

The Impact of Service Quality on Customer Satisfaction: A Case Study of an Elevator Marketing and Repair Company

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Abstract: The purpose of this study is to study the impact of service quality on customer satisfaction. And since customer satisfaction is recognized as one of the most important quality dimensions and key indicators of success in any business activity, this article reports the results of a research carried out in a company dedicated to the installation, maintenance and repair of lifts in the city of Casablanca, Morocco. Its objective was to assess the impact of service quality on customer satisfaction using an instrument based on the SERQUAL model which considers service quality, the ACSI index which assesses customer satisfaction and the KANO model which determines what requires the service. We chose a sample of 160 customers who had already benefited from the services of a company operating in the field. After determining the adequacy of the sample, four dimensions were identified by factor analysis: responsiveness, security, trustworthiness and empathy, and general aspects. Similarly, the impact of service quality on customer satisfaction was assessed in the case studied.

Keywords: Quality of service, customer satisfaction, SERVQUAL model, KANO model and ACS

Introduction

Quality management in services is a frequently discussed topic today as a differentiating factor for companies (Calarge et al., 2016). Currently, one could consider that intensive competitiveness in terms of quantity and quality makes it difficult for a company to differentiate itself from its competitors (Ngo and Nguyen, 2016); Therefore, the search for differentiating strategies has become one of the priorities of management.

Considering that customer loyalty is a key factor for the success of a company in a competitive market, companies must find how to increase it and maintain it in the long term; Service quality and customer satisfaction have been recognized as the main antecedents of customer loyalty (Sulisworo and Maniquiz, 2012).

As Jamaluddin and Ruswanti (2017) say, to survive in a service industry, a company must develop a new strategy to satisfy its customers; Customer loyalty is not an option in business, it is a way to sustainably develop competitive excellence. In today's environment, delivering high quality services is the key to sustainable competitive advantage (Angelova and Zekiri, 2011).

Service quality and customer satisfaction can be improved by managing the performance of service attributes; Since all attributes do not have the same role, it is important to discover the impact of their performance (Sulisworo and Maniquiz, 2012).

Customer satisfaction becomes one of the essential objectives for any company that seeks a long-term relationship with the customer, coming to be considered as the main priority of the company (Ngo and Nguyen, 2016).

Many companies have seen the need to improve their service quality policies and analyze the factors indicating customer satisfaction, such is the case of the company in the case study reported in this article, with 15 years of presence in the Moroccan market, dedicated to offering installation, maintenance and repair services for building elevators.

Currently, the company is affected by the lack of studies regarding the quality of the services it offers, generating poor planning and leading to the loss of potential customers. Some data that shows the importance of this study are: 60% of clients stopped needing services; Of these, 60% left due to noncompliance or delays in scheduled dates and the rest made no complaints. Of the 40% of active customers, 75% reported their complaints to the company, either due to poor scheduling of dates or dissatisfaction with service; and the remaining 25% reported no dissatisfaction. The reported data was provided by the company and corresponds to

the first quarter of 2023. Partant du fait que le problème général réside dans la déficience du système de mesure de la qualité de service, qui entrave son contrôle et son amélioration, sa planification, et la perte de clients, qui à terme aura un impact direct sur les revenus futurs. Ainsi, l'objectif de cette recherche est d'évaluer l'impact de la qualité des services sur la satisfaction des clients d'une entreprise marocaine dédiée à l'installation, l'entretien et la réparation des ascenseurs pour bâtiments d'habitation. A cet effet, différents outils tels que le modèle SERVQUAL, le modèle KANO et l'ACSI (American Customer Satisfaction Index, 2017) sont intégrés.

This article is organized as follows: we first present the introduction of the research; followed by the theoretical underpinnings that frame our research; we continue with the description of the research methodology used, the population and the sample and, consequently, the characterization of the survey; and finally, we present the statistical treatments and the analysis of the results.

The theoretical foundations

As Hoffman and Bateson (2011) say, the best way to start a discussion about service quality is to try to distinguish it from customer satisfaction; Most experts agree that customer satisfaction is a short-term, transaction-specific measure, while service quality is an attitude shaped by a long-term, general evaluation of performance. Service quality, as an area of quality management on the one hand, and on the other hand, as a line of marketing action, has attracted the attention of researchers and managers in recent decades. , becoming an important issue because of its impact on customer satisfaction (Bhatt and Bhanawat, 2016).

Quality is one of the most important outcomes of all service activities and is considered a key factor in differentiating providers in the search for competitive advantages (Krudthong, 2017); its design and execution in a positive and correct manner, leads to customer satisfaction, which ultimately enables the achievement of competitive advantage and the survival of the company in a rapidly changing environment (Latif, 2017); It is commonly considered a critical prerequisite and a determinant of competitiveness for establishing and maintaining satisfactory relationships with customers (Felix, 2017).

Service quality is a multidimensional concept as customers rate a variety of dimensions (Gambo, 2016). According to Grönroos (1984), it is the result of an evaluation process, since consumers often compare what they expect with what they receive; while Parasuraman et al. (1985, 1988) define it as the difference between customer perceptions and their expectations of excellent service within this industry. Thus, the definition of service quality is based on meeting customer requirements, trusting the company's ability to determine and then satisfy them (Felix, 2017).

For its part, customer satisfaction is one of the fastest growing areas in current market research (Hoffman and Bateson, 2011); Due to its recognized importance, it is a topic that has received considerable attention among researchers (Jashireh et al., 2016); and it is a concept that has been widely approached from different angles, theoretical and practical, even under the methodology of case studies and empirical studies (Cruz et al., 2016).

The need to provide quality service has been highlighted, and one of the ways that companies can obtain potential customers is to offer services that ensure customer satisfaction (Obioma, 2016). The focus on customer satisfaction often stems from the idea that retaining current customers is much cheaper than trying to attract new customers (Jashireh et al, 2016).

Defined as a comparison of perceptions and expected service expectations, customer satisfaction has been associated with benefits such as repeat sales, more frequent sales, higher sales per transaction, positive word-of-mouth communications, isolation from price competition and pleasant competitive environments. (Hoffman & Bateson, 2011).

Customer satisfaction has an effect on the profitability of almost every business; however, the presence of dissatisfied customers has an even greater effect on the final result; customers who receive poor service typically share their dissatisfaction with an average of fifteen to twenty other people (Naik et al., 2010).

Regarding the relationship between service quality and customer satisfaction, this issue has received considerable academic attention in recent years; both concepts had a direct positive effect on customer loyalty intentions, although customer satisfaction was considered a better indicator of loyalty (Hennayake, 2017). Much research supports the fact that these terms are closely related (Rahman et al., 2012); Others argue that service quality is an antecedent and indicator of customer satisfaction (Cronin and Taylor, 1992; Felix, 2017).

Since authors such as Grönroos (1984) and Parasuraman et al. (1985, 1988), stimulated debate on the conceptualization and measurement of service quality, proposals revolved around the Nordic (led by Grönroos) and American (led by Parasuraman) approaches.

Parasuraman et al. (1985, 1988) developed a service quality measurement scale known as SERVQUAL. This scale operationalizes the quality of service by calculating the difference between expectations and perceptions, evaluating the two against the twenty-two items that represent five dimensions called "tangible", "reliability", "responsiveness", "security" and "empathy". ". This SERVQUAL scale has been tested and

adapted in a large number of studies conducted in various contexts, cultural contexts and geographical locations (Naik et al., 2010).

Customers expect service companies to keep their promises (reliability), to offer honest communication media and clean and comfortable facilities (tangible goods), to provide prompt service (responsiveness), to they are competent and courteous (security) and that they provide personalized and individualized services (empathy) (Kankam-Kwarteng et al., 2016).

In addition to SERVQUAL, other tools have been developed such as the KANO model, and ACSI, which have been widely disseminated in the literature on customer satisfaction and service quality. However, the most recognized model is SERVQUAL, which is the oldest quality of service measurement framework; it is widely used to measure customer satisfaction through the gap between customer expectations and perception (Krudthong, 2017); and it is often considered the most commonly applied in many empirical studies in various service industries and in various countries (Minh et al., 2015).

For its part, the Kano model was developed by Noriaki Kano and his colleagues (Kano et al., 1984) to categorize the attributes of a product or service, according to their ability to satisfy customer needs. The objective of this approach is to link the requirements met by products or services to customer satisfaction and identifies three types of requirements: mandatory (expected quality), one-dimensional (desired quality) and attractive (excited quality); The first can be filled but they do not increase satisfaction, the second, the more they are filled, the more they give satisfaction to the customer, and the third, if they are not there, they do not cause any dissatisfaction, but s are present, they delight customers.

The American Customer Satisfaction Index - ACSI (2017) has been the national indicator of customer ratings of the quality of goods and services since 1994; it is the only uniform, cross-sectoral, governmental measurement for this characteristic. This is a weighted average of three questions, answered on a scale of 1-10 and converted to a scale of 0-100 for reporting purposes; the three questions measure: overall satisfaction, satisfaction with expectations and satisfaction with an "ideal" company.

In general, there are many studies linking service quality, in particular the SERVQUAL approach, to customer satisfaction, as evidenced by the review of the literature on the subject, where most use basic statistical methods such as descriptive statistics, correlation analysis, analysis of variance and regression analysis for data analysis, such as Felix (2017), Hennayake (2017), Rahman et al. (2017) and Latif (2017), in the banking sector; Krudthong (2017), in the hotel sector; Sadeghdaghghi and Goudarzvand (2016) in hospital wards; Obioma (2016) in the SME sector; Gambo (2016) in air transport services; and, Kankam-Kwarteng et al. (2016) in automotive maintenance services. Others, such as Al-Hashedi and Abkar (2017) in the field of telecommunications, Kim et al. (2017) in air cargo services, and Minh et al. (2015) in hotel services include more advanced statistical methods such as factor analysis. For their part, Ngo and Nguyen (2016) and Jamaluddin and Ruswanti (2017) apply structural equation models to banking and hospital services respectively.

Other works include, in addition to SERVQUAL, the ACSI index, such as Awwad (2012) and Angelova and Zekiri (2011) on telephone services; Park et al. (2016), Sulisworo and Maniquiz (2012), Harijith and Naduthodi (2017), Tan and Pawitra (2001) who use the KANO model; Kalotra and Sharma (2017); Santos and Candido (2016), Cruz et al. (2016), which combine SERVQUAL, KANO and QFD; and Kankam-Kwarteng et al. (2016), which stands out for its applications in maintenance services.

Methodology

Although supported by a documentary review, this survey is descriptive-evaluative, since it works on factual realities and presents an interpretation of the need to improve the quality of service provided by the company; likewise, it is non-experimental, since only the phenomenon studied will be observed.

The population studied is made up of all customers who use the service, with an estimate of 500 customers declared by the company. A sample studied is 160 customers determined from the random sampling technique, to guarantee adequate results of the statistical techniques to be used (factorial analysis).

The survey used in this study is a combination of the SERVQUAL model, a version of the SERVQUAL model that only considers perceptions (Mejías, 2005; Mejías and Maneiro, 2008), the KANO model and the ACSI index, which have been adapted to the particular situation of the company. It consists of 36 variables distributed in the specific dimensions of each model, that is to say that 5 variables follow the ACSI model to know customer satisfaction (Table 2), 20 variables will make it possible to know the quality of service through the SERVQUAL model (Table 1) and the remaining 10 questions belong to the KANO model (Table 2), which are composed of dysfunctional and functional questions to establish the attributes and characteristics that customers may require from the service.

The variables were rated by the respondents on a Likert-type scale ranging from 1 to 5, where 1 totally disagree 2 disagree 3 neutral 4 agree and 5 totally agree, thus allowing customers to respond to varying degrees to each of the questions.

Dimension 1: tangible elements	Dimension 3: Reliability
V04 Company staff have a neat appearance V21 The material elements (brochures, website and certain types of communication media) are visually attractive and informative	V06 When you have a problem or complaint, a sincere interest in resolving it is demonstrated V28 Company staff perform service well the first time V23 The company understands your specific needs
Dimension 2: Response capacity	Dimension 4: Empathy
V05 When staff promise to do something at a certain time, they do it V08 Company personnel complete service within promised time frame V29 Company personnel inform you of the end of the service provided V13 Company provides punctual service V14 Even when looking busy, the staff responds quickly to your questions V24 Company staff are always available to assist you V36 Company staff are ready to help	V33 Staff who provide services in the company are kind to you V20 Company staff provide personalized attention V10 The company has convenient working hours for you
Dimension 5: Security	
V11 You benefit from fast and agile service from the company's employees V16 The behavior of company personnel is a guarantee of trust V17 You feel secure in the transactions carried out by the company V19 Staff have sufficient knowledge to answer your questions V26 The company cares about your best interests	

To determine customer satisfaction, five variables designed according to the dimensions of the ACSI index, necessary for the study, were presented, since it was interesting to assess the impact of service quality on user satisfaction. . These variables are:

Table 2: American Customer Satisfaction Index variables - ACSI (2017)

V07 To what extent would you ask for one of the services offered by the Company again? V15 How would you rate the quality of service provided by the Company? V22 How well the Company understands your questions and concerns V25 To what extent do you rate the value for money of the service provided V27 I would recommend this company to others
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For its part, the Kano questionnaire is composed of two questions for each of the attributes to be measured. The first of these questions is called functional, because it measures the respondent's response if the service had the attribute in question, and the second question is called dysfunctional, because it measures the respondent's response if it did NOT have the characteristic. measured. These characteristic variables are reflected in Table 3.

Table 3: Kano Instrument Variables

Functional variables	dysfunctional variables
V02 You would like to organize meetings with customers, in order to know their opinions	V31 You would not like to have appointments with customers, in order to know their opinions
V03 I would agree with the company that promotes in services	V32 I agree that the company does not promote the services
V09 Would you consider having the possibility of requesting services via the Internet?	V30 Would you consider not being able to request services via the Internet?
V35 You want inputs used for services to contribute to the environment	V12 You want inputs used for services not to contribute to the environment
V18 I would agree that the company gives tools adapted to the team	V34 I agree that the company does not give tools adapted to the team

L'analyse des données a été réalisée à l'aide de méthodes statistiques multivariées, à l'aide du logiciel SPSS®, où l'analyse factorielle se démarque. L'analyse factorielle est une technique de réduction des données utilisée pour trouver des groupes homogènes de variables à partir d'un grand ensemble de variables (Pardo et Ruiz, 2002) ; Il est fréquemment utilisé pour créer de nouvelles variables qui résument toutes les informations qui pourraient être disponibles dans les variables d'origine, il est également utilisé pour étudier les relations qui pourraient exister entre les variables mesurées dans un ensemble de données (Johnson, 2000).

Résultats et analyse

Identification des facteurs qui déterminent la qualité des services

Afin d'identifier le meilleur modèle qui expliquerait la structure des données pour faciliter son analyse et sa compréhension, une analyse factorielle a été appliquée. Pour que l'utilisation de l'Analyse Factorielle soit pertinente, les variables doivent être corrélées, de sorte que l'examen de la matrice de corrélation calculée à partir des données obtenues dans l'échelle est la première étape pour déterminer l'adéquation de l'utilisation de cette analyse. (Vicente et Oliva et Manera, 2003).

Dans la matrice de corrélation de l'étude, des valeurs élevées ont été observées dans les croisements entre les variables, démontrant une corrélation significative. Pour vérifier le degré d'association des variables, le déterminant de la matrice de corrélation a été évalué, qui est un indicateur du degré de corrélation entre les variables, et lorsque celles-ci sont liées linéairement, la valeur du déterminant tend vers zéro, ce qui est bonnes données du point de vue de la capacité d'analyse factorielle (Johnson, 2000; Pardo et Ruiz, 2002; Vicente et Oliva et Manera, 2003). La valeur du déterminant est 1,80E-10, ce qui est une bonne donnée d'adéquation, ce qui rend l'analyse factorielle viable en tant que technique d'analyse des variables.

De plus, le degré d'intercorrélation entre les variables a été vérifié à l'aide de l'indice KMO (Kaiser-Meyer Olkin), un indice qui prend des valeurs comprises entre 0 et 1 et est conçu pour comparer les grandeurs des coefficients de corrélation observés avec les coefficients de corrélation partielle. (Perez, 2004).

Une valeur de la mesure KMO de 0,8 à 0,90 est très bonne, tandis que des valeurs inférieures à 0,5 ne sont pas acceptables (Vicente et Oliva et Manera, 2003). La valeur KMO obtenue dans cette étude était de 0,914, ce qui indique une intercorrélation élevée entre les variables de l'étude, démontrant ainsi l'utilité de l'application de l'analyse factorielle.

Une fois que l'adéquation de l'utilisation de la technique d'analyse factorielle a été démontrée, nous avons procédé à la recherche de la structure sous-jacente des variables sélectionnées. En utilisant la méthode des composantes principales, et le critère des valeurs propres supérieures à 1, quatre facteurs qui expliquent 83,636% de la variance totale ont été extraits. Pour faciliter l'interprétation des dimensions, la méthode de rotation Varimax avec Kaiser a été utilisée,

ce qui minimise le nombre d'items qui ont des saturations élevées dans chaque facteur et permet une meilleure interprétation des données (Pardo et Ruiz, 2002 ; Vicente et Oliva et Manera, 2003). Le tableau 4 montre les résultats obtenus à partir de la matrice des composants tournés.

TABLEAU 4 : Matrice de composants pivotée

	1	2	3	4
V13	0.903			
V24	0.895			
V08	0.894			
V29	0.885			
V05	0.868			
V14	0.853			
V16		0.903		
V19		0.884		
V11		0.882		
V17		0.880		
V26		0.879		
V06			0.851	
V28			0.830	
V23			0.807	
V20			0.806	
V21				0.871
V36				0.850
V10				0.833
V04				0.739

Reliability Analysis

For the reliability analysis, Cronbach's alpha was used, which measures internal consistency, and can take values between 0 and 1, where 0 means zero reliability and 1 represents full reliability. The reported values (0.971; 0.958; 0.937; 0.853, respectively for each dimension), are higher than 0.8, which shows the reliability of the scale used.

For its part, in the ACSI index, a Cronbach's alpha of 0.965 was obtained, which indicates a high reliability of the index; and regarding the Kano model, a Cronbach's alpha of 0.727 and 0.713 respectively is reported, also reflecting the reliability of the model.

Measurement Validity

In order to guarantee the content validity of the instrument used in this research, we started from a series of previous studies, based on the SERVQUAL model proposed by Parasuraman et al. (1985, 1988) and the SERVQUAL model (Mejías, 2005; Mejías and Maneiro, 2008), and the extensive evidence of its application, the proposed instrument can therefore be considered to have content validity.

To determine the concurrent validity of the scale, the five (05) ACSI variables are used, and the mean was taken as the control variable. Based on the average results of the SERVQUAL scale, the respondents were divided into two groups, one containing those who had a higher perception of the quality of service and the other those who had a lower one, in taking the total average as a reference. In order to demonstrate the existence of significant differences between the two categories, a Mann-Whitney Wilcoxon contrast was applied, the statistical result of which was significant at 5%, which demonstrates the concurrent validity of the instrument.

The predictive validity consists of evaluating the relationship between the average of the dimensions of the model as an independent variable and that of the ACSI variables that measure the level of satisfaction with the service as a dependent variable. In this case, the coefficient of determination is 0.560 and a significance level lower than 0.05, which proves the relationship between the aforementioned variables.

The validity of the construct is assessed by the correlation between the average perception of the quality of customer service (results obtained by the SERVQUAL variables) and the average given by the variables of the ACSI index. The results of Spearman's test, a correlation coefficient equal to 0.671 and a level of significance lower than 0.05, support the validity of the instrument used.

Results Analysis

The designed instrument exhibited high internal consistency and sample adequacy with a KMO index of 0.914 and a correlation matrix determinant value of 1.80 E-10, which supported the use of the factor analysis as a valid technique for data processing.

The factor analysis made it possible to extract four dimensions that manage to explain 81.64% of the variance of the data, resulting in a structure of twenty variables and four dimensions as shown in Table 5.

Table 5: Quality of service dimensions for the case study

1. Responsiveness
V05 When staff promise to do something at a certain time, they do it
V08 Company personnel complete service within promised time frame
V29 Company personnel inform you of the end of the service provided
V13 Company provides punctual service
V14 Even when looking busy, the staff responds quickly to your questions
V24 Company staff are always available to assist you
2. Security
V11 You benefit from fast and agile service from the company's employees
V16 The behavior of company personnel is a guarantee of trust
V17 You feel secure in the transactions carried out by the company
V19 Staff have sufficient knowledge to answer your questions
V26 The company cares about your best interests
3. Fiabilidad
V06 When you have a problem or complaint, a sincere interest in resolving it is demonstrated
V28 Company staff perform service well the first time
V23 The company understands your specific needs
V20 Company staff provide personalized attention

4. General aspects

V21 Material elements (brochures, website and certain types of communication media) are visually appealing and informative V36 Company staff are ready to help V10 The company has convenient working hours for you V04 Company staff have a neat appearance V33 Staff who provide services in the company are kind to you
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Responsiveness is the dimension that assesses the ability of personnel working in the business to serve customers quickly. This includes punctuality, willingness, speed and turnaround time, and compliance.

Security values the knowledge and attention of company personnel and their abilities to inspire credibility and trust in customers. This includes the staff's trust, knowledge, agility and concern for their customers.

Reliability and empathy are the company's ability to perform promised services. This includes interest, understanding needs, personalized attention and providing good service the first time.

General aspects represent the physical appearance of acceptable equipment and personnel to perform the Services, as well as convenient working hours for Clients, among others.

With the reliability study, it was possible to obtain a Cronbach's Alpha of 0.971 for each dimension taken from SERVQUAL; 0.958; 0.937; and 0.853 respectively, and in general an alpha of 0.936, demonstrating that the model proposed to measure the quality of service is reliable. Similarly, it was possible to demonstrate the validity of the instrument, in the categories of content, concurrent, predictive and construct validity, all significant at 5%.

To determine the impact of service quality on customer satisfaction, a multiple linear regression was performed between the survey means for each dimension derived from the model. The variable Y was established as the average per survey of the additional variable (V01 You are satisfied with the services provided by the Company), and the independent variable as X (average per survey of the resulting SERVQUAL variables). Then they determined the coefficients of the model, which is expressed as follows: $Y = -1.134 + 1.219X$, in addition, the coefficient of determination (R^2) was obtained, which gave a value of 0.595, which indicates that the regression can explain 59.5% of the variability of Y. It is also evident that the test is significant at 5%, i.e. the model proposed in this survey explains the behavior of satisfaction company customers.

Regarding Kano's model, we find that the attributes "Promotions in services and inputs that contribute to the environment" are attractive to customers and will cause maximum satisfaction. Also, one dimensional features such as: customer meetings, internet services, and free air fresheners; As they are present in the services, they will bring more satisfaction and interest to the customers.

Conclusion

Service quality as a multidimensional construct is one of the tools used by companies to address strategies in search of aspects that determine customer satisfaction. The SERVQUAL model is the most widely used instrument for measuring the quality of services, as evidenced by the abundant literature on the subject, where its ease of adaptation and interpretation stands out, as in the case study, where It could be applied to installation, maintenance and repair services of elevators.

Based on the results of this survey, it is concluded that the quality of the service provided by the company has an impact on the satisfaction of its customers; which will allow the management of the company to focus its efforts on improving the quality of services, and more specifically, taking into account the important dimensions identified by factor analysis, one of the most widely used statistical methods to this end.

The combination of the SERVQUAL, ACSI and KANO models helped to identify the priority aspects that the management of the company needs to ensure decision-making based on objective evidence. Thus, the results of this research constitute contributions for the strategic analysis, in particular in the design of the matrix SWOT (Weaknesses-Opportunities-Strengths-Threats).

Although the results of this research cannot be generalized to other contexts, this work represents a point of reference for future research where the use of structural equation models is also recommended to take advantage of the available information and obtain better insights into business performance and consumer behavior.

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