs to be addressed. The primary objective of this study is to examine the importance of service quality dimensions and the impact of these dimensions on customer satisfaction and loyalty with the help of Analytic Hierarchy Process. The results will enable hotel managers to gauge the areas for improving hotel services to achieve better customer satisfaction and loyalty. Taking clues from the literature, this study proposes that the customer satisfaction in five star hotels is affected by responsiveness, empathy, reliability and assurance. Out of these four, the first two dimensions are grouped under “personal contact” while the latter two are grouped under “service performance” (see Figure 1).

The study has been designed to investigate whether service quality dimensions lead to customer satisfaction and loyalty by examining the relationship and impact of service quality dimensions on customer satisfaction and loyalty (Padma and Ahn, 2020; Cheng et al., 2014; Cheng and Rashid, 2013; Sudin, 2011). The study used the Analytic Hierarchy Process AHP analytical methodology that requires groups with binary items

in order to get a binary comparison between the items (Saaty, 2001; Kristof, 2005; Bhushan and Rai, 2004). The Independent variable has been broken down into two service quality dimensions: personal contact dimensions that include responsiveness and empathy (Cetin and Walls, 2016; Saleem and Raja, 2014; Daniel and Berinyuy, 2010; Walsh, et al., 2008), and service performance dimensions that include reliability and assurance (Rashid and Rokade, 2019; Jani and Han, 2014; Chadha and Kapoor, 2009; Lin and Wang, 2006).

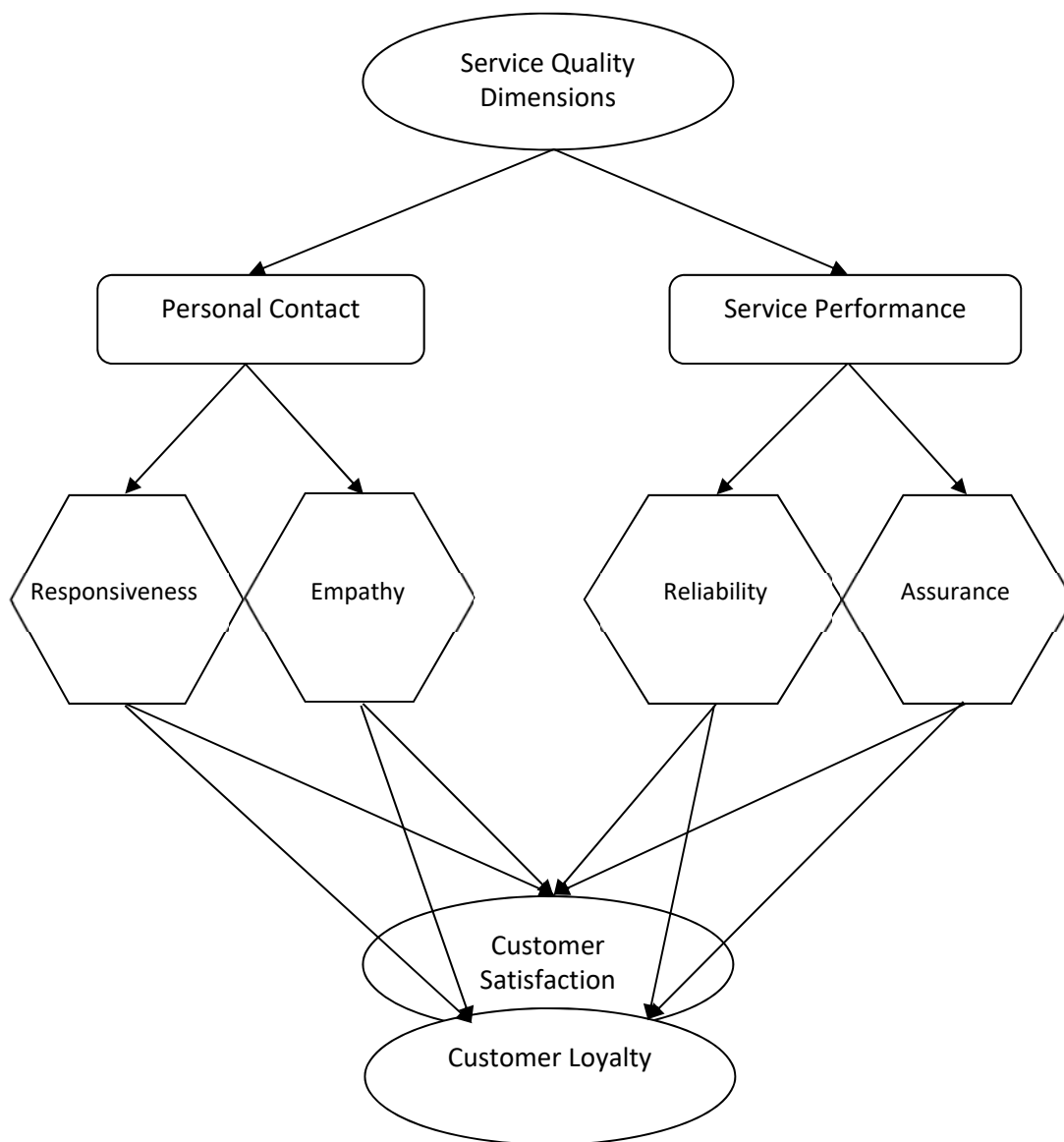


Figure 1: Theoretical framework of the study  
Source: own elaboration

### **3. THE CONTEXT OF UAE HOTELS**

United Arab Emirates (UAE), a federation of seven emirates with the second largest economy in the Arab Middle East after Saudi Arabia, has the seventh largest proven oil reserves in the world. The emirate of Abu Dhabi is the focal point of the UAE's oil and gas industry, followed by Dubai, Sharjah, and Ras al Khaimah in that order, while the other emirates, Fujairah, Ajman and Umm al-Qaiwain are on the way to developing similar infrastructure (Vij and Upadhya, 2020; Vij and Verma, 2016). The country has been ranked sixth in the world for the quality of its infrastructure according to the World Economic Forum (WEF, 2019). The rapid pace of economic growth until 2008 was due to the steady demand for oil, supplemented by a shift in focus to a number of non-oil sectors. As a result of the Government's planned approach, the country has not only successfully diversified from being dominated by the oil industry to development of the tourism sector, but also poses an example of excelling in tourism in the absence of a conducive environment and natural attractions (Vij and Vij, 2012). With more than 80% of the country's area, Abu Dhabi, the capital city, is known for its contribution to the country's economy. Although oil and petroleum remain of paramount importance, the tourism and hospitality sector in Abu Dhabi has also grown steeply in the past decade. The hotel business in Abu Dhabi covers the ownership and representation of many national and international hotels. The international hotels include the Park Hyatt Abu Dhabi, Hilton Al Ain, Hilton Abu Dhabi, Le Méridien Abu Dhabi, Sheraton Abu Dhabi Hotel and Resort, and Sofitel Jumeirah Beach Hotel. An important national chain, Al Diar Hotels owns more than 10 executive hotels in the United Arab Emirates. However, despite major developments in the Emirate of Abu Dhabi, there remain certain issues particularly related to its perceived image as oil-based state, competition with the neighboring emirate of Dubai, which is well advanced in tourism, limited attractions, and tourism organizational challenges (Sharpley, 2003).

### **4. RESEARCH METHODOLOGY**

The study adopted an exploratory and causal approach, which is an appropriate

approach for obtaining adequate information regarding the respondents' perception towards the study model. The population of the study is the five-star hotels in the UAE, of which there are 91 in the country (Fivestaralliance, 2020). The sample type used for the study is cluster sampling. As hotels are located in various cities, we considered the cities as the clusters. Thus, the sample of the study consists of 23 five-star hotels located in the city of Abu Dhabi considered as a cluster. The unit of analysis is the guests of all 23 surveyed hotels in Abu Dhabi. The selected hotels provided email addresses for 579 guests, who were sent questionnaires in the year of 2020, together with some reminders to urge them to fill the survey. Out of this sample, 116 appropriate questionnaire results were used for the analysis. This percentage (20.03%) can be considered an acceptable sample size, as it is greater than 10% prescribed by Hair et al. (2010).

The main data collection tool was the survey, through a structured questionnaire of five-point Likert measurement scales. The questionnaire is divided into three sections focusing on the corresponding variables of the study. The first section measures the service quality dimensions and consists of twelve items that were built with benefit of the scale used by Cetin and Walls (2016) and Jani and Han (2014). The second section measures the customer satisfaction variable and consists of five items that were built with benefit of the scale used by Padma and Ahn (2020) and Cheng and Rashid (2013). The third section measures the customer loyalty variable and consists of six items that were built with benefit of the scale used by Cheng et al. (2014) and Sudin (2011).

#### **4.1) ANALYTIC HIERARCHY PROCESS (AHP)**

The analysis of Analytic Hierarchy Process (AHP) was introduced and developed originally by Prof. Thomas L. Saaty (2001), as a Multi Criteria decision making method. In other words, a technique that uses paired comparisons to derive ratio scales. Numeric measurement such as sales, price, defects and such can be used as input, as can subjective opinion such as experience, preference, perception, satisfaction and performance. AHP allows some small inconsistency in judgment reflected through the consistency index, which is derived from the principal Eigen value. The ratio scales are

also derived from the principal Eigen vectors (Bhushan and Rai, 2004), where restructuring can be separated into a series of substructures which consist of a number of items. Moreover, it allows a binary comparison between every level of structural factors, providing weights for each level. In addition, AHP uses multiple criteria decision-making technique and hierarchical structures to evaluate various dimensions (Saaty, 2001; Kristof, 2005).

The AHP steps as prescribed by Kendrick and Saaty (2007) include the following in order:

- Create the basic matrix
- Find the sum of values in each column
- Divide the last values on the basic matrix
- Calculate the weight (W)= Average per each row
- Multiply the original matrix by the weight values
- Find  $n_{max}$ =sum of the resulting values
- Consistency Index= $n-n_{max}/n-1$
- Random Index=from the Table 1
- Consistency Ratio=Consistency Index/ Random Index

If Consistency Ratio is less than (0.1), the factor is significant.

Value	2	3	4	5	6	7	8	9	10
Random Index	0	0.65	0.94	1.21	1.28	1.36	1.40	1.48	1.52
		0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.51

Table 1: Random Index Values  
Source: own elaboration

## 5. DATA ANALYSIS AND RESULTS

### 5.1) TESTING THE FIRST HYPOTHESIS

To test the first hypothesis, we used factor analysis through Varimax to determine the importance of service quality dimensions (responsiveness, empathy, reliability, assurance). Table 2 shows that the percentage of the explained variance of each dimension of Service Quality in the current study was not same, since the dimension “Responsiveness” explains 5.787% of variance in the customer satisfaction, while

“Empathy” explains 3.243%, “Reliability” explains 6.164% and “Assurance” explains 4.188%. Thus, we accept the alternative hypothesis: “there is a difference in importance level of service quality dimensions”.

Service Quality dimensions	Explained Variance	Cumulative Variance
Responsiveness	5.787	5.787
Empathy	3.243	9.030
Reliability	6.164	15.194
Assurance	4.188	19.382

Table 2: Factor Analysis for Service quality dimensions

Source: own elaboration

## 5.2) TESTING THE SECOND HYPOTHESIS

In the first stage of testing the second hypothesis, ANOVA analysis and multiple regression analysis were used to determine the direct impact of service quality on customer satisfaction. Results of ANOVA analysis in Table 3 show the contribution of service quality in explaining the variance in customer satisfaction. The calculated “F” for Customer Satisfaction is 26.259, and it is significant at the level of  $\alpha \leq 0.05$ . The results of multiple regression analysis, in Table 3, show the impact of Service Quality dimensions on Customer Satisfaction. The value correlation coefficient “r” (0.648) indicates a positive correlation between Service Quality and Customer Satisfaction, whereas the value of determination coefficient “r<sup>2</sup>” is 0.419, which means that 41.9% of variance in “Customer Satisfaction” results from variance in “Service Quality” dimensions.

Additionally, the Service Quality dimensions with high impact on Customer Satisfaction were “Responsiveness” ( $\beta=0.0599$ ) and “Empathy” ( $\beta=0.0578$ ), whereas “Reliability” ( $\beta=0.259$ ) and “Assurance” ( $\beta=0.362$ ) has less impact. This means that increase by one unit in Service quality dimensions will increase Customer Satisfaction by one  $\beta$  value. The calculated “t” confirmed this impact, and it is significant at ( $\alpha \leq 0.05$ ) level, so we accept the alternative hypothesis, which confirms the impact of Service Quality dimensions on Customer Satisfaction.

	r	r <sup>2</sup>	F	DF	Sig*	B	t	Sig*	
				4		Responsiveness	0.599	7.829	0.000
Customer	.648	.4199	26.259	112	.000	Empathy	0.578	5.632	0.003
Satisfaction						Reliability	0.259	3.365	0.002
						Assurance	0.362	2.614	0.001
								116	

\* Level of significance ( $\alpha \leq 0.05$ ) \*\* Critical t (df/p)=1.64  
 Table 3: Correlation, ANOVA and Regression analysis in customer satisfaction  
 Source: own elaboration

Further AHP is used to evaluate service quality dimensions. In the first stage the impact of personal contact sub-dimensions on customer satisfaction is measured. The values in the first matrix refer to respondents' responses of binary comparison to (Responsiveness, Empathy). The calculation will be taken the following sequence:

(I) Prepare the basic matrix:

$$\begin{array}{c} \text{PC-SQ Matrix} \\ \text{RS} \quad \text{EM} \\ \left( \begin{array}{cc} A_{11} & A_{12} \\ A_{21} & A_{22} \end{array} \right) \end{array} \Rightarrow \begin{array}{c} \text{PC-SQ Matrix} \\ \text{RS} \quad \text{EM} \\ \left( \begin{array}{cc} 1 & 1/4 \\ 4 & 1 \end{array} \right) \end{array}$$

Where

PC-SQ: refers to Personal Contact dimensions of Service Quality.

RS: refers to Responsiveness.

EM: refers to Empathy.

$A_{11}, A_{22}=1$ , which means the importance when the same dimension is met.

(II) Then we add values in each column, and the results are

$$\left[ \begin{array}{c} 5 \\ 1.25 \end{array} \right]$$

(III) Then we divide the last values on the basic matrix as

$$\begin{array}{c} \text{PC-SQ Matrix} \\ \text{RS} \quad \text{EM} \\ \left( \begin{array}{cc} 1/5 & 0.25/1.25 \\ 4/5 & 1/1.25 \end{array} \right) \end{array} \Rightarrow \begin{array}{c} \text{PC-SQ Matrix} \\ \text{RS} \quad \text{EM} \\ \left( \begin{array}{cc} 0.2 & 0.2 \\ 0.8 & 0.8 \end{array} \right) \end{array}$$



(IV) Then calculate the weight (W) in each row, by finding the average for each row:

$$W_{SP} = \frac{0.2 + 0.2}{2} = 0.2$$

$$W_{MC} = \frac{0.8 + 0.8}{2} = 0.8$$

(V) Then, we multiply the original matrix by the weight values:

$$\begin{pmatrix} 1 & 1/4 \\ 4 & 1 \end{pmatrix} * \begin{pmatrix} 0.2 \\ 0.8 \end{pmatrix} = \begin{pmatrix} 0.4 \\ 1.6 \end{pmatrix}$$

(VI) Then, we find (find  $n_{max}$ ) by adding the resulting values,  $n_{max} = 0.4 + 1.6 = 2$

(VII) Then, we find Consistency Index (CI) by:

$$\text{Consistency Index} = \frac{n - n_{max}}{n - 1} \quad CI = \frac{2.0 - 2.0}{2 - 1} = 0.0$$

(VIII) Then we find Consistency Ratio (CR) by:

$$\text{Consistency Ratio} = \frac{CI}{RI} \quad CR = \frac{0.0}{0} = 0.0$$

RI: Random Index as in Table 1.

(IX) Since Consistency Ratio is less than (0.1), we conclude that the Personal Contact dimensions of Service Quality have significant impact on Customer Satisfaction.

In the next stage, the impact of service performance dimensions on customer satisfaction is measured. Based on the respondents' responses for pairs comparison to (Reliability, Assurance) we can proceed by the following steps:

(I) Prepare the basic matrix:

$$\begin{array}{c}
 \text{SP-SQ Matrix} \\
 \text{REL} \quad \text{AS} \\
 \text{REL} \begin{pmatrix} A_{11} & A_{12} \\ A_{21} & A_{22} \end{pmatrix} \\
 \text{ASS}
 \end{array}
 \Rightarrow
 \begin{array}{c}
 \text{SP-SQM Matrix} \\
 \text{REL} \quad \text{ASS} \\
 \text{REL} \begin{pmatrix} 1 & 1/3 \\ 3 & 1 \end{pmatrix} \\
 \text{ASS}
 \end{array}$$

Where

SP-SQ: refers to Service Performance dimensions of Service Quality.

REL: refers to Reliability.

ASS: refers to top Assurance.

$A_{11}, A_{22}=1$ , when the same dimension is met.

(II) Then, we add values to each column as

$$\begin{pmatrix} 4 & 1.33 \end{pmatrix}$$

(III) Then we divide the last values on the basic matrix as

$$\begin{array}{c}
 \text{SP-SQ Matrix} \\
 \text{REL} \quad \text{ASS} \\
 \text{REL} \begin{pmatrix} 1/4 & 0.33/1.33 \\ 3/4 & 1/1.33 \end{pmatrix} \\
 \text{ASS}
 \end{array}
 \Rightarrow
 \begin{array}{c}
 \text{SP-SQ Matrix} \\
 \text{REL} \quad \text{ASS} \\
 \text{REL} \begin{pmatrix} 0.25 & 0.248 \\ 0.75 & 0.751 \end{pmatrix} \\
 \text{ASS}
 \end{array}$$

(IV) Then to calculate the weight (W), by finding the average per each row:

$$W_{REL} = \frac{0.25 + 0.248}{2} = 0.249$$

$$W_{ASS} = \frac{0.75 + 0.751}{2} = 0.7505$$

(V) Then we multiply the original matrix by the weight values:

$$\begin{pmatrix} 1 & 1/3 \\ 3 & 1 \end{pmatrix} * \begin{pmatrix} 0.249 \\ 0.7505 \end{pmatrix} = \begin{pmatrix} 0.499 \\ 1.498 \end{pmatrix}$$

(VI) Then finding ( $n_{max}$ ) by adding resulting values:  $n_{max} = 0.499 + 1.498 = 1.997$

(VII) Then we find Consistency Index (CI) by:

$$\text{Consistency Index} = \frac{n - n_{max}}{n - 1} \quad CI = \frac{2.0 - 1.997}{2 - 1} = 0.003$$

(VIII) Then we find Consistency Ratio (CR) by:

$$\text{Consistency Ratio} = \frac{CI}{RI} \quad CR = \frac{0.003}{0} = 0.0$$

RI: Random Index as in Table 1.

Since the Consistency Ratio is less than (0.1), we can safely conclude that the service performance dimensions of service quality have significant impact on customer satisfaction.

Therefore, there is a significant positive direct impact of service quality dimensions on customer satisfaction.

### 5.3) TESTING THE THIRD HYPOTHESIS

ANOVA analysis and multiple regression analysis were used to determine the direct impact of Service Quality on Customer Loyalty. Results of ANOVA analysis, in Table 4, show the contribution of Service Quality in explaining the variance in Customer Loyalty. As the calculated “F” is (31.123) to Customer Loyalty, thus it is significant at the level of ( $\alpha \leq 0.05$ ).

The results of multiple regression analysis, also in Table 4, show the impact of Service quality dimensions on Customer Loyalty. The value of “r” (0.596) to Customer Loyalty, whereas the value of “r<sup>2</sup>” was (0.355), which means that 0.355% of variance in Customer Loyalty results from the variance in “Service Quality” dimensions.

Moreover, service quality dimensions with the highest impact on Customer Loyalty were “Responsiveness” ( $\beta=0.656$ ) and “Empathy” ( $\beta=0.446$ ) whereas dimensions with less impact were “Reliability” ( $\beta=0.322$ ) and “Assurance” ( $\beta=0.369$ ). This means that increase by one unit in Service quality dimensions will increase Customer Satisfaction by one  $\beta$  value. Calculated “t” confirmed this impact, and it is significant at ( $\alpha \leq 0.05$ ) level, so we can support the hypothesis, which confirms the impact of Service quality dimensions on Customer Loyalty.

	r	r <sup>2</sup>	F	DF	Sig*	$\beta$	t	Sig*	
Customer Loyalty	.596	.355	31.123	4	.000	Responsiveness	0.656	4.368	0.001
				112		Empathy	0.446	3.499	0.000
						Reliability	0.322	2.822	0.004
				116		Assurance	0.369	2.916	0.002

\* level of significance ( $\alpha \leq 0.05$ ) \*\* Critical t (df/p)=1.64

Table 4: Correlation, ANOVA and Regression analysis on customer loyalty

Source: own elaboration

In the next stage AHP is used to evaluate service quality dimensions. Firstly, the impact of personal contact sub-dimensions on customer loyalty is measured. The values in the first matrix refer to respondents’ responses of binary comparison to (Responsiveness, Empathy). The calculation will be as shown in the following

sequence:

(I) Prepare the basic matrix:

$$\begin{array}{c}
 \text{PC-SQ Matrix} \\
 \begin{array}{cc}
 & \text{RS} & \text{EM} \\
 \text{RS} & \left( \begin{array}{cc} A_{11} & A_{12} \end{array} \right) \\
 \text{EM} & \left( \begin{array}{cc} A_{21} & A_{22} \end{array} \right)
 \end{array}
 \end{array}
 \Rightarrow
 \begin{array}{c}
 \text{PC-SQ Matrix} \\
 \begin{array}{cc}
 & \text{RS} & \text{EM} \\
 \text{RS} & \left( \begin{array}{cc} 1 & 1/8 \end{array} \right) \\
 \text{EM} & \left( \begin{array}{cc} 5 & 1 \end{array} \right)
 \end{array}
 \end{array}$$

(II) Then we add values in each column, and results are

$$\left[ \begin{array}{c} 6 \\ 1.125 \end{array} \right]$$

(III) Then we divide the last values on the basic matrix as

$$\begin{array}{c}
 \text{PC-SQ Matrix} \\
 \begin{array}{cc}
 & \text{RS} & \text{EM} \\
 \text{RS} & \left( \begin{array}{cc} 1/6 & 0.125/1.125 \end{array} \right) \\
 \text{EM} & \left( \begin{array}{cc} 5/6 & 1/1.125 \end{array} \right)
 \end{array}
 \end{array}
 \Rightarrow
 \begin{array}{c}
 \text{PC-SQ Matrix} \\
 \begin{array}{cc}
 & \text{RS} & \text{EM} \\
 \text{RS} & \left( \begin{array}{cc} 0.167 & 0.111 \end{array} \right) \\
 \text{EM} & \left( \begin{array}{cc} 0.833 & 0.889 \end{array} \right)
 \end{array}
 \end{array}$$

(IV) Then to get the weight (W) in each row, by finding the average for each row:

$$W_{SP} = \frac{0.167 + 0.111}{2} = 0.139$$

$$W_{MC} = \frac{0.833 + 0.889}{2} = 0.861$$

(V) Then, we multiply the original matrix by the weight values:

$$\begin{pmatrix} 1 & 1/8 \\ 5 & 1 \end{pmatrix} * \begin{pmatrix} 0.139 \\ 0.861 \end{pmatrix} = \begin{pmatrix} 0.247 \\ 1.556 \end{pmatrix}$$

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(VI)  $n_{\max} = 0.247 + 1.556 = 1.803$

(VII) Then, we find Consistency Index (CI) by:

$$\text{Consistency Index} = \frac{n - n_{\max}}{n - 1} \quad \text{CI} = \frac{2.0 - 1.803}{2 - 1} = 0.197$$

(VIII) Then we find Consistency Ratio (CR) by:

$$\text{Consistency Ratio} = \frac{\text{CI}}{\text{RI}} \quad \text{CR} = \frac{0.197}{0} = 0.0$$

RI: Random Index as in Table 1.

(IX) Finally, since Consistency Ratio is less than (0.1), we can conclude that the Personal Contact dimensions of Service Quality have significant impact on Customer Loyalty.

At this stage, the impact of service Performance dimensions on Customer Loyalty is measured. Based on the respondents' responses for pairs comparison to (Reliability, Assurance) we take the following steps:

(I) Prepare the basic matrix:

	SP-SQ Matrix			SP-SQM Matrix	
	REL	ASS		REL	ASS
REL	$\begin{pmatrix} A_{11} & A_{12} \\ A_{21} & A_{22} \end{pmatrix}$		⇒	REL	$\begin{pmatrix} 1 & 1/7 \\ 5 & 1 \end{pmatrix}$
ASS			ASS		

(II) Then, we add values to each column as

$$\left[ \begin{array}{c} 6 \\ 1.143 \end{array} \right]$$

(III) Then we divide the last values on the basic matrix as

SP-SQ Matrix			SP-SQ Matrix		
	REL		REL	ASS	
REL	1/6	0.143/1.143	⇒	0.167	0.125
ASS	5/6	1/1.143		0.833	0.875

(IV) Calculate the weight (W), by finding the average per each row:

$$W_{REL} = \frac{0.167 + 0.135}{2} = 0.151$$

$$W_{ASS} = \frac{0.833 + 0.875}{2} = 0.854$$

(V) Then we multiply the original matrix by weight values:

$$\begin{pmatrix} 1 & 1/7 \\ 5 & 1 \end{pmatrix} * \begin{pmatrix} 0.151 \\ 0.854 \end{pmatrix} = \begin{pmatrix} 0.294 \\ 1.609 \end{pmatrix}$$

(VI)  $n_{max} = 0.294 + 1.609 = 1.903$

(VII) Then we find Consistency Index (CI) by:

$$\text{Consistency Index} = \frac{n - n_{max}}{n - 1} \quad \text{CI} = \frac{2.0 - 1.903}{2 - 1} = 0.097$$

(VIII) Then we find Consistency Ratio (CR) by:

$$\text{Consistency Ratio} = \frac{CI}{RI} \quad CR = \frac{0.097}{0} = 0.0$$

RI: Random Index as in Table 1.

Since Consistency Ratio is less than (0.1), we can conclude that the Service Performance dimensions of Service Quality have significant impact on Customer Loyalty.

## **6. DISCUSSION OF THE RESULTS**

The design of the current study-model aims at investigating the service quality dimensions leading to customer satisfaction and loyalty in UAE-based five-star hotels. The purpose of the study was primarily to examine the importance of service quality dimensions and secondly to explore the impact of service quality dimensions on customer satisfaction and customer loyalty by applying AHP analysis technique.

Our findings show that although hotel guests were concerned about all investigated dimensions of service quality (personal contact and service performance), the importance of these dimensions varied. Varimax coefficients to service quality dimensions (Table 2) indicate differences in the relative importance of service quality dimensions as perceived by the respondents. Guests rated reliability as the highest, then responsiveness, after that assurance, and finally empathy. These findings support previous studies such as Cetin and Walls (2016), who suggested that when empathy about perceived service quality is high, it will lead to an increase in customer satisfaction. Our findings support their conclusion that empathy leads to customer satisfaction and loyalty. Similarly, Daniel and Berinyuy (2010), acknowledge that customer satisfaction is based upon the level of responsiveness provided by the service provider, which is also in line with our findings. Padma and Ahn (2020) examined the pivotal attributes of luxury hotels and confirmed the relationship between the reliability of the service quality and the customer satisfaction and loyalty, which matches our findings. Rashid and Rokade (2019) argued that the assurance dimension



of the service would result in satisfied customers, leading to store loyalty, and this, too, is in line with our findings in this study. In addition, Table 4 shows the results of correlation and determination coefficient, which indicate the relationship between service quality dimensions and customer loyalty. The results of ANOVA analysis and "F" value show that the contribution of service quality is significant in explaining the variance in customer loyalty at the level of ( $\alpha \leq 0.05$ ). Furthermore, " $\beta$ " value and " $t$ " value confirm the impact of service quality dimensions on customer loyalty. These results are consistent with the results of previous studies (Cheng et al., 2014; Jani and Han, 2014; Saleem and Raja, 2014; Cheng and Rashid, 2013; Sudin, 2011; Chadha and Kapoor, 2009; Chen and Tsai, 2008; Walsh et al., 2008; Gil et al., 2006; Lin and Wang, 2006; Dimitriades, 2006; Xu et al., 2006; Morgan and Rego, 2006; Lervik-Olsen and Johnson, 2003; Gustafsson and Johnson, 2002; Kandampully and Suhartanto, 2000; Bolton et al. 2000). AHP results based on Consistency Ratio demonstrate that the "Personal Contact" dimensions of service quality have significant impact on customer loyalty, as do the "service performance" dimensions.

## **7. CONCLUSION**

Service quality in the hospitality industry has been considered one of the most important factors for the guests. It is imperative for managers to know which of the service quality dimensions are appreciated most by the hotel guests. The study presents both theoretical and managerial implications. The theoretical aspect explores the relationships among service quality dimensions, customer satisfaction and customer loyalty by using Analytic Hierarchy Process (AHP) to investigate and determine which dimensions of the service quality are most appreciated by the hotel guests. The AHP approach assists hotels to devise and maintain a competitive and relevant plan for ongoing improvement in service quality. This study also has managerial implications for the hotel managers needing to better understand the intricacies of guests' satisfaction and loyalty toward service quality. Four hypotheses were proposed to empirically prove that the service quality dimensions positively affect customer satisfaction and customer loyalty. The results of the guest surveys supported the propositions. The results indicate significance of "Personal Contact"

dimensions of service quality in enhancing customer satisfaction and loyalty. Based on the above, the hotel management should focus on the various dimensions of service quality, thus improving both customer satisfaction and customer loyalty. This is possible only by hiring qualified and competent staff and further educating and training them with the help of internal and external resources. On the demand side, the hotels should enhance all means of communication with the hotel guests, thus enabling management to understand clearly and comprehend guests' expectations and perceptions of the hotel's services. The staff should be able to express and deepen the feeling of empathy with the guests along with quick responsiveness that would enhance their satisfaction and loyalty. Lastly, the service quality should be standardized to create a feeling of reliability and assurance which is crucial in customer satisfaction and loyalty.

## **8. LIMITATIONS AND IMPLICATIONS**

Our study differs from previously conducted similar studies on five-star hotels in grouping the service quality dimensions into personal contact dimensions and service performance dimensions while examining the preferences and differences between these two groups from the hotel guests' perspectives. Although the authors believe that this study has contributed positively and provided valuable information to the hotel industry in understanding the factors affecting customer satisfaction and loyalty, the findings should be viewed with some limitations. Firstly, the study used cluster sampling that targeted 23 five-star hotels located in the city of Abu Dhabi only, and 579 hotel guests. This sample size may not be large enough to generalize the whole picture of the hotel industry in UAE, particularly in the light of the varied sizes of the emirates. Future studies could address this concern by using larger samples from other cities in the UAE, and conducting frequent surveys to observe what factors make guests satisfied and loyal. Secondly, despite the strength of quantitative methodology for this type of study, future studies can enrich the results by combining quantitative and qualitative methodology. In-depth interviews with hotel managers and staff may bring more insight on this topic. The implications of the service quality dimensions influencing guest satisfaction and loyalty in the hotel industry will help academicians,

researchers and hotel stakeholders to better understand the satisfaction level of the hotel guests. The guests' perceived level of service quality dimensions should be addressed, tuned and improved to enhance the satisfaction and loyalty.

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