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AN IN-DEPTH ANALYSIS OF THE INFLUENCE OF SERVICE QUALITY DIMENSIONS ON CUSTOMER SATISFACTION IN THE TELECOMMUNICATION INDUSTRY: EMPIRICAL EVIDENCE FROM SOUTHWESTERN AFGHANISTAN

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ABSTRACT

The goal of this research is to examine the complex relationship between customer satisfaction and service quality parameters in the telecommunications industry in the southwest region of Afghanistan. We examined the impact of service quality dimensions, such as those specified by the SERVQUAL model, in addition to essential factor network quality, on customer satisfaction utilising a methodological approach based on primary data collection employing a convenience sampling technique. This study looks for underlying trends and relationships between the dependent variable, customer satisfaction, and all six independent service quality aspects. Cochran's formula was used to collect data from 271 respondents using questionnaires. The relationship between many factors of service quality and their impact on customer satisfaction is demonstrated by our research. Responsiveness, network quality, and dependability are essential when assessing client satisfaction. Nevertheless, results manifested that assurance and tangibility are insignificant in determining customer satisfaction. Our research accentuates how exponentially quickly these businesses should address and improve these aspects of service quality to satisfy changing consumer expectations and promote long-term success in the southwestern zone of Afghanistan.

KEYWORDS: SERVQUAL MODEL, SERVICE QUALITY, SATISFACTION, TELECOMMUNICATION, AFGHANISTAN

ABSTRAK

Kajian ini bertujuan untuk mengenal pasti hubungan rumit antara kepuasan pelanggan dan dimensi kualiti perkhidmatan dalam sektor telekomunikasi di zon barat daya Afghanistan. Menggunakan pendekatan metodologi berdasarkan pengumpulan data primer melalui teknik persampelan kemudahan, kami menguji pengaruh dimensi kualiti perkhidmatan, termasuk elemen penting kualiti rangkaian, terhadap kepuasan pelanggan. Sebanyak 271 soal selidik diedarkan kepada responden menggunakan formula Cochran. Hasil kajian menunjukkan hubungan yang jelas antara pelbagai aspek kualiti perkhidmatan dan kesannya terhadap kepuasan pelanggan. Analisis regresi daripada model persamaan struktur menunjukkan bahawa

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empati adalah faktor utama, diikuti oleh kebolehpercayaan, kualiti rangkaian, dan responsif dalam menentukan kepuasan pelanggan. Walau bagaimanapun, keputusan menunjukkan bahawa jaminan dan kebendaan tidak signifikan dalam menentukan kepuasan pelanggan. Kajian kami menekankan keperluan mendesak bagi perniagaan untuk meningkatkan aspek kualiti perkhidmatan ini demi memenuhi harapan pengguna yang sentiasa berubah dan menyokong kejayaan jangka panjang di zon barat daya Afghanistan.

KATA KUNCI: MODEL SERVQUAL, KUALITI PERKHIDMATAN, KEPUASAN, TELEKOMUNIKASI, AFGHANISTAN

1. INTRODUCTION

Telecommunication has transformed the way we communicate, connect and share information throughout the cosmos, advancing the standard of life and economies in a standard manner. According to Albarq (2024) Technological Advancement in the phenomena like the internet, mobile communication and multimedia has greatly reduced time and distance across the world. Afghanistan has experienced decades of war, which has destroyed the fundamentals of the telecommunication sector (Azizi, 2022). However, after decades of war, the telecom sector was rejuvenated during the tenure of President Karzai, who implemented a regulatory structure for the sector in July 2002 (Khan & Meel, 2019) and delivered the first contract to a private telecommunication corporation in the same year (Azizi, 2022). Today, it is estimated that about 200,000 individuals have been indirectly engaged in work in the telecommunication and information technology sector (MCIT, 2020), therefore providing huge employment opportunities in the country. According to Sharif (2018), the telecommunication sector has a significant positive relationship with the economic growth of Afghanistan and this sector helps in diminishing the economic gap between developed countries and Afghanistan.

Afghanistan's telecommunication sector contains four private operator companies (AWCC, Roshan, MTN, Etisalat) and one public operator company (Salam). According to the report of the Afghanistan telecom regulatory authority; in the last quartile of 2023 MTN had 6.2 million active subscribers, AWCC 4.9 million, Roshan 4.6 million, Etisalat 4.6 million and Salam had 2.2 million active subscribers (ATRA, 2023). In such a competitive market customers have many options and can easily switch on from one company to another one. Therefore, according to Al-Hashedi and Akbar (2017) in such a market, operators should work to identify factors which enhance the magnetism and holding of customers. According to (Shrestha & Bahadhur Ale, 2020) customer satisfaction is accepted as a key tool for the survival of telecommunication operators in the market and these operators should concentrate on those aspects of their activities which cover the expectations of customers. According to Abd-Elrahman *et al*. (2020), service quality is considered a key factor for enhancing customer satisfaction and therefore attracts researchers' attention.

Despite the increasing importance of telecom services in southwestern zone of Afghanistan, there is a lack of comprehensive understanding of the factors affecting the quality of services in this sector. This gap has become a major obstacle for the improvement of the telecom sector and infrastructure and plays a role of a barrier for providing reliable telecommunication services, socio-economic development and connectivity.

In this context, we would like to examine the factors that affect the quality of services in the telecommunications sector in the southwestern zone of Afghanistan. With the analysis of these influencing factors such as network quality, empathy, assurance, reliability, responsiveness and tangibility, this study aims to give sector stakeholders useful information to improve service quality, support digital distribution, and foster socioeconomic growth in the area.

2. LITERATURE REVIEW

Service Quality

Contingent on the particular situation and the standard taken into evaluation, there are different explanations of service quality (Lekobane & Selelo, 2017). Usually, the disparity between what customers perceive and expect from a service is referred to as service quality (Vu *et al.*, 2021). Thus, the level to which a service satisfies the requirements or expectations of customers is referred to as service quality. There are many models accessible for evaluating service quality, two of the most well-known, SERVPERF and SERVQUAL, are used in marketing literature (Shi and Shang, 2020). Initially introduced in 1985, the SERVQUAL model was formulated by Leonard Berry, Valarie Zeithaml, and A. Parasuraman (Parasuraman *et al.*, 1985) while the SERVPERF model initially introduced in 1992 was formulated by J. Joseph Cronin Jr. and Steven A. Taylor (Cronin & Taylor, 1992). According to Wang *et al.* (2015), the SERVQUAL model is based on the difference between expectations and customer perception. However, the SERVPERF model is based on merely customer perception and this model does not take customers' satisfaction into account.

Dimensions and Measurement of Service Quality

The literature has suggested several factors for evaluating the quality of services. Numerous models for assessing service quality have been identified by earlier scholars worldwide. However, the following dimensions make up the Parasuraman SERVQUAL instrument:

- Tangibility
- Reliability
- Responsiveness
- Assurance
- Empathy

Tangibility

This dimension is used to measure the external characteristics and physical appearance of employees. Buildings, supplies, equipment, company personnel and communication materials all have a physical look. The physical surroundings provide tangible evidence of the service provider's attention to detail and concern (Fitzsimmons & Fitzsimmons, 2001). According to Sevilla and Ellaga (2020), tangibility is concrete evidence of the service. The appearance and external characteristics of employees are assessed. Tangibility includes the appearance of company people, buildings, goods, equipment, and correspondence. People view the physical surroundings as concrete proof of the service provider's concern and attention to detail (Fitzsimmons & Fitzsimmons, 2001).

Reliability

It evaluates a worker's capacity to provide accurate and consistent services. The significance of dependability and consistency are found in the efficiency of persons, goods, and service facilities. This includes the ability to meet client commitments and provide services on time. According to Fitzsimmons and Fitzsimmons (2001), reliability is the ability to provide the promised service reliably and correctly with no errors. According to another researcher Customers may lose faith in the service's dependability and choose to use alternative service providers if it is not consistently dependable (Shrestha & Bahadhur Ale, 2020). Furthermore, according to another researcher, reliability in telecom services is based on three main factors: accessibility (availability of service whenever needed), continuity (consistent availability), and performance, with accessibility being the most crucial for ensuring customers can use services like calling and signal access whenever desired (Arslan *et al.*, 2014). Finally, a researcher explains that dependability is the capacity to provide the promised service in a consistent and precise manner (Surin *et al.*, 2024).

Responsiveness

This dimension assesses how eager employees are to help customers and how quickly they can do so. This figure assesses how enthusiastic and prompt staff members are to assist clients. According to Johnston (1997), the promptness and timeliness of service delivery is known as responsiveness. This includes the service provider's throughput speed and responsiveness to customer support inquiries, resulting in the least amount of waiting and queue time. When a consumer is kept waiting for no obvious reason, it can be annoying. Fitzsimmons and Fitzsimmons (2001), believe it generates needless unfavorable impressions of quality. In contrast, the bank's ability to swiftly rebound and demonstrate professionalism when service fails can generate extremely favourable views. Additionally, a researcher holds that responsiveness is the willingness of a firm's staff to actively assist customers and deliver services swiftly, ensuring customer needs are met in a timely and efficient manner (Parasuraman *et al.*, 1988). Finally, another researcher suggests that responsiveness is a firm's readiness to support its customers by offering quick and effective assistance whenever needed (Ozoh, 2023).

Assurance

It measures an employee's knowledge, competence, trustworthiness, and politeness. Competence in providing The assurance dimension includes aspects such as service, courtesy, respect for the client, good communication, and a general mindset that the server is looking out for the client's best interests (Fitzsimmons & Fitzsimmons, 2001). Assurance is the expertise, professionalism, and courteous demeanour of employees that foster a sense of trust and confidence in customers (Drew & Karwan, 1994). According to Rahhal (2015) assurance includes several key characteristics necessary for excellent service quality in telephone companies. These include the ability to inspire customer confidence, timely follow-up on service requests, and a courteous, friendly manner. Additionally, employees are knowledgeable and capable of addressing customer queries, making customers feel safe in their interactions and transactions with top-tier telephone companies. Furthermore, another researcher states that assurance encompasses employees' expertise and courteousness, along with their ability to inspire trust and confidence through competence, credibility, and a sense of security (Surin *et al.*, 2024).

Empathy

This dimension assesses how attentive workers are to their clients on a one-on-one basis (Johnston, 1997), Similarly, empathy is the capacity to make a client feel welcome, especially by contact personnel. Empathy, as described by (Rahhal, 2015), encompasses several key characteristics essential for excellent service in telephone companies. These include providing each customer with individualised attention, in which staff members engage with them and make sure they all feel appreciated. Furthermore, empathy entails putting the needs of clients first and being aware of their unique requirements. By giving clients a sense of genuine support and understanding, this customer-centred approach increases satisfaction and fosters trust. According to a different study, empathy is the capacity of a service provider to provide focused, compassionate, and tailored support to each customer (Drew & Karwan, 1994). Furthermore, another researcher goes on to say that providing thoughtful, tailored support and care to meet each customer's unique needs is known as empathy.

Customer Satisfaction

In the current competitive environment, a business must both attract new customers and satisfy existing ones to preserve and even increase market share. However, the concept must be understood before exploring the essence of customer satisfaction. According to Gegeckaite (2011), if a service meets the customers' expectations, the customer will be pleased; if the service surpasses expectations, the customer will be delighted. However, the customer will be dissatisfied and will probably abandon the business if the service does not live up to their expectations. Every customer has varied expectations for the services they receive, thus the business should look at many different aspects of service quality to satisfy as many customers as possible. Dutta *et al*. (2017) describe customer satisfaction as the process of evaluating the discrepancy between performance and expectations. Positive client feedback is a sign of customer

satisfaction (Wibowo, 2015). Customer satisfaction has recently been shown to be a leading indicator of a company's performance; as a result, businesses have been attempting to comprehend consumers' wants to provide services that meet their needs and increase corporate profitability.

Besides, academics have examined the connection between consumer happiness and the quality of banking services in several publications. According to Gegeckaite (2011), the factors of consumer satisfaction can differ by sectors because each industry has unique characteristics and customer expectations.

Customer Satisfaction with Service Quality

Distinguished studies have found a relationship between customer satisfaction and the quality of banking industry services. According to Kheng *et al*. (1999), if the quality of banking services is enhanced, customers will be satisfied. Furthermore, Lukman *et al*. (2021), verified the previously stated connection and noted that it changes depending on location, concluding that the relationship is strongly positively associated in New Zealand." Alongside the banking sector, the relationship between service quality and customer satisfaction has been searched by various researchers in different sectors of various countries and regions. Service quality has had a major contribution to customers' satisfaction in the mobile phone industry of UAE (Masoud, 2020). Another researcher states that it is found that customer satisfaction in fast food restaurants of Jabodetabek has been affected by the service quality of the restaurants and thus the better customers receive the quality of service, the higher the level of customer satisfaction will be (Kristiawan & Suharjo, 2021). Finally, a researcher states that there is a clear relationship between service quality dimensions and customer satisfaction in the CJCU library, indicating that improvements in service quality could enhance user satisfaction (Wang & Shieh, 2006).

The most widely used models (SERVQUAL or SERVPERF) for assessing service quality in the telecom sector are presented in Table 1.

TABLE 1: TELECOMMUNICATION INDUSTRY SERVICE QUALITY MODEL

No.	Author and year	Model used	Key findings
1	(Thapa & Yogi, 2024)	They measured the effect of service quality on customer satisfaction in Nepal's cellular phone business using the SERVPERF model.	According to the empirical findings, customer happiness and all five aspects of service quality were positively and significantly correlated.
2	(Shava, 2021)	Used SERVQUAL model to measure service quality in South Africa's mobile network telecommunication industry	The researcher states considering his results that the model is significantly better at predicting customer satisfaction.
3	(Hashem *et al.*, 2017)	employed the SERVPERF model to measure the impact of service quality on customer satisfaction in the Jordanian telecommunication industry.	Customers have positive attitudes towards the service quality level of companies as measured by the five dimensions of the SERVPREF scale.
4	(Surin *et al.*, 2024)	They have used SERVQUAL model to manifest nature of the relationship between service quality and customer satisfaction among mobile users of Malaysia.	Customer satisfaction has significant relationships with reliability and responsiveness, while it is not significantly related to tangibility, assurance and empathy.

5	(Shrestha, 2021)	They have utilised the SERVQUAL model to assess the impact of service quality dimensions on customer satisfaction and loyalty of NTC customers (Nepal).	According to the result of the research service quality dimensions explain nearly 75 per cent of customer satisfaction.
6	(Kumar, 2020)	They have make use of SERVQUAL model for measuring service quality to assess its impact on customer loyalty and evaluating the mediating rule of customer satisfaction in this relationship in Indian telecom industry.	Reliability and empathy has positive relationship with customer satisfaction. However, assurance, responsiveness and tangibility are insignificant in determining customer satisfaction.

Source: Table by Authors

This study used the SERVQUAL model because it has a Resilient and Well-Articulated Framework and has been cherished by researchers (Carman, 1990; Jonkisz *et al.*, 2021; Sibai *et al.*, 2021) for the same reason. However, some researchers have incorporated additional facets of service quality that can influence customer satisfaction besides the conventional SERVQUAL/SERVPERF dimensions. Table 2 displays most additional dimensions which were used to measure service quality as well in mobile telecommunication industry. According to (Al-Hashedi & Abkar, 2017) Network quality has been a widely used dimension in research papers. Therefore, we used network quality as a technical dimension and its influence on customer satisfaction was examined.

TABLE 2: DIMENSIONS OF SERVICE QUALITY

Author and year	Dimensions	Frequency
(Santouridis & Trivellas, 2010; Rahhal, 2015; Mfonte Colette, 2018; Masoud, 2020)	Network Quality	4
(Kim *et al.*, 2004; Rahhal, 2015)	Convenience	2
(Kim *et al.*, 2004; Santouridis & Trivellas, 2010)	Pricing structure	2
(Lu *et al.*, 2009; Zhao *et al.*, 2012)	Environment quality	2

Source: Table by Authors

This leads to the following hypotheses (based on the SERVQUAL model):

H_1: Customer satisfaction and service responsiveness in the telecom sector are significantly positively correlated;

H_2: Customer satisfaction and service dependability have a strong positive correlation in the telecom sector;

H_3: Customer happiness and service assurance are significantly positively correlated in the telecom sector;

H_4: Customer satisfaction in the telecom sector is significantly positively correlated with service tangibility;

H_5: Customer satisfaction and service empathy are significantly positively correlated in the telecom sector; and

H_6: In the telecommunications sector, network quality and customer happiness have a strong positive correlation.

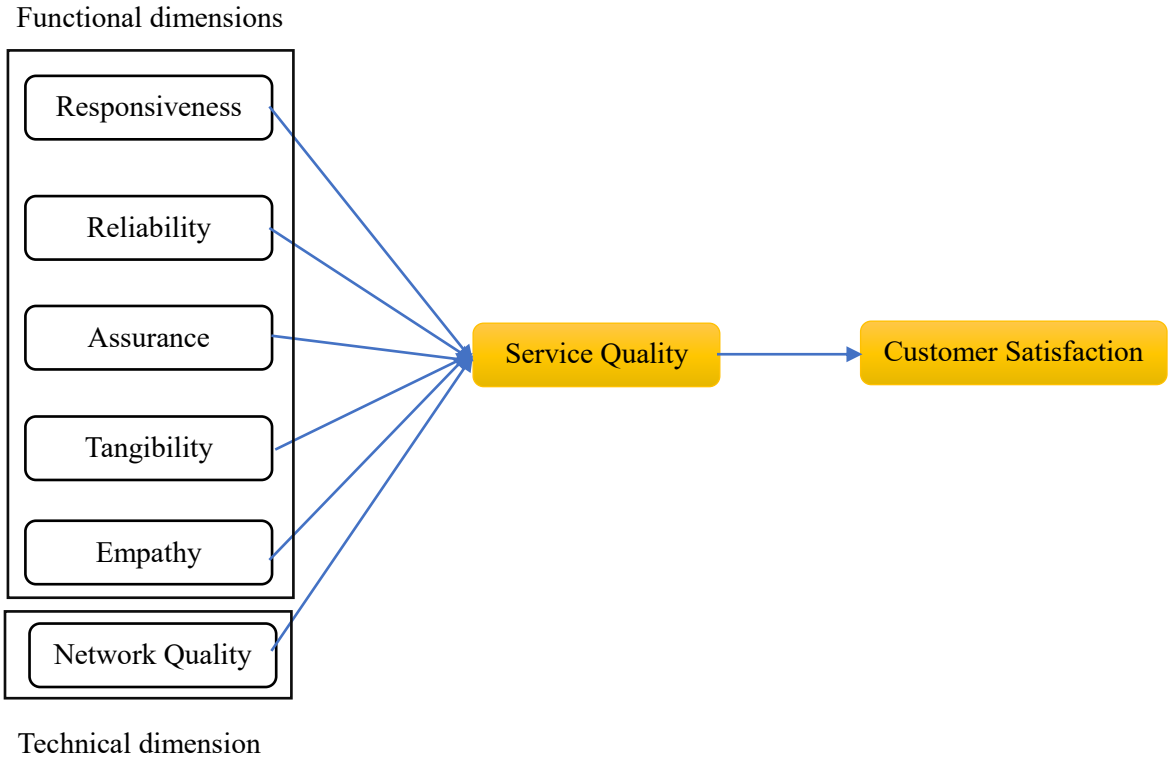

FIGURE 1: CONCEPTUAL FRAMEWORK
Source: Figure by Authors

3. RESEARCH METHODOLOGY

As service quality theory is examined in the telecommunication sector of the southwestern zone of Afghanistan, the study utilizes a deductive approach. According to Pandey (2019), the deductive approach includes beginning with a general theory or hypothesis and then performing research on a specific region to test a particular forecast originating from that theory. This study is based on quantitative research and the nature of this study is exploratory. According to Harrison and Reilly (2011), exploratory research design is a preliminary investigation method used to explore and understand a topic or phenomenon with unclear variables or relationships. The study concentrated on the residents who live inside the boundaries of the southwestern zone of Afghanistan containing six provinces such as Kandahar; Helmand; Uruzgan; Farah; Nemroz and Zabul. Owing to the lack of a comprehensive population frame of this zone and due to the unavailability of information on the number of active subscribers for each telecommunication company for this zone, the authors of this study utilized the convenience sampling technique as the best tool for collecting data from the sample as representative of the entire population. The convenience sampling technique is best known because it is expeditiously quick, economically beneficial, and easily obtainable, facilitating researchers to gather participants who are readily present (Sekaran & Bougie, 2016).

Based on Cochran's (1963) formula, 271 questionnaires were distributed to respondents through online and field surveys. 270 questionnaires were returned from respondents while one questionnaire was not returned.

$$n_0 = \frac{Z^2 pq}{e^2} = \frac{(1{,}645)^2\,(0{,}5)(0{,}5)}{0{,}05^2} = \frac{(2.706)(0.25)}{0{,}0025} = 271$$

The 5-scale Likert scale was used for all categories, with 1 denoting strongly disagree and 5 denoting strongly agree. The questionnaire was taken from (Parasuraman *et al.*, 1988; Negi, 2009; Rahhal, 2015; Surin *et al.*, 2024).

4. RESEARCH FINDINGS

Respondents Demographic Profile

In the descriptive analysis, male respondents comprised 84.4% while females made up 18.6%. The age groups were 80.7% (18-25), 12.2% (26-35), 4.1% (36-45) and 3.0% respondents were above 45 years. In this survey 43.3% of respondents held high school graduation certificates, 51.1% had bachelor's degrees, 4.1% had master's degrees, and 1.5% were PhD holders. Among the respondents 28.5% were associated with AWCC Telecommunication company, 19.3% respondents were attached with SALAM, 16.3% respondents were allied with ROSHAN, 13.0% respondents were associated with ETISALAT and 23.0% respondents were connected with MTN Telecommunication company. The respondents' demographic data is displayed in Table 3.

TABLE 3: DATA ON DEMOGRAPHY

Description	Frequency	Percentage (%)
Age group		
18 – 25	218	80.7
26 – 35	33	12.2
36 – 45	11	4.1
46 – upper	8	3.0
Gender		
Male	228	84.4
Female	42	15.6
Education level		
High school graduated	117	43.3
Bachelor	138	51.1
Master	11	4.1
PhD	4	1.5
Maternal status		
Single	202	74.8
Married	68	25.2
Service provider		
AWCC	77	28.5
SALAM	52	19.3
ROSHAN	44	16.3
ETISALAT	35	13.0
MTN	62	23.0

Source: Table by Authors

Reliability Test

According to (Kennedy, 2022) reliability manifests the extent to which the same results are acquired when measurement is again and again repeated under consistent circumstances. The scale's internal consistency is assessed using the Cronbach's alpha test. Every variable in this study's data has Cronbach's alpha values that are higher than the generally accepted value suggested by (Nunnally, 1978). Those reliability values for all variables are shown in Table 4 in which tangibility is (0.818), empathy (0.703), Network Quality (0.765), Reliability (0.758), Responsiveness (0.755), assurance (0.731), and customer satisfaction (0.955). Therefore, all variables are internally consistent and are valid for further analysis.

TABLE 4: RELIABILITY TEST

Variables	No. of items	Cronbach's Alpha
Tangibility	3	0.818
Network Quality	6	0.765
Reliability	3	0.758
Responsiveness	4	0.755
Assurance	3	0.731
Empathy	3	0.703
Customer Satisfaction	3	0.955

Source: Table by Authors

Normality Test

To test the normality of the data skewness and kurtosis will be used. According to Hatem *et al.* (2022), skewness and kurtosis are widely used techniques for measuring the normality of the data. For a normal distribution, According to Hair *et al*. (2015), the skewness value must fall within ±3.00 and ±5.00 standard errors of skewness and kurtosis, respectively. The kurtosis was (-0.264), and the skewness for assurance was (-0.860). Empathy's kurtosis was (-1) and its skewness was (0.321). Tangibility's skewness statistics were (-0.228), and its kurtosis was (-1.315). According to reliability statistics, kurtosis was (-1.265) and skewness was (-0.211). Skewedness and kurtosis values for network quality were - 0.133 and -1.071, respectively. The kurtosis was (- 0.990) and the skewness for responsiveness was (- 0.392). Lastly, the figures for kurtosis and skewness for customer satisfaction were -1.865 and 0.158, respectively. Thus, data is regularly distributed and suitable for additional analysis based on the information presented here. Kurtosis and skewness are shown in Table 5.

TABLE 5: NORMALITY TEST (SKEWNESS AND KURTOSIS)

Variables	Skewness		Kurtosis	
	Statistics	Standard error	Statistics	Standard error
Assurance	-.860	.148	-.264	.295
Empathy	.321	.148	-1	.295
Tangibility	-.228	.148	-1.315	.295
Reliability	-.211	.148	-1.265	.295
Network Quality	-.133	.148	-1.071	.295
Responsiveness	-.392	.148	-.990	.295
Customer Satisfaction	.158	.148	-1.865	.295

Source: Table by Authors

According to Gan *et al*. (2011), factor analysis is a "multivariate statistical technique whose main aim is to identify a structure within a collection of observed variables." This technique addresses all variables due to their interconnection (William *et al.,* 2010). Additionally, Stewart (1981) states that factor analysis has three functions:

1. To reduce the number of variables while increasing the amount of variable information;
2. When the sample size is big, differentiate between qualitative and quantitative data; and
3. Differentiating elements should be used to evaluate the hypothesis.

The various forms of factor analysis employed in the study are covered in the parts that follow, including factor rotation, reliability standards and factor analysis interpretation.

Types of Factor Analysis

Exploratory factor analysis and confirmatory factor analysis are two methods for extracting components from data (Stewart, 1981). The researcher, however, uses exploratory factor analysis in this study (EFA). There are numerous factor analysis methods, and the best model to choose depends on the study's goals and the amount of variation in the variables. The study employs EFA because the research method is deductive, with the researcher moving from theory to empirical investigation. EFA may be used to investigate factor structure from an observed variable, according to William *et al*. (2010), and EFA is split into two methods: component analysis and standard factor analysis. When a study's variables include some latent variables, standard factor analysis (CFA) is used to uncover a hidden connection, while principal components analysis (PCA) is utilised for both observable and latent variables; thus, it is widely used and accepted (William et al., 2010). The variances or correlations of variables were also accounted for using the same PCA method in this research.

Varimax Rotation

This method is the most popular and often-used rotation criterion was developed by Kaiser in 1958 (William *et al*., 2010). It maximizes the variance of the squared loadings of a factor (column) on all the variables (rows) in a factor matrix and allows differentiation of the original variables by an extracted factor. The result is typically not up to par as a result. Only a few variables are reflected in each component, and one or a small number of them are connected to the original variable (Gan *et al.*, 2011).

Assessing Factor Analysis Significance

According to Gan *et al*. (2011), factor loading represents the correlation coefficient between factors and variables, while William *et al*. (2010) stated that factor loading is crucial for the interpretation of factor analysis. However, sample size may influence the significance of factor loadings (see Table 6 below).

TABLE 6: FACTOR LOADING AND SAMPLE SIZE

Factor loading	Required sample size for significance
0.30	350
0.35	250
0.40	200
0.45	150
0.50	120
0.55	100
0.60	85
0.65	70
0.70	60
0.75	50

Source: William *et al*. (2010)

EFA (Exploratory Factor Analysis):

The primary goal of EFA is to simplify the data to a concise set of factors based on their robust correlations (Hair *et al.*, 2015). This study used the principle components analysis (PCA) method in the exploratory factor analysis to extract the number of underlying factors or dimensions. In this study, the minimum Kaiser-Meyer-Olkin (KMO) value was 0.862 for the factor of relative advantage and the significance value of Bartlett's Test of Sphericity was 0.000, indicating that the present data is suitable for principal component analysis Table 7. When the results of both (KMO) and (Bartlett's test of Sphericity) are significant, data is considered appropriate for factor analysis regarding sample adequacy (Hair *et al.*, 2015). Factor loading with a value above 0.5 is considered significant (Al-Hashedi & Abkar, 2017). Based on the EFA, all factors had factor loading above (0.5), which meets the requirement. The overall results of EFA indicate that 6 factors comprising 25 items are restricted and will be used for further analysis. The rotated component matrix statistics are shown in Table 8.

TABLE 7: BARTLETT'S AND KMO'S TEST

KMO and Bartlett's Test		
Kaiser Meyer Olkin Measure of Sampling Adequacy		.846
Bartlett Test of Sphericity	Approx. Chi-Square	1943.252
	df	231
	Sig.	.000

Source: Table by Authors

TABLE 8: ROTATED COMPONENT MATRIX

	Component					
	1	2	3	4	5	6
N1	.736					
N2	.662					
N3	.645					
N4	.651					
N5	.661					
N6	.518					
T1		.843				
T2		.837				
T3		.798				
Res1			.541			
Res2			.693			
Res3			.748			
Res4			.756			
A1				.742		
A2				.826		
A3				.715		
E1					.745	
E2					.776	
E3					.735	
Rel1						.779
Rel2						.670
Rel3						.600

Source: Table by Authors

CFA (Confirmatory factor analysis):

CFA evaluates a measurement model's suitability and, in the process, verifies that the model fits the data by looking at four fit indices: chi-square statistic, normed chi-square, root mean square approximation (RMSEA) and comparative fit index (CFI). The reason behind CFA is to evaluate the validity of the suggested factor structure and how well the data fit the model are the two main objectives of CFA (Marsh *et al*., 2020). For model fit adequacy, general guidelines indicate cut-off values for such indices: Normed Chi-Square and RMSEA should be less than 5 and 0.088 respectively, while CFI values should exceed 0.9 (Byrne, 2010). Figure 2 shows the CFAs results for six constructs (independent variables), namely; assurance, tangibility, network quality, empathy, reliability and responsiveness which are undertaken in this study. In addition, none of the factors had a factor loading less than 0.53 to be able to be excluded from the data. Therefore, the measurement of the structural model exhibited strong satisfactory goodness-of-fit with relative chi-square value CMIN/df of 1.523, CFI 0.943, NFI 0.853, and RMSEA of 0.044, as shown in Table 9. The full structural model summary indicated the existence of absolute fit.

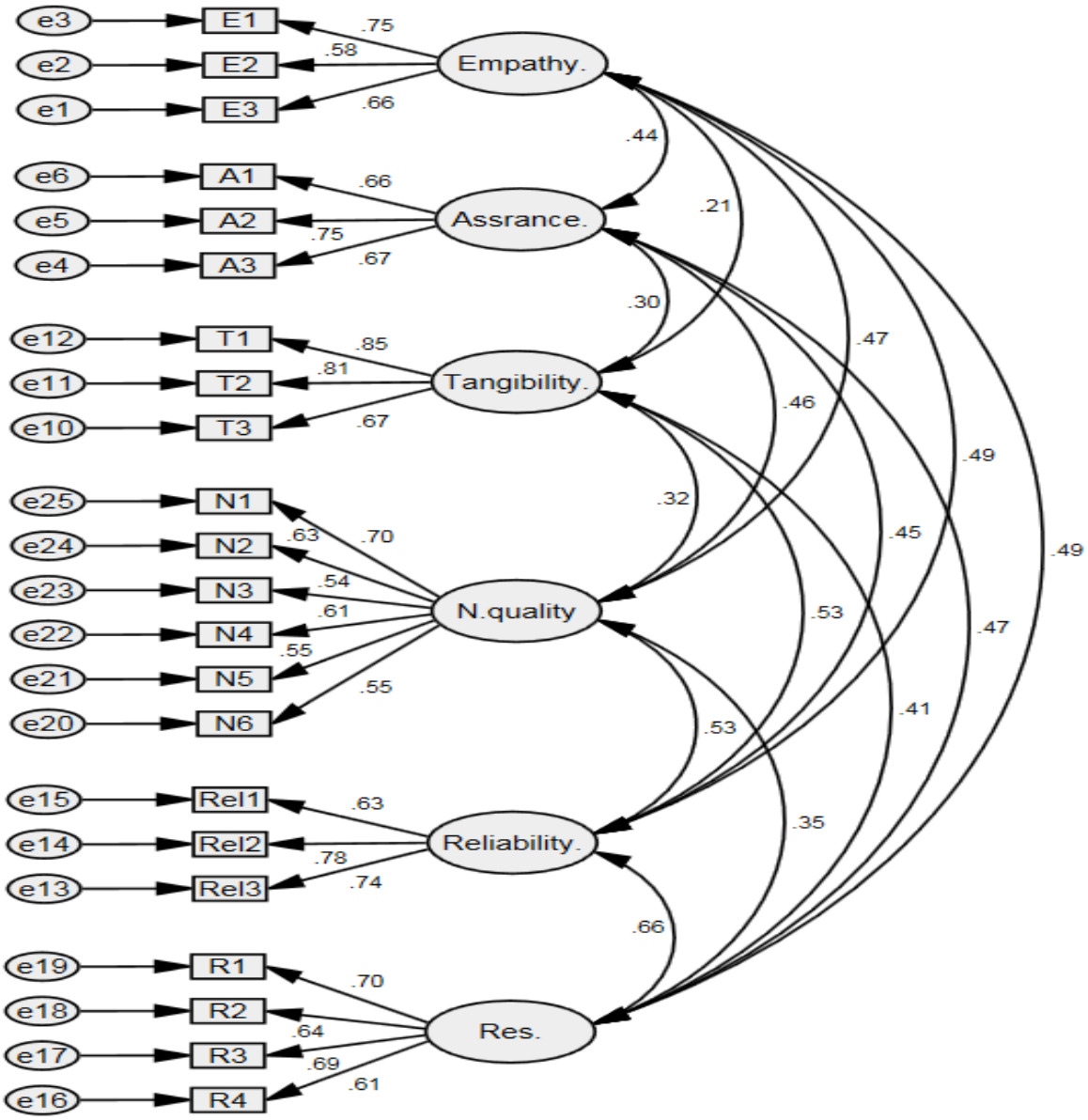

FIGURE 2: MEASUREMENT MODEL ANALYSIS
Source: Figure by Authors

TABLE 9: GOODNESS OF FITNESS OF THE MODEL

Types of measures	Fit index	Acceptable value	Observed value
Absolute fit index	Normed Chi-Squared (CMIN/df)	≤ 3	1.523
To Examine the level of effectiveness of the Model Reproduce Data	RMSEA	≤ 0.08	0.044
Incremental Fit Index	Normed Fit Index (NFI)	≥ 0.9	0.853
Modal Fit to relative Baseline Modal	Modal Comparative Fit Index (CFI)	≥ 0.9	0.943

Source: Table by Authors

The primary feature of tangibility, according to the results of confirmatory factor analysis using structural equation modelling, is being well-groomed and tidy (0.852), whereas the primary dimension of dependability is that services are delivered on time (0.779). Additionally, the primary component of assurance is the amiable conduct of service providers (0.754), and the primary dimension of responsiveness is the ease of access to information about services (0.698). Furthermore, the speed at which data is downloaded from the internet is the primary indicator of network quality (0.701). Lastly, giving each consumer special attention is the primary aspect of empathy (0.753). Table 10 shows that all relevant dimensions have an alpha of 1% on each variable.

TABLE 10: RESULTS OF REGRESSION WEIGHTS

Path			Unstandardized estimates	Standardized estimates	S.E.	C.R.	P
Emp_q3	<---	Empathy	1.000	.655	CP		***
Emp_q2	<---	Empathy	.841	.584	.115	7.292	***
Emp_q1	<---	Empathy	1.161	.753	.144	8.065	***
Ass_a3	<---	Assurance	1.000	.670	CP		***
Ass_q2	<---	Assurance	1.138	.754	.132	8.620	***
Ass_q1	<---	Assurance	.925	.659	.113	8.223	***
Tan_q3	<---	Tangibility	1.000	.670	CP		***
Tan_q2	<---	Tangibility	1.132	.808	.106	10.727	***
Tan_q1	<---	Tangibility	1.280	.852	.118	10.834	***
Rel_q3	<---	Reliability	1.000	.745	CP		***
Rel_q2	<---	Reliability	1.023	.779	.094	10.899	***
Rel_q1	<---	Reliability	.862	.630	.094	9.212	***
Res_q4	<---	Responsiveness	1.000	.605	CP		***
Res_q3	<---	Responsiveness	1.155	.687	.141	8.194	***
Res_q2	<---	Responsiveness	.991	.644	.126	7.870	***
Res_q1	<---	Responsiveness	1.265	.698	.153	8.266	***
N.Q_q6	<---	Network quality	1.000	.548	CP		***
N.Q_q5	<---	Network quality	.834	.546	.126	6.603	***
N.Q_q4	<---	Network quality	.948	.606	.134	7.057	***
N.Q_q3	<---	Network quality	.921	.544	.140	6.586	***
N.Q_q2	<---	Network quality	1.061	.634	.146	7.253	***
N.Q_q1	<---	Network quality	1.202	.701	.157	7.653	***

**** Significant at alpha 1%, S.E.: Standard Error, C.R.: Critical Ratio, CP: Constant Parameter.*

Source: Table by Authors

Figure 3 below illustrates how each hidden variable—customer satisfaction and service quality—relates to the others. Overall indices show that this sample fits the model well; its CMIN/DF value is 1.478, its CFI value is 0.957, its RMSEA is 0.042, and its NFI value is 0.879. Confirmatory factor analysis was used in the study to gauge the degree and directness of a linear relationship between two variables. Table 11's correlation analysis shows that the dependent and independent variables have a positive relationship, with empathy and dependability showing the strongest link. All of the independent variable's dimensions also show positive correlations with one another. According to the results of this research, the lowest correlation is usually with reliability, as shown in Table 11.

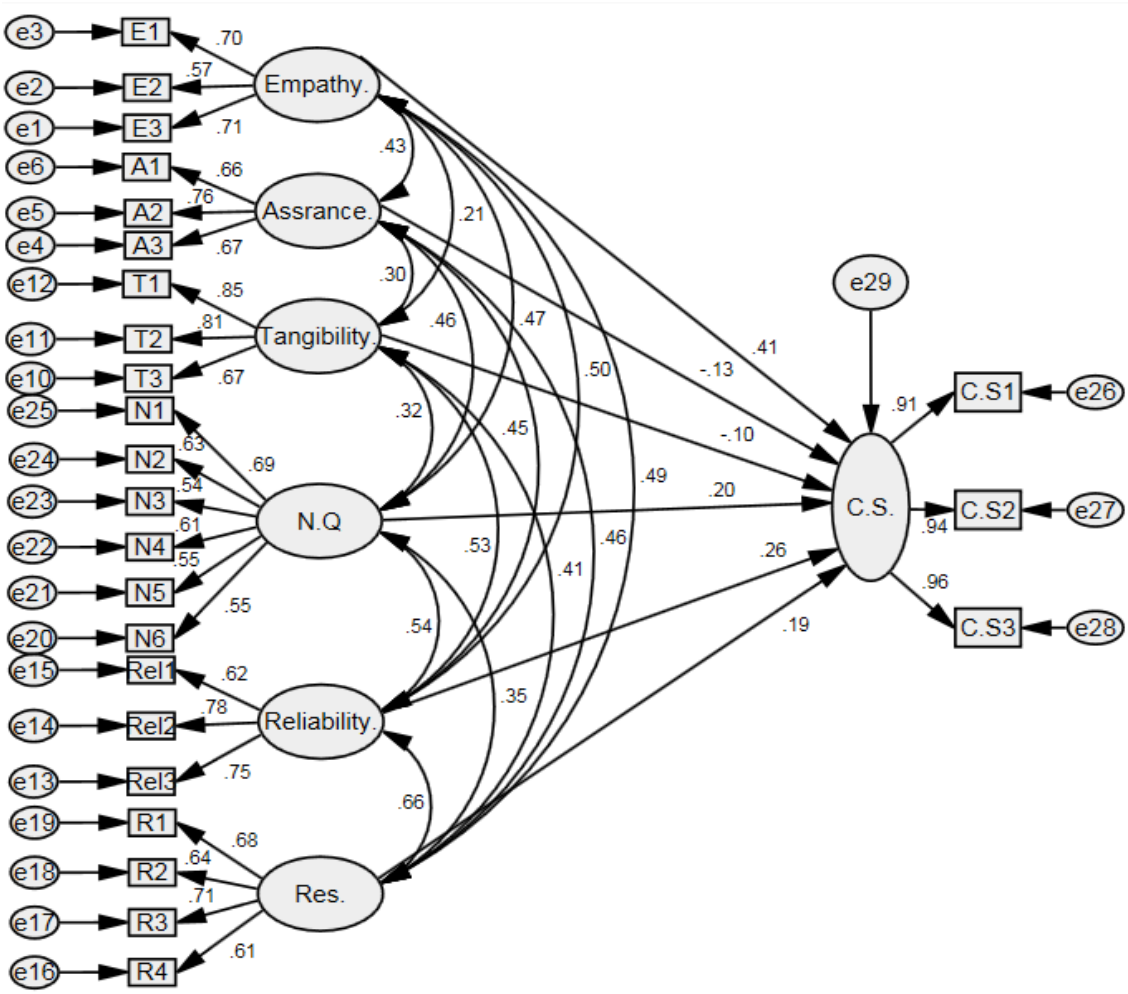

FIGURE 3: FULL BASELINE MODEL ANALYSIS
Source: Figure by Authors

TABLE 11: CORRELATIONS

Variables	C.Satisfaction	N.Quality	Responsiveness	Reliability	Tangibility	Assurance	Empathy
C. Satisfaction	1						
N.Quality	.503	1					
Responsiveness	.527	.353	1				
Reliability	.578	.535	.659	1			
Tangibility	.221	.321	.410	.527	1		
Assurance	.314	.459	.463	.453	.299	1	

Empathy	.646	.471	.491	.496	.210	.433	1

Source: Table by Authors

TABLE 12: REGRESSION WEIGHTS

Path	Unstandardized estimate	Standardized estimate	S.E.	C.R.	*p*-value
C.Satisfaction <--- Responsiveness	.321	.189	.159	2.015	0.044
C.Satisfaction <--- Reliability	.346	.257	.143	2.420	0.016
C.Satisfaction <--- Network quality	.333	.198	.135	2.461	0.014
C.Satisfaction <--- Empathy	.532	.409	.113	4.698	***
C.Satisfaction <--- Tangibility	-.152	-.103	.099	-1.538	0.124
C.Satisfaction <--- Assurance	-.203	-.127	.120	-1.689	0.091

Source: Table by Authors

TABLE 13: COMPARING CUSTOMER SATISFACTION FROM COMPANIES (MEAN AND STANDARD DEVIATION)

Service provider	N	Mean	Std. deviation	Minimum	Maximum
AWCC	77	2.5065	1.37714	1.00	5.00
SALAM	52	3.0385	1.49604	1.00	5.00
ETISALAT	35	2.9714	1.48933	1.33	4.67
ROSHAN	44	3.4318	1.35749	1.33	4.67
MTN	62	2.5806on	1.38813	1.00	4.67
Total	270	2.8370	1.44448	1.00	5.00

Source: Table by Authors

The study uses confirmatory factor analysis (CFA) to assess the impact of service quality dimensions on customer satisfaction in the telecommunication industry of the southwestern zone of Afghanistan. Therefore, according to the results shown in Table xi, the following four continuous variables out of the six independent variables significantly contribute to the dependent variable: Empathy (β=0.409, $p < 0.05$), Reliability (β=0.257, $p < 0.05$), Network quality (β=0.198, $p < 0.05$) and Responsiveness (β=0.189, $p < 0.05$). However, assurance (β= - 0.127, $p > 0.05$) and tangibility (β=0.103, $p > 0.05$) do not significant positive influence on customer satisfaction in this industry. Hence, H_1, H_2, H_5 and H_6 were accepted while H_3 and H_4 were rejected, shown in Table 12. Mean and standard deviation statistical methods were used for comparing telecommunicating service-providing companies taking into account customer satisfaction in the context of the telecommunication industry of the southwestern zone of Afghanistan. According to the results, the aggregate variance is very small and all means are in moderate values which means that the customers are not satisfied with the service provided by these companies. The lowest level of customer satisfaction is from AWCC with a mean value of 2.5065 and a standard deviation of 1.37714 and customers are relatively highly satisfied with the service provided by ROSHAN with having mean value of 3.4318 and a standard deviation of 1.35749, shown in Table 13.

5. DISCUSSION

In the telecommunications sector in the southwestern region of Afghanistan, this study highlights the complex relationship between customer satisfaction and elements of service quality. Important elements like responsiveness, empathy, network quality, and reliability were found to have a significant impact on customer satisfaction; empathy and network quality were found to be especially significant. According to these findings, customers in this region place a high priority on personalized service and reliable network performance, which is indicative of specific regional goals. The inclusion of network quality as a new dimension emphasizes the SERVQUAL model's flexibility and relevance to the telecom industry. It's

noteworthy that assurance and tangibility have minimal effects on customer satisfaction, indicating that resources would be better spent on the things that matter most to consumers. This study provides managers and policymakers with useful insights into how targeted improvements in service quality can increase customer satisfaction and foster long-term loyalty.

6. RESEARCH IMPLICATIONS

Practical Implication

This study offers novel insights into the topic of customer satisfaction and service quality in the telecommunications industry in southwest Afghanistan, which has received less attention than in other regions. This study addresses a significant vacuum in the literature by looking at particular aspects of service quality, including network quality, responsiveness, assurance, reliability, empathy, and tangibility. The study's findings have important ramifications for both academic researchers and industry stakeholders since this study expands on our knowledge of how various aspects of service quality affect consumer satisfaction in developing countries. Additionally, the methodological approach utilized in this study can be copied and modified for use in other regions or industries. The study's narrow emphasis on a particular business and regional context also makes it possible to acquire detailed information that can guide focused tactics for raising customer happiness and improving services in the telecom sector.

Theoretical Implication

The study demonstrated the significance of aspects of service quality and how they affect client happiness. In light of the aspects of service quality, the study's researchers have made the following suggestions for these companies' management authorities. According to the findings, the biggest factor influencing customer satisfaction is empathy. Telecommunications firms should make sure that their staff members give consumers individualized attention, pay close attention to their requests and grievances, and understand their specific needs to increase empathy. This personalized method will noticeably refine customer satisfaction. Secondly, to enhance reliability, telecommunication companies must focus on regularly providing dependable services, upholding accurate records and meeting commitments made to customers promptly. These endeavours will improve customer satisfaction. Third, in the context of network quality, companies in this sector should concentrate on improving downloading speed from the internet, while also covering all parts of the city including suburbs with their services. Keeping going with excellent voice quality and reducing disturbances will significantly improve user experience. Fortifying network signals in metropolitan areas, especially inside buildings and basements, is critical for steady service quality. Additionally, endeavours should be made to ensure calls connect on the first attempt and SMS services are fast and reliable. Finally, in the part of responsiveness, telecommunication companies should ensure customer service staff are knowledgeable, the service provider communicates when services will be performed and employees respond promptly to customer requests despite their workload. These improvements will significantly boost customer satisfaction.

Methodological Implication

By using a well-organized quantitative technique to evaluate the effects of different service quality parameters on customer satisfaction in the telecommunications industry of Southwestern Afghanistan, this study makes important methodological advances. Through the use of convenience sampling as a key data collection strategy, we were able to gather distinctive local insights that help us comprehend how consumers perceive products in developing nations. By adding technical elements pertinent to the telecom industry, the SERVQUAL model's application, in conjunction with an extra network quality component, enhances conventional service quality frameworks. The reliability and validity of the constructs were thoroughly examined by using the strong analytical technique, which combines exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) inside a structural equation modelling (SEM) framework. Furthermore, the study's application of Cochran's sampling formula guarantees a statistically suitable sample size, improving the findings' generalisability. For future research in comparable emerging

market situations, the methodology used in this study can be replicated, especially in industries where customer satisfaction and retention are directly correlated with service quality.

7. CONCLUSION AND FUTURE STUDIES

The study's primary goal was to determine how aspects of service quality affected customer satisfaction in the southwest region of Afghanistan's telecom sector. The SERVQUAL model's five dimensions were used to measure the sector's service quality, together with network quality as a technical dimension. The researchers modified the questionnaire and disseminated it via online and in-person surveys. A total of 270 respondents provided the information. Additionally, statistical techniques were used to analyze the data. Furthermore, the study demonstrated how each aspect of service quality contributes to the prediction of overall customer happiness. The results of the data demonstrated that empathy, responsiveness, reliability, and network quality have significant effects on customer satisfaction in this sector. Nonetheless, the study made clear that tangibility and assurance had no appreciable beneficial effects on this industry's consumer happiness. Accordingly, this study concluded that the SERVQUAL model can be used to gauge service quality in the southwestern region of Afghanistan's telecommunications industry. By identifying the main factors influencing customer happiness, the study's findings provide helpful guidance for telecom providers operating in Afghanistan's southwest region. The study's findings showed that empathy was the most significant factor, meaning that consumers were more sensitive to behavioural problems with perceived service than to any other factor.

This study has several limitations that may impact its generalisability and depth. First, the use of convenience sampling, while practical, may limit the extent to which findings apply to a broader population. Additionally, the study focuses specifically on the telecommunication sector within Southwestern Afghanistan, which may reduce the applicability of results to other regions or industries with different economic and cultural characteristics. The reliance solely on quantitative analysis also presents a limitation, as it may not capture the full complexity of customer perceptions that qualitative methods could reveal. Lastly, the use of cross-sectional data provides a snapshot at a single point in time, which may not account for changes in customer satisfaction as the telecommunications sector and customer expectations evolve.

To address these limitations, future research could enhance generalisability by using random sampling methods or drawing from larger, more diverse samples. Expanding the framework to include other regions or sectors would also allow for comparative studies, offering broader insights into service quality dimensions. Integrating qualitative methods, such as interviews or focus groups, could provide richer, more nuanced data, complementing quantitative findings and deepening understanding of customer expectations. Finally, longitudinal studies could be employed to observe changes in customer satisfaction over time, particularly as the telecommunication sector adapts to technological advancements and shifting regulatory landscapes.

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REFERENCES

Al-Hashedi, A. H. & Abkar, S. A. (2017). The impact of service quality dimensions on customer satisfaction in telecom mobile companies in Yemen. *American Journal of Economics*, *7*(4), 186–193.

Albarq, A. N. (2024). Mobile services sector in Saudi Arabia: a systematic literature review of the effective strategies for enhancing customer satisfaction. *International Journal of Data and Network Science*, *8*(1), 585–596.

Arslan, M., Iftikhar, M. & Zaman, R. (2014). Effect of service quality dimensions on customer satisfaction: a comparative analysis of Pakistan telecom sector. *SSRN Electronic Journal*, *3*(6), 43–62.

ATRA. (2023). Afghanistan telecom regulatory authority. Available at: https://atra.gov.af/. (Accessed 24/June/2024)

Azizi, S. (2022). A national governance approach to the political nature and role of business: a case study of the mobile telecommunications industry in Afghanistan. *Journal of Business Ethics*, *177*(4), 843-860.

Carman, J. M. (1990). Consumer perceptions of service quality: an assessment of the SERVQUAL. *Journal of Retailing*, *66*(1), 33-35.

Cochran, W.G. (1963). *Sampling Techniques*, 2nd ed., New York: John Wiley and Sons, Inc.

Drew R. L. & Karwan, K. R. (1994). Prioritizing the dimensions of service quality: an empirical investigation and strategic assessment. *International Journal of Service Industry Management*, *5*(4), 39–52.

Dutta, S., Chauhan, R. K. & Chauhan, K. (2017). Factors affecting customer satisfaction of Sabyasachi Dutta. *Tourism and Hospitality Management*, *23*(2), 267–277.

Fitzsimmons, J. A. & Fitzsimmons, M. J. (2001). *Service Management: Operations, Strategy, Information Technology with Student CD*. New York: McGraw-Hill Education.

Gan, C., Clemes, M., Wei, J. & Kao, B. (2011). An empirical analysis of New Zealand bank customers' satisfaction. *Banks and Bank Systems*, *6*(3), 16–24.

Gegeckaite, L. (2011). Factors of customer satisfaction on services. *Global Academic Society Journal: Social Science Insight*, 4(12), 4–13.

Hair, F. J., Black, C. W., Babin, J. B. & Anderson, E. R. (2015). Multivariate data analysis: A global perspective *(7th ed.)*. New Jersey: Pearson Prentice Hall.

Harrison, R. L., & Reilly, T. M. (2011). Mixed methods designs in marketing research. *Qualitative Market Research: An International Journal*, *14*(1), 7–26.

Hashem, T., Hamdan, F. I. & Hashem, T. N. (2017). Measuring service quality level in the Jordanian telecommunication sector from its customers' perspective using the Servperf Scale. *European Journal of Business and Social Sciences*, *5*(12), 15–27.

Hatem, G., Zeidan, J., Goossens, M. & Moreira, C. (2022). Normality testing methods and the importance of skewness and kurtosis in statistical analysis. *BAU Journal - Science and Technology*, *3*(2), 1-5.

Johnston, R. (1997). Identifying the critical determinants of service quality in retail banking: importance and effect. *International Journal of Bank Marketing*, *15*(4), 111–116.

Jonkisz, A., Karniej, P. & Krasowska, D. (2021). SERVQUAL method as an "old new" tool for improving the quality of medical services: A literature review. *International Journal of Environmental Research and Public Health*, *18*(20), 10758.

Cronin Jr, J. J., & Taylor, S. A. (1992). Measuring service quality: a reexamination and extension. *Journal of Marketing*, *56*(3), 55-68.

Kennedy, I. (2022). Sample size determination in test-retest and Cronbach's alpha reliability estimates. *British Journal of Contemporary Education*, *2*(1), 17–29.

Khan, M. & Meel, P. (2019). Corporate social responsibility and competitive advantage of private telecom sector in Afghanistan. *Think India Journal*, 22(15), 1–16.

Kim, M. K., Park, M. C. & Jeong, D. H. (2004). The effects of customer satisfaction and switching barrier on customer loyalty in Korean mobile telecommunication services. *Telecommunications Policy*, *28*(2), 145–159.

Kristiawan, Y. & Suharjo, B. (2021). Customer satisfaction on service quality or product quality : a case study at fast food restaurant in Jabodetabek. *Binus Business Review***,** *12*(7), 165–176.

Kumar, A. (2020). Effect of service quality on customer loyalty and the mediating role of customer satisfaction: An empirical investigation for the telecom service industry. *Journal of Management Research and Analysis*, *5*(1), 34–41.

Lekobane, K. R. & Selelo, G. B. (2017). Effects of service quality on customers satisfaction on Botswana's mobile telecommunications industry. *Archives of Business Research*, *5*(3), 212–228.

Lo, L. K, Osman, M. T. & Ramayah, R.M. (1999). The impact of service quality on customer loyalty: a study of banks in Penang, Malaysia. *Journal of the Indian Medical Association*, *97*(6), 244–245.

Lu, Y., Zhang, L. & Wang, B. (2009). A multidimensional and hierarchical model of mobile service quality. *Electronic Commerce Research and Applications*, *8*(5), 228–240.

Lukman, L., Sujianto, A., Waluyo, A. & Yahya, M. (2021). Service quality and consumer satisfaction: an empirical study in Indonesia. *The Journal of Asian Finance, Economics and Business*, *8*(5), 971–977.

Masoud, E.Y. (2020). The effect of service quality on customers' satisfaction in mobile phone services in the UAE. *Transnational Marketing Journal*, *8*(1), 75–94.

MCIT. (2020). Achievements of Ministry of Communications and Information Technology. Available at: https://mcit.gov.af/en/node/6922. (Accessed 30 June 2024).

Mfonte, K., & Colette, S. (2018). The effect of mobile service quality dimension on customer satisfaction in Cameroon: a structural equation model. *International Journal of Business Marketing and Management*, *3*(3), 2456–4559.

Negi, R. (2009). Determining customer satisfaction through perceived service quality: a study of Ethiopian mobile users. *International Journal of Mobile Marketing*, *4*(1), 31–38.

Nunnally, J. C. (1978). *Psychometric Theory (2nd ed.).* New York: McGraw.

Omoregie, O. K., Addae, J. A., Coffie, S., Ampong, G. O. A. & Ofori, K. S. (2019). Factors influencing consumer loyalty: evidence from the Ghanaian retail banking industry. *International Journal of Bank Marketing*, *37*(3), 798–820.

Ozoh, M. A. (2023). Service quality dimensions and customer satisfaction in the telecommunication industry in South-East, Nigeria. *International Journal of Innovative Social Sciences & Humanities Research*, *11*(1), 59–76.

Pandey, J. (2019). Deductive approach to content analysis in Qualitative techniques for workplace data analysis. Pennsylvania: IGI Global.

Parasuraman, A., Zeithaml, V. A. & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, *49*(4), 41-50.

Parasuraman, A., Zeithaml, V. A. & Berry, L. L. (1988). SERVQUAL: a multiple-item scale for measuring consumer perceptions. *Journal of Retailing*, *16*(1), 12- 40.

Rahhal, W. (2015). The effects of service quality dimensions on customer satisfaction: an empirical investigation in Syrian Mobile Telecommunication Services. *International Journal of Business and Management Invention ISSN Online*, *4*(5), 2319–8028.

Santouridis, I. & Trivellas, P. (2010). Investigating the impact of service quality and customer satisfaction on customer loyalty in mobile telephony in Greece. *The TQM Journal*, *22*(3), 330–343.

Sekaran, U. & Bougie, R. (2016). *Research Methods for Business: A Skill Building Approach*. New Jersey: John Wiley & Sons.

Sevilla, N. B. R., & Ellaga, J. P. A. (2020). Operations Management Practices of Printing Press in Region IV-A: A Framework for Sustainable Strategic Operations. *Journal of Business and Management Studies*, *2*(3), 70-80.

Shava, H. (2021). The relationship between service quality and customer satisfaction in the South African mobile network telecommunications industry. *Journal of International Studies*, *14*(2), 70–83.

Shi, Z. & Shang, H. (2020). A review on quality of service and SERVQUAL model in *HCI in Business, Government and Organizations: 7th International Conference, HCIBGO 2020, Held as Part of the 22nd HCI International Conference, HCII 2020, Copenhagen, Denmark, July 19–24, 2020, Proceedings 22*. Springer, 188–204.

Shrestha, P. M. (2021). Impact of service quality on customer satisfaction and loyalty. *Management Dynamics*, *24*(2), 71–80.

Shrestha, R. & Bahadhur Ale, D. B. (2020). The study of service quality and its relationship to customer satisfaction of Nepal Telecom (NT) in Nepal. *International Journal of Advances in Scientific Research and Engineering*, *5*(12), 112–121.

Sibai, M. T., BayJr, B. & Rosa, R. dela (2021). Service quality and student satisfaction using the ServQual model: a study of a private medical college in Saudi Arabia. *International Education Studies*, *14*(6), 51-58.

Surin, E. F., Edward, O. T., Zuhir, N. N., Abu, A. K., Ashaari, N. W. & Shuib, H. M. (2024). The nature of the relationship between service quality and customer satisfaction among mobile users: Experience from Malaysia. *Information Management and Business Review, 1*(1), 4–6.

Thapa, M. & Yogi, P. N. (2024). Service quality and customer satisfaction concerning the cellular phone industry of Nepal. *The Batuk*, *10*(1), 39–54.

Wang, I. M. & Shieh, C.J. (2006). The relationship between service quality and customer satisfaction: the example of CJCU library. *Journal of Information and Optimization Sciences*, *27*(1), 193–209.

Wang, Y., Luor, T., Luarn, P. & Lu, H. (2015). Contribution and trend to quality research—a literature review of SERVQUAL model from 1998 to 2013. *Informatica Economica*, *19*(1/2015), 34–45.

William, C. B., Joseph, F., Hair, Jr, Barry, J. & Babin R.E.A. (2010). *Multivariate Data Analysis.* London: Prentice Hall.

Zhao, L. Lu. Y., Zhang, L. & Chau, P. Y. K. (2012). Assessing the effects of service quality and justice on customer satisfaction and the continuance intention of mobile value-added services: An empirical test of a multidimensional model. *Decision Support Systems*, *52*(3), 645–656.