The nature of the relationship between service quality and customer satisfaction among mobile users: Experience from Malaysia

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Abstract: This paper aims to investigate the impact of service quality on customer satisfaction for mobile users in Malaysia. Specifically, this paper examined the impact of service quality dimensions (tangibility, reliability, responsiveness, assurance, empathy) on customer satisfaction in the post-COVID era. The data were collected by using a self-administered questionnaire to the sample of Kuala Lumpur and Selangor states mobile users. Overall, 117 responses were gathered and five hypotheses were tested using hierarchical regression analyses. The results are mixed. Out of five hypotheses, only two were accepted. Reliability and responsiveness were found significantly positive relation to customer satisfaction whereas tangibility, assurance, and empathy were shown otherwise. Lastly, the discussion part will deliberate on the conflicting results. The limitations and suggestions for future research are also presented.

Keywords: *Service Quality, Customer Satisfaction, User Mobile.*

1. Introduction and Background

Telecommunication has now become part and parcel of the life of the general population. With the advancement of technology and, the vast ~~of~~ smartphones offered, telecommunication is now a must for everyone to have in catching up with lifestyle. One of the leading components in attracting customers is their service quality and this plays an important role in attracting a pool of customers to use the service apart from attractive offers in the service package. Product differentiation is somehow difficult as all the telecommunication operators use the same technology or spectrum. Implementing a price reduction or offering an affordable package with the phones may not yield a significant impact, as it would likely be promptly emulated by other telecommunications companies. However, what truly sets the telco company apart is its commitment to delivering superior service quality, and ensuring customer satisfaction. The relationship between service quality dimensions and customer satisfaction in the telecommunication sector is deep-rooted. In the case where switching of network occurs, the cost is negligible and service quality will be deemed as the most significant factor in the retention of customers (Shafei and Tabaa, 2016; Izogo, 2017). The fact that organizations are starting to implement the service standards, has led to part of the corporate culture to allow the organization to a continuous effective approach to its development and implementation.

With the escalating interest in technology, researching this topic becomes imperative to ascertain whether, particularly in the post-COVID era, users of telecommunication services still prioritize service quality as the main determinant of their satisfaction. Unfortunately, the concept of customer satisfaction continues to interest many, with various inexplicable factors drawing attention in certain areas up to this point. Examining how various aspects of service quality influence the overall outcome and identifying which aspect has a greater impact on customer satisfaction is essential. It appears that these influences may vary from year to year, as observed through casual conversations with users. Customer from various backgrounds have become more educated, better informed and more internalized, their demand for better service quality can differ as well based on the priority of the service quality dimensions such as tangibility, reliability, empathy, assurance and responsiveness. Therefore, the focus of this paper is to assess the key service quality dimensions that significantly impact user satisfaction, as users are essential to the success of any organization. Without them, a firm would lack revenues, profits, and ultimately market value.

The remainder of this paper is organized as follows. Firstly, we discuss the literature review on customer satisfaction, service quality and the relationship between service quality on customer satisfaction. The section then followed with the research methodology and findings. We also present the discussion on the hypotheses results and highlight the contributions, limitations and recommendations for future research.

2. Literature Review

Customer Satisfaction: Ensuring customer satisfaction through understanding and meeting their needs and wants is crucial for the survival of businesses. Customer satisfaction is a result of cognitive and affective evaluations, where perceived performance is compared to a set standard (Kotler, 1997). Dissatisfaction arises when perceived performance falls short of expectations, while satisfaction occurs when performance exceeds expectations. Meeting expectations leads to a neutral response from customers. Ultimately, enhancing customer satisfaction enhances customer retention and repurchase behavior, contributing to increased firm profitability.

Lovelock et al. (2001) define customer satisfaction as the emotional response experienced by an individual when evaluating the perceived performance of a product in relation to their expectations. In general, there are two general conceptualizations of satisfaction, namely, transaction-specific satisfaction and cumulative satisfaction (Jones and Suh, 2000; Yi and La, 2004). According to Boshoff and Gray (2004), transaction-specific satisfaction is the assessment made by a customer regarding their experience and response to a specific service encounter, whereas cumulative satisfaction pertains to the overall evaluation of the customer's consumption experience up to the present moment (Cook, 2008).

Retaining customer satisfaction with a company's products or services is a key to long-term competitiveness. Research has shown that customer satisfaction is a fundamental element in relationship marketing, used to measure and manage activities. It is considered a temporary emotional response stemming from a comparison between a customer's expectations and their assessment of a specific product or service interaction (Muhammad et al., 2023).

Customer satisfaction is contingent upon the perceived performance of a product in comparison to the expectations of the buyer. In instances where the product's performance fails to meet expectations, the customer is likely to experience dissatisfaction. Conversely, when performance aligns with expectations, the primary outcome is customer retention (Tapha and Yogi, 2024). Satisfied customers are more inclined to make repeat purchases and share positive feedback about their experiences with the product. The key factor lies in aligning customer expectations with company performance. Successful businesses strive to exceed customer expectations by delivering on promises and surpassing initial commitments. It is important to note that a dissatisfied customer is likely to share their negative experience with seven to 20 individuals, while a satisfied customer may only share their positive experience with three to five individuals (Ojo, 2010)

Service Quality: The concept of quality is subjective and may differ based on the individual and context. Definitions of service quality exhibit minor variations in language but generally revolve around assessing whether perceived service provision aligns with, surpasses, or falls below customer expectations (Zeithaml et al., 1996). Service quality is widely recognized as a crucial factor in establishing and maintaining satisfying relationships with customers, thus contributing to competitiveness. Research has shown that service quality is a significant indicator of customer satisfaction (Spreng and Machoy, 1996) and can differentiate an organization from its competitors, leading to a lasting competitive advantage (Boshoff and Gray, 2004). Consumers value service quality even when other pricing factors remain constant (Turban, 2002), making it an essential aspect of a company's product and service offerings (Caruana, 2002). According to Brady and Robertson (2001), service quality plays a key role in creating a competitive advantage by serving as a distinguishing factor.

The concept of service quality emerged as a global phenomenon in the 1980s, when marketers recognized the importance of delivering a quality product to gain and sustain a competitive edge (Boshoff and Gray, 2004). According to Parasuraman et al. (1985), service quality is determined by the comparison of a consumer's expectations with the performance of the service. They proposed that service quality is influenced by pre-

purchase customer expectations, perceived process quality, and perceived output quality. In their 1985 study, they suggested that service quality is measured by the gap between customers' expectations and their perceptions of the service experience. Parasuraman et al. (1988) further define service quality as the extent to which a service either meets or surpasses customer expectations by comparing their perceptions with expectations. The consistency of a service in meeting customers' expectations is crucial in determining its quality (Meyvis and Janiszewski, 2002). Parasuraman et al. (1990) projected a service quality model that identified perceived service quality into five dimensions: tangibility, reliability, responsiveness, assurance, and empathy. The brief explanations for each dimension are as follows;

- a) Tangibility aspects involve the appearance of physical facilities, including the equipment, personnel, and communication materials
- b) Reliability involves the ability to perform the promised service dependably and accurately
- c) Responsiveness is associated with the willingness to help customers.
- d) Assurance involves the knowledge and courtesy of employees and their ability to convey trust and confidence. This assurance includes competence, courtesy, credibility and security.
- e) Empathy elucidates involves the provision of caring, individualized attention to customers. This empathy includes access, communication, and understanding of the customer

It is indisputable that customers exhibit a preference for superior service over discounted prices, as evidenced by their willingness to pay a premium for enhanced or more effective assistance. Companies that prioritize offering additional service benefits in such instances are likely to emerge as successful entities. The expectations and demands of customers for improved services necessitate that all telecommunications firms strive to provide a personalized experience, resulting in customer perceptions surpassing initial expectations and heightened satisfaction levels. Implementing proactive measures, including a thorough understanding of guest history, concerns, and preferences, stands as a crucial strategies in impressing customers and cultivating repeat business.

Relationship between Service Quality and Customer Satisfaction: Temba (2013) argues that customer satisfaction should be perceived as a multidimensional concept similar to service quality, manifesting at various organizational levels and requiring the same factors for operationalization. Parasuraman et al. (1985) also assert that high perceived service quality will result in increased customer satisfaction, indicating that service quality significantly influences customer satisfaction based on the quality of service provided. Fen and Lian (2005) demonstrate that both service quality and customer satisfaction positively impact customers' intentions to re-patronize, underscoring their critical roles in enhancing business success in a competitive market. Temba (2013) further supports this relationship, highlighting the interdependency of these constructs and their potential to mutually reinforce each other. Moreover, the authors suggest that service quality is a more abstract concept compared to customer satisfaction, attributing this difference to the former being influenced by perceptions of value and external experiences beyond individual encounters with the service firm. In that vein, we suggest the following hypotheses;

H^1: There is a significant positive relationship between service tangibility and customer satisfaction in the telecommunication industry
H^2: There is a significant positive relationship between service reliability and customer satisfaction in the telecommunication industry
H^3: There is a significant positive relationship between service responsiveness and customer satisfaction in the telecommunication industry
H^4: There is a significant positive relationship between service assurance and customer satisfaction in the telecommunication industry
H^5: There is a significant positive relationship between service empathy and customer satisfaction in the service telecommunication industry

3. Methodology

This study focused on residents who reside in Kuala Lumpur and Selangor States. These two states are also considered the Klang Valley area with a population is almost 8.8 million people (Department of Statistics

Malaysia, 2023). Due to the lack of a comprehensive population frame obtained, Convenience sampling was chosen for this study due to its expediency, cost-effectiveness, and ease of access, allowing researchers to easily recruit participants who are readily available at the time (Sekaran and Bougie, 2016). Within 2 months of data collection, the 117 responses were gathered in both areas. This study utilizes a face-to-face self-administered questionnaire to obtain the data. Before the real questionnaire was distributed, a set of questionnaires were validated by three experts in the marketing area. Some of the vague wordings were adjusted and the outlook of the questionnaire is well-presented again. The questionnaire then was distributed as a pilot study among the citizens around Shah Alam. Two districts were chosen for the final data collection. Those districts are Bangi for Selangor and Cheras District for Kuala Lumpur. These districts were chosen due to the higher population (Election Commission of Malaysia, 2023).

The scales used followed the prior research. The items measuring responsiveness, tangibility, reliability, assurance and empathy were adapted from Loke et al. (2011) meanwhile the items for customer satisfaction were adapted from Ojok (2017). All variables used the 5-scale Likert scale, with 1 representing strongly disagree 5 representing strongly disagree, then 1 representing very dissatisfied and 5 very satisfied towards the statement. In analyzing the hypotheses, this study employs the hierarchical multiple regression method. This method was conducted by entering the independent variables into the block and the customer satisfaction into the dependent variable block in the SPSS software.

4. Findings

Descriptive Analyses: Table 1 presents all 117 respondents' profiles. In total, male respondents comprised 59 percent of the total respondents, while female respondents made up slightly less than half (41%) as shown in Table 1. The majority of the respondents are aged 30 to 39 years old representing 65 percent with the lowest percentage coming from the group of age above 50 years old with only 1.7 percent. The table also shows that 68.4 percent of respondents are working in the private sector, 14.5 percent are in the government sector, and the remaining occupations of the respondents are self-employed. The remaining 11.29 and three percent were students and other occupations. The data also shows that 32.5 percent of the respondents are using the Celcom network, followed by Digi users with 30.8 percent, Maxis (19.7%), Umobile, and another network each comprising 8.5 percent.

Table 1: Respondents' Profiles

ITEMS	FREQUENCY	PERCENTAGE
GENDER		
Males	48	41%
Females	69	59%
Total	**117**	**100%**
AGE		
29 and below	33	28.2%
30-39	76	65%
40-49	6	5.1%
Above 49	2	1.7%
Total	**117**	**100%**
OCCUPATION		
Government Servant	17	14.5%
Private Sector	80	68.4%
Self-employed	14	12%
Students	3	2.6%
Others	3	2.6%
Total	**117**	**100%**
MOBILE NETWORK USED		
DIGI	36	30.8%
Celcom	38	32.5%
Maxis	23	19.7%
Umobile	10	8.5%

| Other | 10 | 8.5% |
| **Total** | **117** | **100%** |

The mean, standard deviations, skewness and kurtosis values for the total sample are presented in Table 2. Among the variables understudy, tangibility means reported higher mean values compared to another variable with 3.87 (0.64 standard deviations). The other variables show the mean values exceeding the threshold of 3 whilst responsiveness portrays the lowest value (3.15). The skewness shows the normal distribution of the data where the values are less than ± 3. The kurtosis values are also distributed normally where the value is not exceeding ±7. Those values are not violated by the normality assumption (Kline, 2015).

Table 2: Mean, Standard Deviation, Skewness and Kurtosis

Variable	Mean	Standard Deviation	Skewness	Kurtosis
Tangibility	3.87	.64	-.06	-.47
Reliability	3.55	.75	0.00	-.42
Responsiveness	3.15	.57	-0.48	.19
Assurance	3.75	.70	-.35	-.15
Empathy	3.66	.74	-.33	.00
Customer Satisfaction	3.72	.67	-.04	-.22

The Cronbach's Alpha test was done to assess the internal consistency of the scales. The values exceeded the proposed minimum threshold of 0.70 which has been proposed by Nunnally (1978). Those reliability values for all variables were shown in Table 3 in which tangibility is .864, reliability of service (.841), responsiveness (.944), assurance (.939), empathy (.927) and customer satisfaction (.896). Therefore, all variables are valid for further analyses.

Table 3: Reliability Test

Variable and its items	Cronbach Alpha Value
Tangibility	.864
The staff are well-dressed and appear neat.	
The website is user-friendly.	
The customer service counter is well-equipped with up-to-date facilities e.g. Reload/top-up machine, free WIFI	
The physical layout of equipment and furniture is comfortable for customers interacting with staff.	
Information associated with the service (e.g. promotional brochure) is visually appealing at the customer service counter	
Reliability	.841
The network quality signals are clear.	
The network coverage in urban areas meets my expectations.	
The network coverage in rural areas meets my expectations.	
The telecommunication company provides network services at the promised time.	
Keeps its packages and services up to date.	
Responsiveness	
The customer service staff are professional.	.944
The staff are willing to solve the queries faced by customers.	
The staff are helping in the service provided	
The staff can perform professional service	
The staff can handle the urgent request.	
The staff are ready to provide the service.	
Assurance	.939

Courteousness and problem-solving ability.
Comfortable interacting with the staff.
Ability to keep customers updated and safe.
Politeness and friendly staff.
Explanation given to customers on the problems & process to solve it.

Empathy

Employees show care and concern while talking to me.   .927
The employees give individual attention to my problems and interests.
Services personnel always carefully listen to my complaints and
requests.
The complaints process is convenient to use.
Customer complaints are resolved within time.
Customers get an immediate response to his/her complaints.

Customer Satisfaction   .896
I am satisfied with the overall service quality offered by this service
provider.
I am satisfied with the variety of service plans provided by this network
that meet my needs.
This service provider meets my expectations.
I am happy enough with the service of this service provider.

The bivariate correlations between the variables have been presented in Table 4. The value of the correlations is more than 0.5 whereas the highest been recorded is .894 which the link between assurance and responsiveness. All variables have a significant value of less than 0.01.

Table 4: Bivariate Correlation

Variable	1	2	3	4	5	6
1. Tangibility	1					
2. Reliability	.581**	1				
3. Responsiveness	.690**	.711**	1			
4. Assurance	.733**	.665**	.894**	1		
5. Empathy	.710**	.723**	.892**	.867**	1	
6. Customer Satisfaction	.677**	.731**	.872**	.797**	.835**	1

Note: ** p< 0.01 (1-tailed test)

Table 5: Hierarchical Regression Analyses

Research Hypotheses	Beta	T value
Tangibility	.110	1.437
Reliability	.180	2.182**
Responsiveness	.572	5.002**
Assurance	-.054	-.502
Empathy	.175	1.651
Model Fit Summary		
R^2	.796	
Adjusted R^2	.787	
Change Statistics		
F Change	86.41	

 Note: ** p-value is less than 0.01 (1-tailed test)

Based on the hierarchical regression analysis, there are only two hypotheses are supported, whereas the remaining hypotheses are not as what we predicted (Table 5). The relationship between reliability and responsiveness is found significant with customer satisfaction (p value< .05). Those three variables (tangibility, assurance and empathy) were found insignificant (p>.05). The adjusted R2 indicates 78.7 percent of the overall variance of customer satisfaction was explained by the independent variables.

5. Discussion, Limitations and Future Research

The purpose of this study was to determine the predictors of customer satisfaction among mobile telecommunication users. It is vital to know the factors that influence the usage of network telecommunication, especially the post-COVID problem. Consequently, the current research investigates the relationship between the dimension of service quality (tangibility, reliability, responsiveness, assurance and empathy) on customer satisfaction in Malaysia. The findings of this study may contribute to the body of knowledge and also be a reminder to the service provider to improve their service quality.

Firstly, we found that the tangibility aspect has no impact on customer satisfaction. This result provides some meaningful insight into the relationship between these variables as prior results indicate a positive impact (Shava, 2021). Our research setting focuses on Klang Valley where people population is almost 8.9 million with up-to-date technologies. It is found that with the recent technologies adopted by telecommunication operators, customers have to deal directly with customer service without entering the telecommunication facilities. Unlike the service provider in the hotel industry, the tangible aspect is not the main factor in predicting customer satisfaction (Alaa and Mat Som, 2012).

Secondly, the hypothesis to examine the relationship between the reliability of service on customer satisfaction is supported. This finding corroborated with earlier findings (Abd-Elrahman, 2023; Wang and Lo, 2002). Malaysia's telecommunication market has become more intense whereby only certain giant service providers are willing to enter into this oligopoly market, especially after the COVID epidemic. Therefore, the sustainability of the telecommunication firms in the market depends on how well the service is offered.

Thirdly, the responsiveness to customer satisfaction is also found supported. This implies that the capability of the workers to perform their duties. This result aligns with the previous findings that prove the action of employees' telecommunication firms in providing excellent service with the additional responsiveness concepts such as knowing market segmentation, being friendly, and becoming a problem solver (Lee, 2010). Fourthly, the prediction of a positive relationship between service assurance on customer satisfaction is non-supportive. It contradicts past studies (Alnsour et al., 2014; Wang and Lo, 2002). Telecommunication firms should be selective in the employee recruitment process. The employees should be given the training so that their capability to "ensure" the promising service (Alnsour et al., 2014).

Lastly, the un-supportive hypothesis was gaining on the relationship between empathy on customer satisfaction. Scholars have found that service empathy will lead positively the customer satisfaction (Shava, 2021). However, the result of the current study shows otherwise and is in line with previous findings (Anjum et al., 2016; Wang and Lo, 2002). The plausible explanation is due to the huge number of complaints regarding the communication service, the possibilities to fix the problems immediately by the telecommunication company might be difficult. Apart from that, it is advisable to include the 'relational' element in the training for the customer service agents so that they potentially understand customer needs (Loke et al., 2011).

This paper contributes to the existing literature, especially for the service quality theme in the following two ways. First, the projection of the linear relationship between the dimensions of service quality (tangibility, assurance, empathy) is not always consistent. This has been proven by the rejected hypotheses associated with these three dimensions. Secondly, the findings from post post-COVID era show some discrepancies findings with Abd-Elrahman's (2023) view. During a pandemic, those four dimensions except assurance are significant in predicting customer satisfaction. However, the affirmation of the results did not prolong post-COVID. Therefore, these results were meaningful to the telecommunication firms to have the signals on leveraging their service quality and thus retaining customer loyalty (Dhasan et al., 2021; Omar et al., 2021).

Although this paper has contributed to the body of knowledge especially within the service quality theme, some limitations should be addressed. The results from this study cannot be generalized to the whole mobile users in Malaysia due to the usage of convenience sampling. Next, the purpose of network usage is also not in our range of discussion. It could be the difference usage of business or personal purposes. Lastly, we did not incorporate geographic borders and the current study focuses on the telecommunication users in the big cities.

For future research directions, it is recommended to delve into the understanding of service quality concepts, particularly among telecommunication users in rural areas. This study predominantly focused on users in urban settings, highlighting a need to explore how rural populations perceive service quality. Additionally, future studies should consider employing larger sample sizes encompassing various regions within a country to enhance the generalizability of the results.

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