

Using SERVIQUAL to investigate the quality of provided wireless communication services in UAE

SERVIQUAL
tool

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Wisam Abu Jadayil

College of Engineering, Abu Dhabi University, Abu Dhabi, UAE

Mwafak Shakoor

*Department of Mechanical Engineering, Faculty of Engineering,
American University of Madaba, Amman, Jordan*

Adnan Bashir

College of Engineering, Abu Dhabi University, Abu Dhabi, UAE

Hamza Selmi

*Department of Mechanical and Industrial Engineering,
American University of Ras AlKaimah, Ras AlKaimah, UAE, and*

Mohamed Rafik N.N. Qureshi

*Department of Industrial Engineering, College of Engineering,
King Khalid University, Abha, Saudi Arabia*

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Abstract

Purpose – The purpose of this paper is to investigate the service quality of wireless telecommunication services in the UAE.

Design/methodology/approach – This study uses the five dimensions of SERVIQUAL instrumentation (reliability, assurance, tangibility, empathy and responsiveness) that are believed to represent service quality to approach a result of service quality level through comparing customers' expectations to their perceptions. A SERVIQUAL survey was constructed and distributed among a total number of 100 Etisalat users from four different age groups.

Findings – The results showed a significant difference between users' expectations and the current level of quality of services in tangibility dimension of quality. The other variables were ranked in this order, assurance, reliability, responsiveness and empathy in service quality.

Research limitations/implications – The research findings encompass individuals from society only and may not be practical to generalize the findings to business organizations or industries as they have special offers and packages designed for their nature of the study.

Practical implications – This research is intensely valuable for Etisalat telecommunication company as it reflects and rates their service provided to the individuals of the society (citizens and residents) from five different critical dimensions. Consequently, it offers the firm the chance to improve the negative gaps in their services. Thus, higher customer satisfaction and loyalty.

Originality/value – This study demonstrated that a multi-cultural society could influence customers' expectations and perceptions of service quality. The study results showed opposing expectations and perceptions to the same dimension from people of the same age group. The highest gaps were found to be in the tangibility and assurance dimensions whilst the lowest gap was found in the empathy dimension.

Keywords SERVIQUAL tool, Service quality, Customer satisfaction, Telecommunication sector, UAE

Paper type Research paper



Introduction

Service organizations meet both individual and industrial necessities by providing services such as transportation, communication and finance. Therefore, the quality of services is a powerful competitive instrument for service organizations. Nowadays, in a severely competitive environment, the most central factor to sustainable competitive advantage is to provide the best possible service quality, which will result in improved customer satisfaction, customer retention and profitability.

Service quality is usually defined based on consumers' assessment. [Parasuraman *et al.* \(1988\)](#) defined service quality as "a measure of how well the service level delivered matches customer expectations; delivering quality service means conforming to customer expectations on a consistent basis." Service quality is a focused evaluation that reflects the customers' perception of specific dimensions of service in which quality can be measured from the viewpoint of clients. It is about ensuring customers, both internal and external, get what they want. SERVQUAL is a multi-dimensional research instrument developed in the mid-1980s by Parasuraman, Zeithaml and Berry ([Parasuraman *et al.*, 1985](#)) to grasp consumers' expectations and perceptions of service and measure the level of quality in service sectors through five factors or dimensions that are considered to illustrate service quality. SERVQUAL tool measures five dimensions. They are as follows: reliability, which is the ability of service providers to fulfill their commitments continuously and accurately; responsiveness: the willingness and accountability of the service providers to support their clients; empathy: the intimacy with the clients and understanding of their individuals' feelings and problems; assurance: the competence and skill of the staff of an organization to give confidence and trust to the clients; and finally, tangibility: the tidiness and appearance of assets and property of an organization including its staff.

In this research, the SERVQUAL approach has been used to test the quality of services provided by Etisalat company in the UAE, by having questionnaires distributed over a representative sample of the multicultural population, and their perceptions and expectations were analyzed and assessed.

Literature review

Service quality has been increasingly recognized as a critical factor in the success of any business ([Parasuraman *et al.*, 1988](#); [Sharabi and Davidow, 2010](#); [Cronholm and Salomonson, 2014](#); [Abu Jadayil *et al.*, 2013](#); [Shakoor *et al.*, 2017a, 2017b, 2017c, 2017d, 2017e](#)). The topic of measuring service quality has been studied widely in the past few decades ([Taap *et al.*, 2011](#); [Abu Jadayil, 2011](#); [Shakoor *et al.*, 2017a, 2017b, 2017c, 2017d, 2017e](#)). Several researchers and scholars studied various dimensions, concepts and models of service quality to eliminate waste, improve quality, meet customer expectation and satisfaction and increase profitability in service organizations ([Ghobadian *et al.*, 1994](#); [Amorim and Saghezchi, 2014](#)). Over the past decade, researchers were investigated and assessed service quality in different fields and sectors such as education, financial, health care, restaurants, transportations, hotels, grocery and retail stores, police traffic services, e-services and other provided services. New instruments has been developed to improve the measurement of services in the sector under examination, and in other sectors as well, like the SerPerval ([Petrick, 2002, 2004a, 2004b](#)). It represents a new generation of models, which includes important factors such as the perceived value, satisfaction, repurchase intentions and the propensity to recommend services to others. The concept of perceived value has been analyzed in marketing literature as an important predictor of product or service quality, of repurchase intention and of customer satisfaction. Other models were developed to improve the quality of different service sectors. A comprehensive model to evaluate the quality of online local

government services was developed by [Sá et al. \(2017\)](#). A comparison between different models and methods for measuring the quality of logistic service was presented by [Gulc \(2017\)](#). The findings of this research are that the most two effective tools to measure the logistic service quality are SERVQUAL and SERVPERF methods. A hierarchical model to assess the e-service quality was developed by [Blut \(2016\)](#). This model links online service quality perceptions to distinct and actionable dimensions.

Several conceptual models have been developed by various researchers and scholars worldwide to investigate the service quality concept using the SERVQUAL model ([Kumar et al., 2018](#); [Ladhari, 2010](#)). SERVQUAL has been adapted to measure service quality in a variety of settings include telecommunication, financial, education, healthcare, transportation services and other aspects of service sectors. [Abu-El Samen et al. \(2013\)](#) applied the SERVQUAL approach to disclose and compare different factors in the Jordanian mobile service sector from managers' and customers' viewpoints, and to investigate their influence on customer satisfaction and business performance. They found that SERVQUAL is a model, which consists of three dimensions as opposed to five, as suggested by the originally hypothesized construct. From customers' perspective, SERVQUAL is a three-dimensional construct, which consists of tangibility, reliability and interaction quality (responsiveness, assurance and empathy), whilst from managers' perspective, SERVQUAL consists of three dimensions that are empathy, responsiveness-assurance and tangibility-reliability. Moreover, [Alnsour et al. \(2014\)](#) used the SERVQUAL model to evaluate the quality of provided services by a very high competitive telecommunication sector in Jordan. They found that firms in the studied sector require to realize the local customers' expectations in the light of the unique cultural traits of these customers. Consequently, this improved the customers' loyalty by obtaining service quality and fulfilling customers' expectations as well.

[Kumar et al. \(2010\)](#) used a SERVQUAL model in research to probe the differences in the provided service quality between Islamic and conventional banks in Malaysia. The researchers applied a modified SERVQUAL model and considered four common critical factors as follows (dimensions): tangibility, reliability, competence and convenience. The study was conducted by collecting data through a structured survey that consisted of three parts with the application of dominance analysis to investigate the relative importance of the critical factors. The study showed that there was a significant difference between Islamic and conventional banks based on the expectations of competence and convenience. Also, the study revealed that there was a significant difference between the banks in terms of the perceptions of tangibility and convenience. In addition to that, the study revealed that convenience and competence were the dominant dimensions for types of banks. Furthermore, [Kumar et al. \(2018\)](#) applied a SERVQUAL model to assess the overall gap elasticity in the situation of the UAE banking sector to develop the right strategies for bridging this gap in banking services. The research findings showed that the factor, which was given preference as the most important factor need not be the one to be targeted under the resource constraint to react faster to the changes of customers' banking behavior.

Several researchers used SERVQUAL models to investigate significant factors in transportation sector. Airline service quality at a Turkish airline was assessed using SERVQUAL scores weighted by loadings derived from the factor analysis ([Pakdil and Aydn, 2007](#)). The study results confirmed that "responsiveness" factor was the most significant dimension, whereas "availability" was the least significant dimension of quality. In addition to that, it was found that the educational level of travelers is an important factor, which impacts their expectations and perceptions. Furthermore, gap scores significantly varied by the educational level of travelers, flight frequency and desires. [Barabino et al. \(2012\)](#)

adapted and applied the modified SERVQUAL model on service quality in public transportation. The research findings revealed that a high amount of value placed on characteristics such as bus reliability, frequency, cleanliness and onboard security. The first three attributes were recognized by the broadest unfavorable gap between expectations and perceptions. The sole quantitative supply of transport does not seem to influence quality perceptions more than attributes such as staff courtesy and bus comfort.

Kang and Bradley (2002) developed a conceptual “gaps model” of Information Technology (IT) service quality, which identifies seven gaps between customers and suppliers of IT service. Furthermore, the study examined the applicability of SERVQUAL as the measure of IT service quality. The study found that the reservations regarding the dimensionality of SERVQUAL are well justified.

Abari *et al.* (2011) applied SERVQUAL to assess the quality of services of education in a non-governmental university by measuring student’s views toward current level and expected level of quality. The study survey emphasized on estimating the gap between current and expected service quality levels. The study findings showed important distinction between students’ expectations and current level of quality of services in responsiveness dimension of quality. The other variables were ranked in the order of empathy, assurance, tangibility and the confidence in service quality. Moreover, Akhlaghi *et al.* (2012) applied SERVQUAL model to measure the quality of educational services provided in vocational and technical schools from student’s viewpoint. They found that SERVQUAL approach was assured to be a strong technique to analyze the quality of provided services in various sectors of science and industry. Their findings showed that there are quality gaps in the studied educational center in terms of all service quality dimensions. The study revealed that responsiveness dimension was the most distinguished gap and reliability was the least one. Thereafter, Yousapronpaiboon (2014) used the SERVQUAL tool to investigate service quality in higher education in Thailand. The study examines the validity and reliability of SERVQUAL in assessing higher education in Thailand through testing the five dimensions of SERVQUAL (reliability, assurance, tangibles, empathy and responsiveness). The demographic information includes the following characteristic of participants; gender, age, year of education and average of grade point average. The gap analysis between service perceptions and expectations showed that all scores for perceptions were lower than their expectations scores, indicating that there are a lot of service improvements efforts need to be fulfilled to enhance the service quality.

Therefore, SERVQUAL methodology found its application in other different fields and sectors. Pradela (2015) applied SERVQUAL methodology to measure the quality of graduates’ preparation for the labor market in Poland. They used SERVQUAL methodology to analyze the educational service quality in three different types of vocational schools. Khamis and Njau (2014) used the SERVQUAL model tool in a research to test patient’s satisfaction level on the quality of healthcare services carried out at outpatient clinics in Mwananyamala hospital in Dar es Salaam, Tanzania and Ibarra *et al.* (2014) applied SERVQUAL model to assess service quality in a collecting taxes office to measure the differences between customers’ expectations and perception about the provided services.

This research is implementing SERVIQUAL tool on the telecommunication service in UAE, taking into consideration all research aspects and findings of improving quality presented by other researchers, like Abu Jadayil *et al.* (2017) and Shakoor *et al.* (2017a, 2017b, 2017c, 2017d, 2017e). No past research tried to implement the SERVIQUAL tool on the telecommunication sector in UAE, where customers are coming from more than 100 different countries and backgrounds. This research different important aspects of the customers including all age categories for both men and women.

Problem statement and objectives

Problem statement

Communications has become an integral part of human life, everyone uses one of the different means of communication provided by Etisalat and Du. All of these companies trying to do the best to offer services to its customers perfectly, although of this there are many problems and difficulties faced by the customers. In this section, we will investigate the problems with mobile telecommunication services in the UAE. One of the most troubling problems is the easiness of access to the official responsible employee; where it is not allowed for everyone to meet the responsible employee.

Also, there are problems in making calls in the occasions and events because the high pressure on the company, another problem the customers face is difficulty in ending the services that are previously subscribed by the customer with the continuation of discounts from the credit that is undesired. Moreover, the customers facing many problems in the costs such as high cost of international calls, high costs on the bill at the end of the downloaded packages and high cost of services provided.

One more problem is related to the accounts to be transferred, as there are limitations on the amount of the accounts to be transferred that leads to increase the cost of transformation, and the customer cannot transfer if the credit has an account less than a certain amount depending on the type of offer.

Other problems related to access to the employees of the company by phone and complete required services where the caller waits a lot of time on the phone until it is answered, and sometimes does not complete what he wants. There are no sufficient companies' centers in all regions, forcing residents of these regions to go to a place that has a center to complete their services.

Objectives

There are basic objectives for this research, which have to be achieved. Measure the quality of the telecommunication services offered by the Etisalat company by adapting the SERVQUAL scale on these services. After allocating problems to specific dimensions, we are going to find the most dimension in which has the most impact on the customers' satisfaction and the quality of their companies' service. Find the service quality because of two different aspects: age and gender, and discover the relation between them and the customers' satisfaction how varying them in the same aspects affects the customers' satisfaction and find, which category has the highest dissatisfaction in each aspect. Suggest some solutions for the most problems experienced by the Etisalat company's customers to raise the satisfaction level and improve the quality of the offered services.

Methodology

The necessity of identifying customers' expectations and perceptions has been highlighted frequently in the literature of service quality (Klose and Finkle, 1995; Avkiran, 1999). To determine the problems that customers suffering from, as a result of variations in perceptions and expectations, and trying to solve them in a scientific manner based on the basis of statistical and mathematical thought, we must follow a set of steps that can cover all our case study and reduce the problems using the necessary solutions.

Therefore, we designed a SERVQUAL survey to assess the service quality of Etisalat company. The survey was distributed among different people from all the cities of UAE through papers. Also, the survey was distributed in a manner that covered four age groups from men and women. Before we distributed the questionnaires, we calculated the sample size that will answer the questionnaires and we determined who the customers that will

answer the questionnaires. The aim of this questionnaire is to receive feedback, which will enable us to identify the most important problems they face. The questionnaires include a series of questions designed based on five dimensions that will contribute to illustrate many things for us, each question consists of expectations and perceptions of service quality. Then, we will analyze the data collected from all the distributed questionnaires using statistical and mathematical methods. We calculated the service gap for each question then for each dimension to determine the most common problems that customers suffering from.

Discussion of the results

Figure 1 represents the male and female ratio of the taken sample, and Figure 2 represents the percentage taken from each age category.

The service gap between expectations and perceptions has been calculated and presented in Figure 3.

Referring to Figure 3, the tangibility gap was determined to be the highest gap of -0.38 ; where the highest gap presented in “appealing appearance of the company employees” with a gap of -0.81 , and the lowest gap presented in “communication and persuasion skills of the employees” with a gap of 0.06 . Empathy gap was the lowest with a gap of 0.01 ; the highest

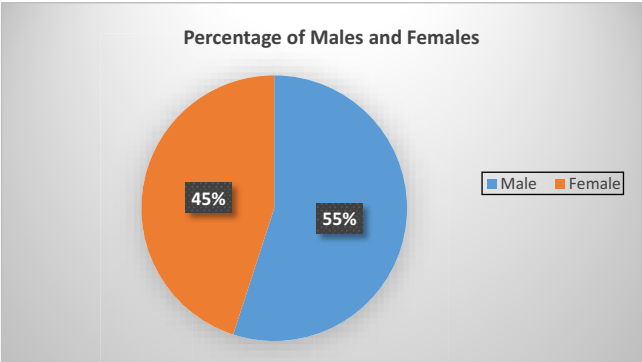


Figure 1.
The percentages of
respondent men and
respondent women

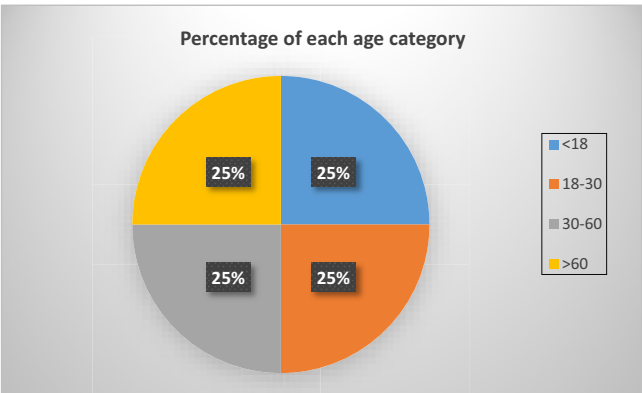


Figure 2.
The percentages of
different age
categories of
respondents

gap presented in “employee commitment of working hours” with a gap of -1.26 , where the best gap presented in “personal relationships influence the cooperation of the staff in completing tasks” with a gap of 1.68 . The responsiveness gap was -0.03 , the reliability gap was -0.22 , while the assurance gap reached a gap of -0.36 .

The service gap between expectations and perceptions for men has been calculated and presented in Figure 4.

Referring to Figure 4 the tangibility gap was determined to be the highest gap of -0.30 ; which included the highest gap in “appealing appearance of the company employees” with a gap of -0.57 , while the lowest gap detected in “location suitability of the company centers” with a gap of 0.10 . The responsiveness gap was the lowest gap with a gap of -0.01 ; the highest gap presented in the “relationship of credit with communication possibility” with a gap of -0.27 , where the best gap presented in “speed of response to customers’ requirements with a gap of 0.15 . The reliability gap was -0.006 , the empathy gap was -0.19 , while the assurance gap reached a gap of -0.05 .

The service gap between expectations and perceptions for women has been calculated and shown in Figure 5.

Referring to Figure 3, the tangibility gap was determined to be the highest gap of -0.31 ; which included the highest gap in “modernity and attractiveness of the company facilities” with a gap of -0.61 , while the lowest gap detected in “communication and persuasion skills

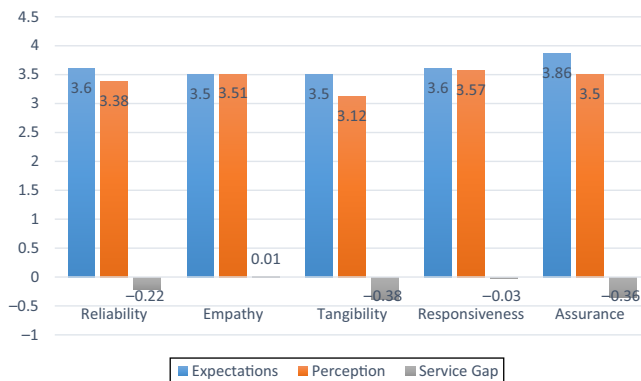


Figure 3.
Mean expectation,
mean perception and
service gap of each
dimension for
Etisalat customers

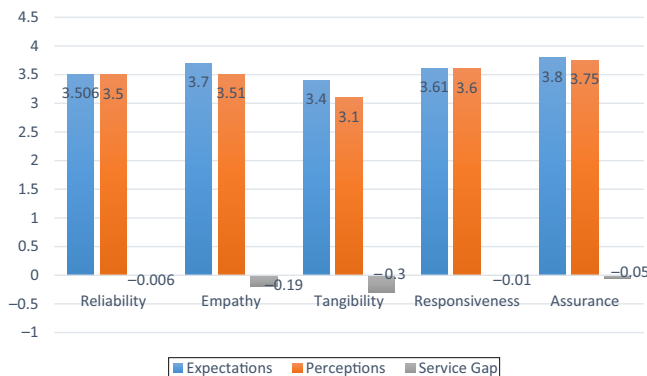
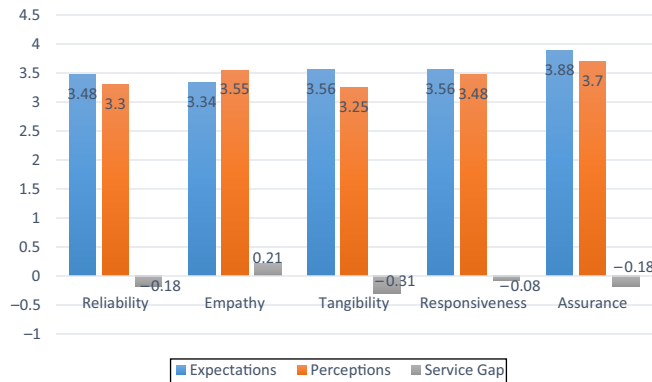


Figure 4.
Mean expectation,
mean perception and
service gap of each
dimension for men

Figure 5.
Mean expectation,
mean perception and
service gap of each
dimension for women



of the employees” with a gap of 0.978. The Empathy gap was the lowest gap with a gap of 0.21; the highest gap presented in “easiness of access to the service by cell phones” with a gap of -1.2 , where the best gap presented “easiness of access to the official responsible employee” with a gap of 2.31. The reliability gap was -0.18 , responsiveness gap was -0.08 , while the assurance gap reached a gap of -0.18 .

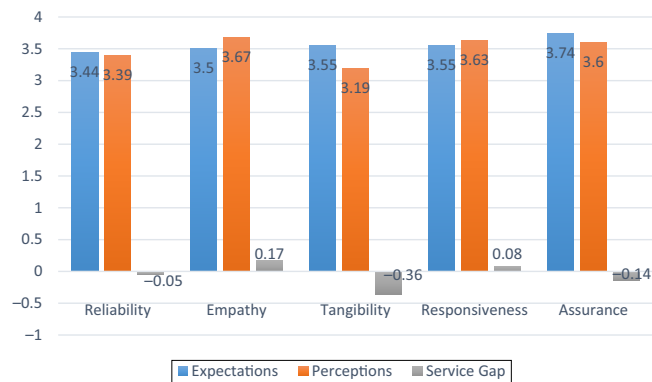
Results for customers under 18 years of age:

The service gap between expectations and perceptions for the first age category, which represents customers under the age of 18, has been calculated and presented in Figure 6.

Referring to Figure 6, the tangibility gap was determined to be the highest gap of -0.36 ; where the highest gap presented “efficiency and visually appealing of company internet site” with a gap of -1.0 and the lowest gap was 0.22 presented in “location suitability of the company centers.” The empathy gap was the lowest gap with a gap of 0.17; the highest gap presented in “appropriate working hours” with a gap of -1.4 , where the best gap presented in “easiness of access to the official responsible employee” with a gap of 1.56. The reliability gap was -0.05 , the responsiveness gap was 0.08, while the assurance gap reached a gap of -0.14 .

There were 60 men and 50 women who participated in the study from this age group. Figure 7 represents the male and female percentage of this category.

Figure 6.
Mean expectation,
mean perception and
service gap of each
dimension for
<18 years category of
Etisalat customers



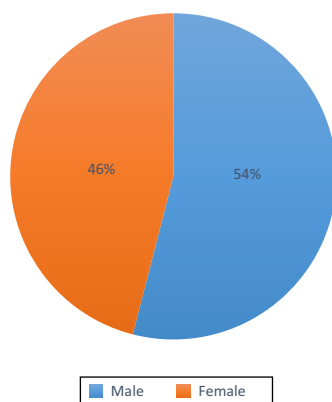


Figure 7.
Men and women
percentage of
<18 years category

The service gap between expectations and perceptions for men has been calculated and shown in Figure 8.

Referring to Figure 8, the tangibility gap was determined to be the highest gap of -0.42 ; where the highest gap presented in “efficiency and visually appealing of company internet site” with a gap of -1.467 and the lowest gap presented in “up to date offers” with a gap of 0.33 . The responsiveness gap was the lowest gap with a gap of 0.197 ; the highest gap presented in “availability of an adequate number of employees to cover the largest number of requirements” with a gap of 0.067 , where the best gap presented in “relationship of credit with communication possibility” with a gap of 0.334 . The assurance gap was -0.03 , the empathy gap was -0.05 , while the reliability gap reached a gap of 0.1 .

The service gap between expectations and perceptions for women has been calculated and presented in Figure 9.

Referring to Figure 9, the reliability gap was determined to be the highest gap of -1.31 ; where the highest gap presented in “performing services from the first time” with a gap of -1.6 , and the lowest gap presented equally in “fitting the cost with the service offered” with a gap of 2.1 . The empathy gap was the lowest gap with a gap of 0.35 ; the highest gap presented in “appropriate working hours” with a gap of -2 , where the best gap presented in “easiness of access to the official responsible employee” with a gap of 2.4 . Responsiveness gap was -0.295 , assurance gap was -0.31 , while the tangibility gap reached a gap of -0.4 .

Results for customers between 18 and 30 years of age:

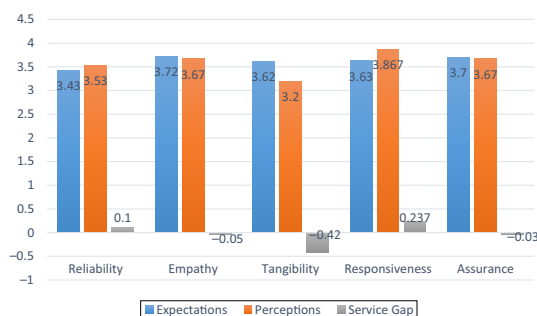
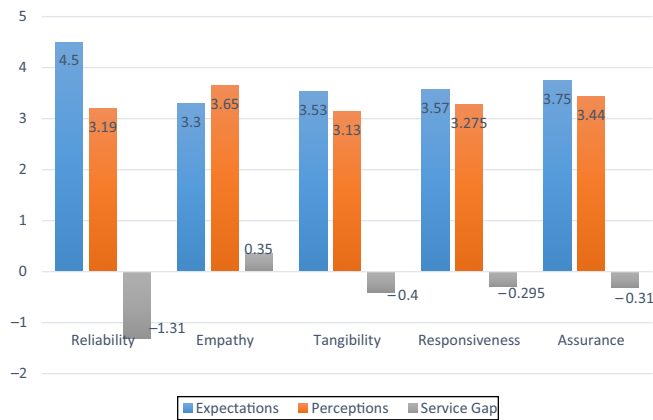


Figure 8.
Mean expectation,
mean perception and
service gap of each
dimension for men of
<18 years category of
Etisalat customers

Figure 9.
Mean expectation,
mean perception and
service gap of each
dimension for women
of <18 years category
of Etisalat customers



The service gap between expectations and perceptions for the second age category, which represents customers between 18 and 30 years of age, has been calculated and presented in [Figure 10](#).

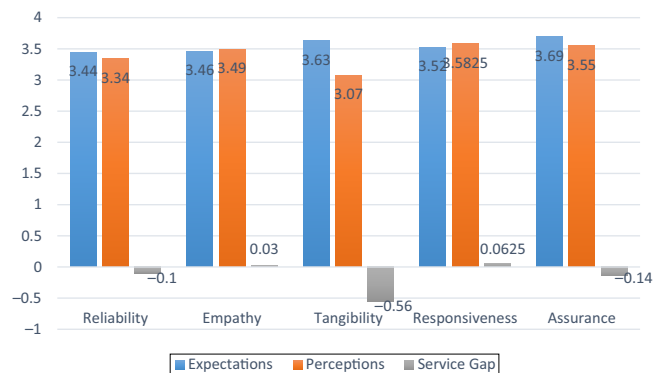
Referring to [Figure 10](#), the tangibility gap was determined to be the highest gap of -0.56 ; where the highest gap presented in “multimedia advertisements effect” with a gap of -1.3 , and the lowest gap presented in “location suitability of the company centers” with a gap of 0.2 . The responsiveness gap was the lowest gap with a gap of 0.0625 ; the highest gap presented in “availability of an adequate number of employees to cover the largest number of requirements” with a gap of -0.48 , where the best gap presented in “speed of response to customers’ requirements” with a gap of 0.37 . The empathy gap was 0.03 , the reliability gap was -0.10 , while the assurance gap reached a gap of -0.14 .

There were 63 men and 47 women participated in the study from this age group. [Figure 11](#) represents the male and female percentage of this category.

The service gap between expectations and perceptions for men has been calculated and presented in [Figure 12](#).

Referring to [Figure 12](#) the tangibility gap was determined to be the highest gap of -0.42 ; where the highest gap presented in “communication and persuasion skills of the employees”

Figure 10.
Mean expectation,
mean perception and
service gap of each
dimension for 18-
30 years category of
Etisalat customers



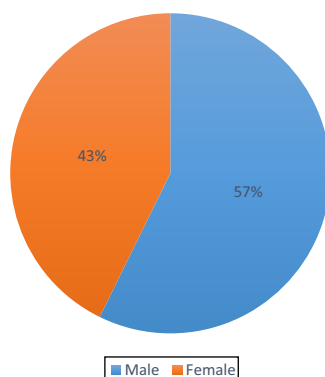


Figure 11.
Men and women
percentage of 18-
30 years category

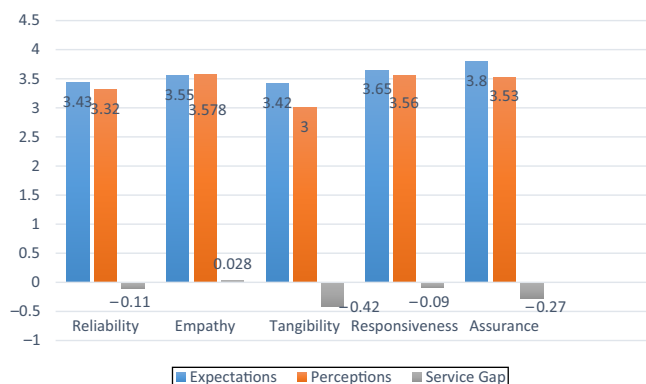


Figure 12.
Mean expectation,
mean perception and
service gap of each
dimension for men of
18-30 years category
of Etisalat customers

with a gap of -1.54 , and the lowest gap presented in “location suitability of the company centers” with a gap of 0.31 . The empathy gap was the lowest gap with a gap of -0.028 ; the highest gap presented in “employee commitment of working hours” with a gap of -1.6 , where the best gap presented in “personal relationships influence on the cooperation of the staff in completing tasks” with a gap of 1.94 . Responsiveness gap was -0.09 , reliability gap was -0.11 , while the assurance gap reached a gap of -0.27 .

The service gap between expectations and perceptions for women has been calculated and presented in Figure 13.

Referring to Figure 13, the tangibility gap was determined to be the highest gap of -0.47 ; where the highest gap presented in “appealing appearance of the company employees” with a gap of -1.0 , and the lowest gap presented in “communication and persuasion skills of the employees” with a gap of 1 . The responsiveness gap was the lowest gap with a gap of 0.2 ; the highest gap presented in “availability of adequate number of employees to cover the largest number of requirements” with a gap of -0.65 , where the best gap presented in “relationship of credit with communication possibility” with a gap of 0.6 . Empathy gap was 0.047 , reliability gap was -0.08 , while the assurance gap reached a gap of -0.41 .

Results for customers between 30 and 60 years of age:

Figure 13.
Mean expectation,
mean perception and
service gap of each
dimension for women
of 18-30 years
category of Etisalat
customers

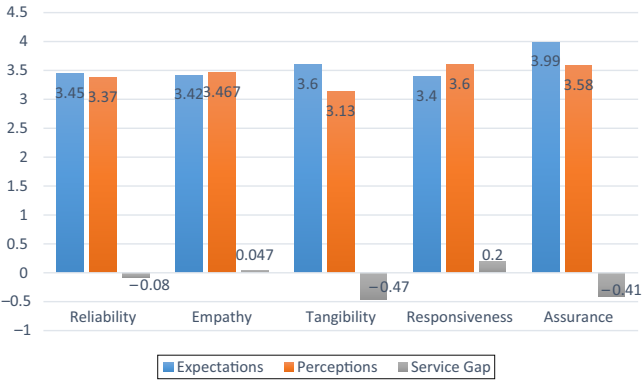
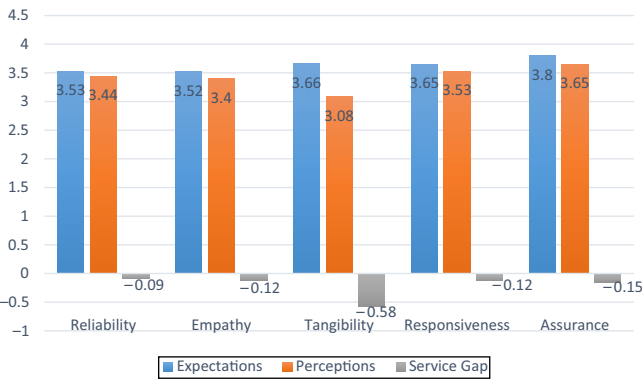


Figure 14.
Mean expectation,
mean perception and
service gap of each
dimension for ages
between 30 and
60 years category of
Etisalat customers



The service gap between expectations and perceptions from point of view of the third age category, which represents customers between the ages of 30-60, has been calculated and presented in [Figure 14](#).

Referring to [Figure 14](#), the tangibility gap was determined to be the highest gap of -0.58 ; where the highest gap presented in “modernity and attractiveness of the company facilities” with a gap of -1.4 , and the lowest gap presented in “communication and persuasion skills of the employees” with a gap of 0.35 . The reliability gap was the lowest gap with a gap of -0.09 ; the highest gap presented in “possibility of converting credit regardless of the current credit” with a gap of -1.3 , where the best gap presented in “limitation on amount of the converted credit” with a gap of 0.52 . Empathy gap was -0.12 , responsiveness gap was -0.12 , while the assurance gap reached a gap of -0.15 .

There were 60 men and 50 women who participated in the study from this age group. [Figure 15](#) represents the male and female percentage of this category.

The service gap between expectations and perceptions for men has been calculated and presented in [Figure 16](#).

Referring to [Figure 16](#), the tangibility gap was determined to be the highest gap of -0.57 ; where the highest gap presented in “modernity and attractiveness of the company facilities” with a gap of -1.5 , and the lowest gap presented in “fine appearance of materials associated

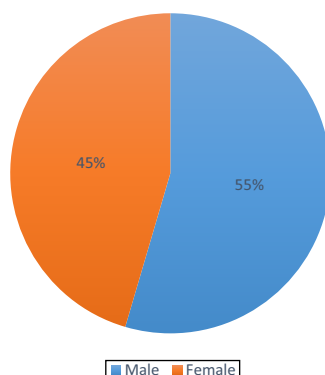


Figure 15.
Men and women
percentage of
30-60 years category

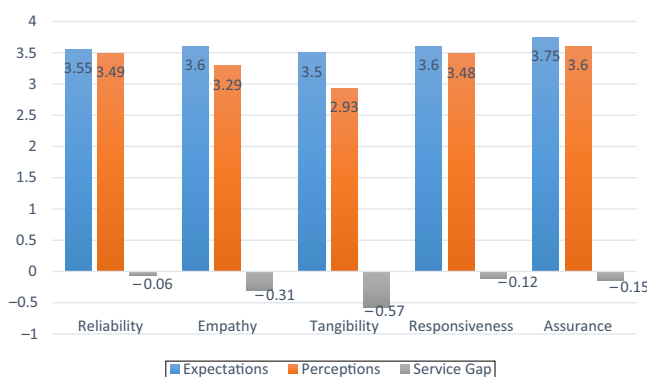


Figure 16.
Mean expectation,
mean perception and
service gap of each
dimension for men for
ages between 30 and
60 years category of
Etisalat customers

with service” with a gap of 0.21. The reliability gap was the lowest gap with a gap of -0.06 ; the highest gap presented in “possibility of converting credit regardless of the current credit” with a gap of -2.2 , where the best gap presented equally in “fitting the cost with the service offered” and “limitation on amount of the converted credit” with a gap of 0.6 . The responsiveness gap was -0.18 , the assurance gap was -0.15 , while the empathy gap reached a gap of -0.31 .

The service gap between expectations and perceptions for women has been calculated and presented in [Figure 17](#).

Referring to [Figure 17](#), the tangibility gap was determined to be the highest gap of -0.29 ; where the highest gap presented in “modernity and attractiveness of the company facilities” and “appealing appearance of the company employees” with a gap of -0.8 , and the lowest gap presented in “communication and persuasion skills of the employees” with a gap of 1.4 . The empathy gap was the lowest gap with a gap of 0.3 ; the highest gap presented in “easiness of access to the service by cell phones” with a gap of -1.9 , where the best gap presented in “easiness of access to the official responsible employee” with a gap of 2.5 . Responsiveness gap was -0.15 , assurance gap was -0.08 , while the reliability gap reached a gap of -0.11 .

Results for customers above 60 years of age:

Figure 17.
Mean expectation,
mean perception and
service gap of each
dimension for women
for ages between 30
and 60 years category
of Etisalat customers

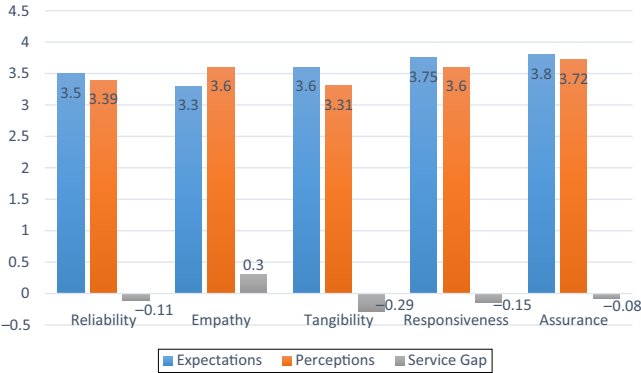
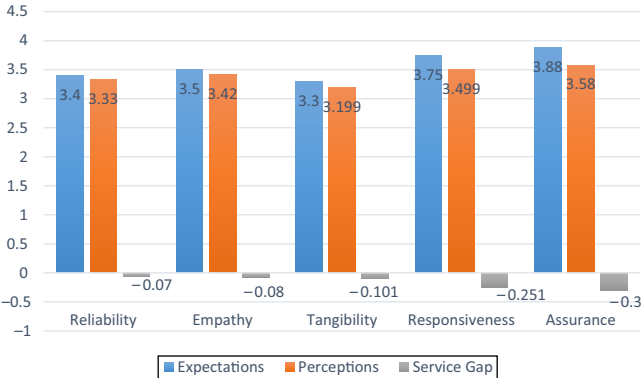


Figure 18.
Mean expectation,
mean perception and
service gap of each
dimension for
>60 years category of
Etisalat customers



The service gap between expectations and perceptions from point of view the fourth age category, which represents customers above the age of 60, has been calculated and presented in [Figure 18](#).

Referring to [Figure 18](#), the assurance gap was determined to be the highest gap of -0.3 ; where the highest gap presented in “presence of service delegates and approved sales centers” with a gap of -1.2 , and the lowest gap presented in “taking the complaints into account” with a gap of 1.1 . The reliability gap was the lowest gap with a gap of -0.07 ; the highest gap presented in “availability of an appropriate number of towers strengthen the broadcasting” with a gap of -0.9 , where the best gap presented in “fitting the cost with the service offered” with a gap of 1.5 . Tangibility gap was -0.101 , empathy gap was -0.08 , while the responsiveness gap reached a gap of -0.251 .

There were 59 men and 51 women participated in the study from this age group. [Figure 19](#) represents the male and female percentage of this category.

The service gap between expectations and perceptions for men has been calculated and presented in [Figure 20](#).

Referring to [Figure 20](#), the assurance gap was determined to be the highest gap of -0.444 ; where the highest gap presented in “presence of service delegates and approved sales centers” with a gap of -1.35 , and the lowest gap presented in “taking the complaints into account” with a gap of 1.08 . The reliability gap was the lowest gap with a gap of -0.01 ;

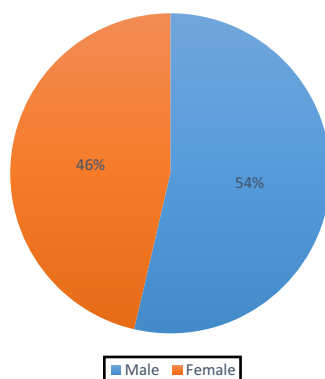


Figure 19.
Men and women
percentage of
>60 years category

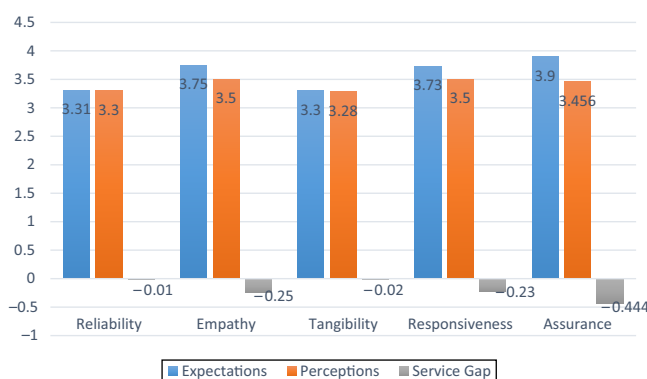


Figure 20.
Mean expectation,
mean perception and
service gap of each
dimension for men of
>60 years category of
Etisalat customers

the highest gap presented in “availability of an appropriate number of towers strengthen the broadcasting” with a gap of -1.0 , where the best gap presented in “fitting the cost with the service offered” with a gap of 1.32 . Tangibility gap was -0.02 , responsiveness gap was -0.23 , while the empathy gap reached a gap of -0.25 .

The service gap between expectations and perceptions for women has been calculated and presented in [Figure 21](#).

Referring to [Figure 21](#), the responsiveness was determined to be the highest gap of -0.22 ; the highest gap presented in responsiveness was “availability of adequate number of employees to cover the largest number of requirements” with a gap of -1.22 , where the best gap presented in “speed of response to customers’ requirements” with a gap of 0.79 . The empathy gap was the lowest gap with a gap of 0.17 ; the highest gap presented in “easiness of access to the service by cell phones” with a gap of -1.7 , where the best gap presented in “easiness of access to the official responsible employee” with a gap of 1.8 . Assurance gap was -0.06 . Reliability gap was -0.16 . Tangibility was -0.21 .

Statistical analysis of the results:

Statistical analysis has been carried out for all data including all age groups and the two genders, men and women. One of the easiest and major used graphical methods to compare and check the equality of two means, is the box plot. The figures below shoe the box plot for

the five aspects of the service quality illustrated the two mans of expectation and perceptions.

It is clear from Figures 22 and 23 that the two means for the expectations and perception are close to each other and the difference is very small. This will be verified by testing the hypothesis between the two means.

It is clear from Figure 24 that the two means for the expectations and perception have a significant difference between each others. This will be verified by testing the hypothesis between the two means.

It is clear from Figures 25 and 26 that the two means for the expectations and perception are close to each other and the difference is very small. This will be verified by testing the hypothesis between the two means.

Testing of hypothesis method

μ : mean of expectations
 μ_2 : mean of perceptions
Difference: $\mu_1 - \mu_2$

Estimation for difference

Difference	95% CI for difference
-0.117	(-0.364, 0.130)

t-test for reliability

Null hypothesis		$H_0: \mu_1 - \mu_2 = 0$
Alternative hypothesis		$H_I: \mu_1 - \mu_2 \neq 0$
t-value	DF	p-value
-0.97	34	0.341

Note: p -value > 0.05, we cannot reject the null hypothesis and conclude that there is no difference between the expectations and the perception in the reliability aspect.

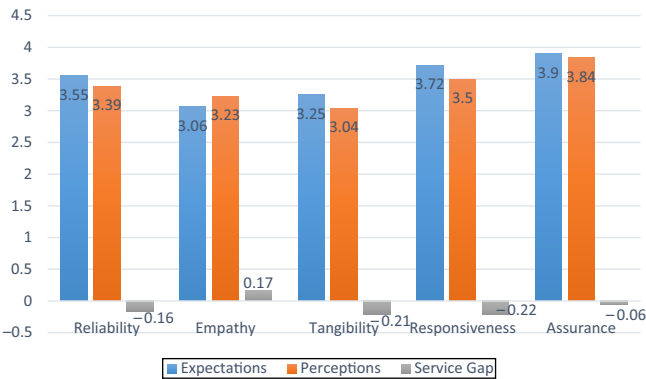


Figure 21.
Mean expectation,
mean perception and
service gap of each
dimension for women
of >60 years category
of Etisalat customers

t-test for empathy aspect

Null hypothesis		$H0: \mu_1 - \mu_2 = 0$
Alternative hypothesis		$H1: \mu_1 - \mu_2 \neq 0$
<i>t</i> -value	DF	<i>p</i> -value
−0.03	8	0.975

Note: *p*-value > 0.05, we cannot reject the null hypothesis and conclude that there is no difference between the expectations and the perception in the empathy aspect.

Estimation for difference for tangibility aspect

Difference	95% CI for difference
−0.438	(−0.865, −0.010)

t-test for tangibility aspect

Null hypothesis		$H0: \mu_1 - \mu_2 = 0$
Alternative hypothesis		$H1: \mu_1 - \mu_2 \neq 0$
<i>t</i> -value	DF	<i>p</i> -value
−2.18	15	0.045

Note: *p*-value < 0.05, we will reject the null hypothesis and conclude that the expectation is different than the perception in the tangibility aspect.

t-test for responsiveness aspect

Null hypothesis		$H0: \mu_1 - \mu_2 = 0$
Alternative hypothesis		$H1: \mu_1 - \mu_2 \neq 0$
<i>t</i> -value	DF	<i>p</i> -value
−0.50	5	0.639

Note: *p*-value > 0.05, we cannot reject the null hypothesis and conclude that there is no difference between the expectations and the perception in the responsiveness aspect.

Estimation for difference for assurance aspect

Difference	95% CI for difference
−0.329	(−0.773, 0.115)

t-test for assurance aspect

Null hypothesis		$H0: \mu_1 - \mu_2 = 0$
Alternative hypothesis		$H1: \mu_1 - \mu_2 \neq 0$
<i>t</i> -value	DF	<i>p</i> -value
-1.58	15	0.135

Note: *p*-value > 0.05, we cannot reject the null hypothesis and conclude that there is no difference between the expectations and the perception in the assurance aspect.

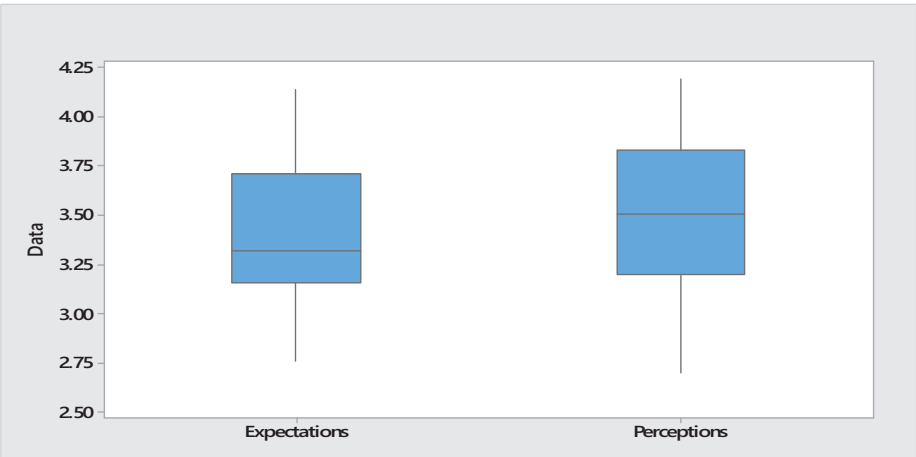
Summary of the results

Results can be summarized in [Tables I and II](#). [Table I](#) shows a comparison between the expectations, perceptions and gaps of the five dimensions for men and women. Comparing the gaps of all dimensions of men with those left by women, it can be clearly seen that men are more satisfied with the current level of service provided in all dimensions than women, except for the empathy. It can be found from the results that the women are happy with the empathy, but the men completely are not, which needs serious attention from the company to give more care for their male customers, not only women. The tangibility, reliability and assurance dimensions, need serious improvements to make women happier and achieve their expectations.

[Table II](#) shows a comparison between the gaps between all age categories for the five dimensions. Results for the reliability are close for all age categories. For empathy, less than 18 years of age people seem not happy with provided empathy. Tangibility generally has high gaps, with the highest for the 30-60 years of age category and lowest for very old people. While most customers are relatively satisfied with the responsiveness and assurance, old people are not and feel the service should be improved in terms of responsiveness and assurance.

The average values in the last column shows that the empathy is in good shape, but that resulted from very happy female customers and completely not happy male ones. The first dimension that should be given special attention is the tangibility, followed by the assurance. The reliability and responsiveness need a little more improvement as well.

Figure 22.
Boxplot of
expectations,
perceptions for
reliability aspect



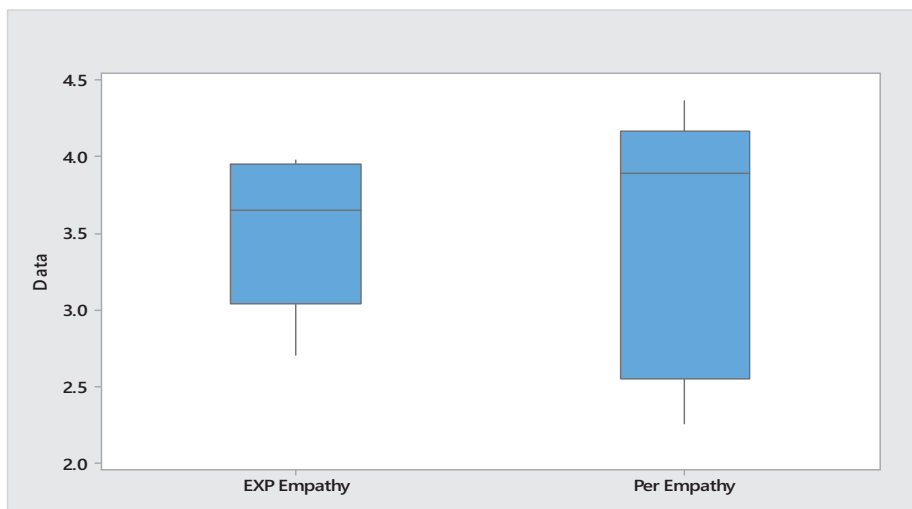


Figure 23.
Boxplot of
expectations,
perceptions for
empathy aspect

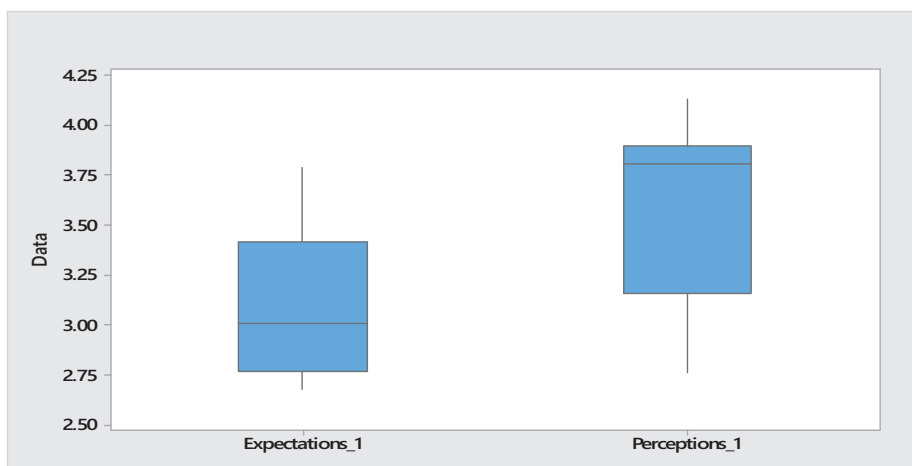


Figure 24.
Boxplot of
expectations,
perceptions for
tangibility aspect

For reliability, all age categories seem to have the almost same level of expectations. For empathy, while very young people (less than 18 years of age) are satisfied, this satisfaction decreases with increasing the age. While all young and middle age people are not happy with the provided tangibility, very old people do not seem to have high expectations in that dimension. However, old people are suffering from responsiveness, on the contrary to young people. The same can be found for assurance.

To summarize the findings of this research, it is needed to look again at [Table I](#) to find that the tangibility has the highest concern from both men and women and needs to be improved by Etisalat. Both men and women think that the responsiveness is fair enough with very little improvement are needed in this dimension. Whereas men think the provided service is reliable and assured, women, think it should be improved. Women are very happy

Figure 25.
Boxplot of
expectations,
perceptions for
responsiveness
aspect

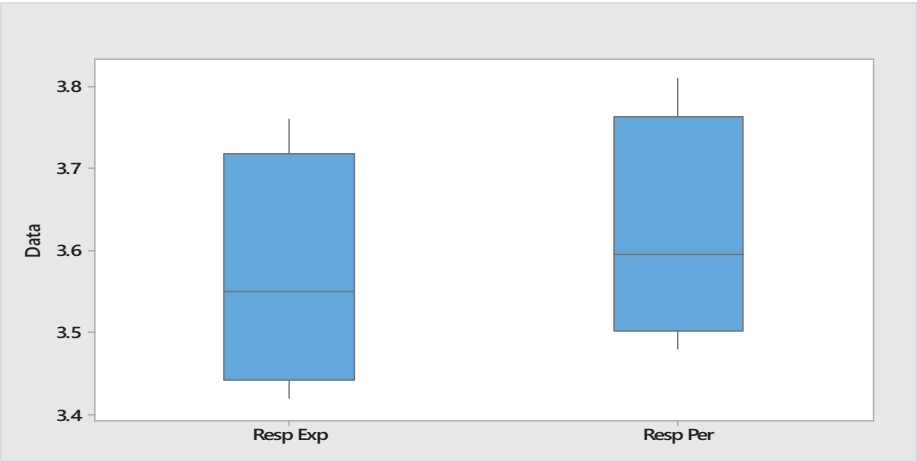


Figure 26.
Boxplot of
expectations,
perceptions for
assurance aspect

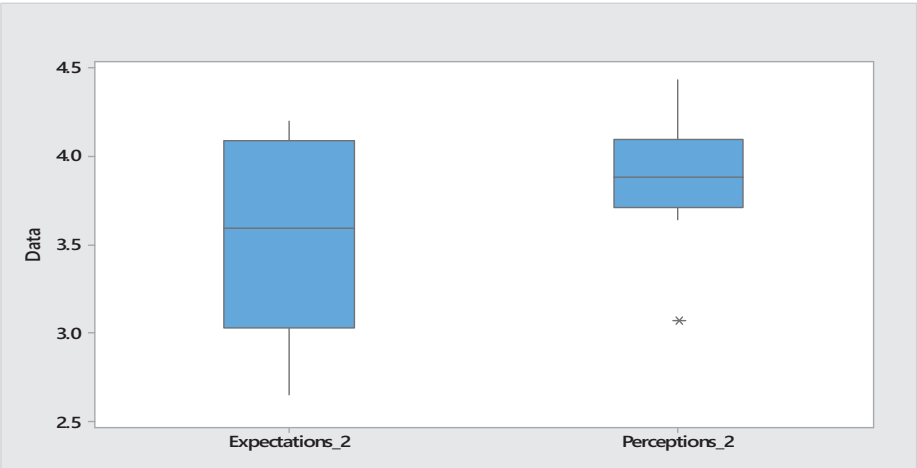


Table I.
Comparison between
dimension
expectations,
perceptions and gaps
of men and women

Dimension	Men			Women		
	Ex	Per	Gap	Ex	Per	Gap
Reliability	3.51	3.50	−0.01	3.48	3.30	−0.18
Empathy	3.70	3.51	−0.19	3.34	3.55	0.21
Tangibility	3.40	3.10	−0.30	3.56	3.25	−0.31
Responsiveness	3.61	3.60	−0.01	3.56	3.48	−0.08
Assurance	3.80	3.75	−0.05	3.88	3.70	−0.18

with the empathy of the provided service, but the men completely are not and think it must be improved. In terms of age categories, again all age categories think that the tangibility then the assurance of the service must be improved.

Conclusions

Market high competition in a dynamic world environment enables the services' providers to recognize the need to pay more attention to the customers' expectations and perspectives. Therefore, the aim of this study was to measure and compare the service quality gaps between customers' perceptions and expectations of wireless communication services and probe the impact of multi-cultural society on customers' expectations and perceptions of service quality and prioritize the dimensions of SERVQUAL.

Throughout the process of data analysis and after examining the difference between customers' expectations and customers' perceptions of the service quality in the wireless telecommunication sector of a multi-cultural society, it has been found that:

- The highest expectations of customers were found in the assurance dimension. The highest perceptions of customers were found in the assurance and responsiveness dimensions;
- Generally, the service gaps for women are higher than men, especially for the assurance and reliability. Although the men might be slightly satisfied with the provided assurance, women are not. Some actions are expected from the telecommunication companies in that dimension. Empathy is a dimension, where women are so satisfied, but men are completely are not;
- All people, with different age categories, are not happy with the promised services and solving problems accurately and dependably (reliability). While young people and adults are interested more in the appearance of the physical facilities, equipment, personnel and communication materials (tangibility), old people are interested more in getting more attention (empathy), help and prompt response (responsiveness) and they are less trusting the service (assurance);
- The highest gaps were found to be in the tangibility then assurance, reliability, responsiveness and last is the empathy that has an average gap of zero. That zero resulted from so satisfied women and completely not satisfied men; and
- All the dimensions show a negative gap between expected service and perceived service, which means all dimensions must be improved.

Based on these conclusions, it is recommended that:

- The company needs to make improvements in all dimensions to close gaps that could lead to increased customer satisfaction and loyalty;

Dimension	Age < 18	18 < Age < 30	30 < Age < 60	Age > 60	Average
Reliability	-0.05	-0.10	-0.09	-0.07	-0.08
Empathy	0.17	0.03	-0.12	-0.08	0.00
Tangibility	-0.36	-0.56	-0.58	-0.10	-0.40
Responsiveness	0.08	0.06	-0.12	-0.25	-0.06
Assurance	-0.14	-0.14	-0.15	-0.30	-0.18

Table II.
Comparison between
dimension gaps of
different age groups

- It is needed to provide a variety of offers or packages that are affordable for different age categories and genders of society;
- Future studies should focus on the dimensions of tangibility, reliability and assurance in specific. The methods for improving these dimensions should be studied. The tangibility must be given special attention to be improved by providing more customer service centers that can be easily accessed, making the website more user-friendly and accessible and the provided services look better. The reliability can be improved by making sure the company delivers what it promises with, without delay and with high efficiency. Offers, new services and prices should be studied well with special care to make sure they are provided exactly as promised, especially for women. On the other hand, assurance must be improved by enhancing the trust and confidence of the customer with the company and provided services, in terms of usage, pricing, availability, response and ability to resolve issues and conflicts; and
- In addition to that, the findings of this research work revealed that the SERVQUAL approach can still be applicable to measure service quality in a multi-cultural environment, in other countries providing similar telecommunication services. Similarities and differences in perception and expectations can be studied and their influence by the local culture can be investigated.

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Corresponding author

Mwafak Shakoor can be contacted at: mmshakoor@yahoo.com