IJBES
Business Ecosystem & Strategy

Business Ecosystem & Strategy

IJBES VOL 7 NO 6 (2025) ISSN: 2687-2293

Available online at www.bussecon.com
Journal homepage: https://www.bussecon.com/ojs/index.php/ijbes

Effects of customer support on service quality and customer satisfaction in the automobile industry

Siyamtanda Kasibe [(a)] *Arthur Mapanga* [(b)*] *Mvuyisi Mabungela* [(c)]

[(a)] *MCOM Student, Department of Economics and Business Management, Walter Sisulu University Private Bag X1, UNITRA, 5117, South Africa.*
[(b)] *Senior Lecturer, Department of Management, Walter Sisulu University, Butterworth Campus, N2 Butterworth, South Africa.*
[(c)] *Senior Lecturer, Department of Industrial Psychology, Walter Sisulu University, Private Bag X1, UNITRA, 5117, South Africa.*

ARTICLE INFO

Article history:

Received 23 June 2025
Received in rev. form 29 August 2025
Accepted 16 September 2025

Keywords:

Customer support, service quality, customer satisfaction, customer loyalty, automobile industry, South Africa.

JEL Classification:
L62, M31, L84

ABSTRACT

Customer satisfaction is a key driver of competitive advantage in the automobile industry. Understanding how customer support influences perceived service quality becomes increasingly important as service expectations rise. This study investigates the role of customer support in shaping service quality perceptions and its impact on overall satisfaction. A quantitative survey of 504 customers across various industries assessed perceptions of service quality, support effectiveness, and satisfaction levels. Results show that customer support significantly strengthens the relationship between service quality and satisfaction. Customers receiving higher levels of support reported greater satisfaction. These findings highlight the need for organisations to deliver high-quality services and invest in robust support systems. The study offers empirical evidence and practical insights for adopting a customer-centric approach to enhance loyalty and sustain market competitiveness.

© 2025 by the authors. Licensee Bussecon International, Istanbul, Turkey. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution 4.0 International license (CC BY) (http://creativecommons.org/licenses/by/4.0/).

Introduction

In a volatile, uncertain, complex, and ambiguous (VUCA) business environment, the quality of service and customer satisfaction are pivotal to organisational success. This aspect is particularly pertinent in the South African automotive industry, where sustaining a competitive advantage is contingent on delivering exceptional customer experiences (Ikome & Laseinde, 2020). Service quality is formally defined as the extent to which a service meets or exceeds customer expectations (Zygiaris et al., 2022). It encompasses tangibles, reliability, responsiveness, assurance, and empathy. Customer satisfaction pertains to the overall evaluation of the service experience and its efficacy in fulfilling customer needs and expectations (Baquero, 2023). The significance of service quality and customer satisfaction is widely acknowledged across various service sectors, including South African mobile network telecommunications (Shava, 2021), highlighting their broad applicability. Thus, given the substantial contribution of the automotive sector to South Africa's GDP (Ikome & Laseinde, 2020; Inyang et al., 2023), a nuanced understanding of the relationship between service quality and customer satisfaction is imperative to navigate contemporary market complexities.

Numerous studies have demonstrated that high-quality service is positively correlated with customer satisfaction and loyalty (Allam et al., 2022; Bambang Suwarno, 2021; Budianto, 2019; Doriza, 2019; Hussain et al., 2024; Khan et al., 2023; Mosahab et al., 2010). However, the specific role of customer support in this relationship remains unclear. This role represents a significant gap in the literature, particularly in the South African automotive industry, where research is sparse (Jain et al., 2019; Mhlongo & Msosa, 2023; Terblanche, 2006). Many studies have overlooked the impact of customer support, such as pre- and post-purchase assistance, on service quality and customer satisfaction (Sheth et al., 2020, 2024, 2023; Siddiqi et al., 2024). Given the distinctive characteristics of the South African market (Ikome & Laseinde, 2020; Sharma & Naude, 2021), there is a need for research that considers local nuances and the potential influence of customer support. Therefore, this study examines the effect of customer support on the

* *Corresponding author. ORCID ID: 0000-0001-9115-7000*
© 2025 by the authors. Hosting by Bussecon International Academy. Peer review under responsibility of Bussecon International Academy.
http://dx.doi.org/10.36096/ijbes.v7i6.996

relationship between service quality and customer satisfaction in the South African automotive industry. The remainder of this paper is organised as follows. The next section reviews the existing literature on service quality, customer satisfaction, and the role of customer support, focusing on the South African automobile industry. The research methodology is then presented, followed by the findings of this study. The next section discusses the implications of these findings, and the last section concludes the study, summarises the key contributions, and suggests avenues for future research.

Literature Review

Theoretical Framework

The relationship between service quality and customer satisfaction is a fundamental aspect of service marketing literature and has been consistently demonstrated across various industries (Hossain & Dwivedi, 2014; Shaikh, 2024). Seminal studies by Parasuraman et al. (1988) and Zeithaml et al. (1990) established that key service quality dimensions, such as reliability and responsiveness, significantly drive customer satisfaction. Research conducted in South Africa, such as Shava (2021) in the telecommunications sector, has confirmed this fundamental link, underscoring the importance of service quality for customer retention. While the direct association is well established (Allam et al., 2022; Doriza, 2019; Mosahab et al., 2010), understanding the factors that influence or modify this relationship is crucial for practitioners seeking to enhance customer outcomes, particularly in complex service environments such as the automobile industry.

This study employs a multi-theoretical framework to examine a critical factor that may alter the fundamental relationship between service quality and customer satisfaction in the South African automobile sector, specifically focusing on the role of customer support. Our theoretical foundation is based on four foundational frameworks that offer complementary perspectives on service delivery and customer evaluations. The SERVQUAL model (Parasuraman et al., 1988) provides a method for assessing service quality by evaluating the gap between customer expectations and perceptions across dimensions such as responsiveness and empathy, illustrating how effective customer support interactions can directly enhance these perceived dimensions (Augustyn et al., 2022; Zhao et al., 2025). The Gap Model of Service Quality (Zeithaml et al., 1990) identifies specific discrepancies in service delivery processes, with customer support playing a crucial role in minimising these gaps by clarifying expectations and resolving issues, thereby potentially mitigating their negative impact on satisfaction (Octavia & Chotib, 2021; Shava, 2021). The Disconfirmation Paradigm (Ramasamy et al., 2024) explains satisfaction through a cognitive comparison between expectations and performance, emphasising how proactive and empathetic customer support can achieve positive disconfirmation by effectively resolving issues and exceeding expectations (Marikyan et al., 2023). Finally, Expectation-Confirmation Theory (ECT) (Bhattacherjee, 2001) extends the disconfirmation concept to elucidate post-purchase satisfaction and its connection to loyalty, where adequate customer support reinforces positive confirmation by addressing post-purchase concerns and building trust (Alwaely et al., 2024; Kumar & Ayodeji, 2021).

Collectively, these theories propose that customer support not only contributes to service quality or satisfaction in isolation, but also actively modifies or amplifies the strength and nature of the relationship between initial service quality perceptions and the resulting level of customer satisfaction. From a relationship marketing perspective (Morgan & Hunt, 1994), customer support is a critical component in building long-term customer relationships through ongoing engagement and trust, further emphasising its potential to influence the enduring impact of positive service quality on sustained satisfaction and loyalty (Hussain et al., 2024; Siddiqi et al., 2024).

Despite the recognised importance of service quality and customer support in shaping customer experiences, research focusing on their interplay, particularly the moderating role of customer support in influencing the service quality-satisfaction relationship, remains significantly underexamined in the existing literature. While studies such as Felix and Rembulan (2023) and Kumar and Ayodeji (2021) highlight the positive impact of responsive and empathetic support on satisfaction and loyalty, they often do not explicitly investigate its function as a factor that modifies the core relationship between service quality and satisfaction. In the automobile industry, after-sales services, a key area for customer support, are particularly crucial for cultivating satisfaction (Chawla & Singh, 2022); however, the specific moderating effect of customer support in this sector is not well documented (Antić & Bogetić, 2024). For instance, while Ariyanto and Anandya (2021) explored satisfaction as a mediator between service quality and loyalty, they did not investigate the potential moderating influence of customer support on the initial service quality-satisfaction link.

Recent advancements in marketing analytics have introduced a robust data-driven methodology to understand and optimise customer support functions. This approach can significantly enhance the moderating effect of customer support on the service quality-satisfaction relationship (Alwaely et al., 2024; Bag et al., 2021). Analytics can improve the effectiveness of customer support interventions by evaluating customer interactions, identifying customer needs or issue patterns, predicting potential problems, and customising support strategies (Bag et al., 2021). This tool enables businesses to strategically deploy support to maximise the positive impact of high service quality or mitigate the negative impact of service failures based on real-time insights.

Despite advancements in the field, research examining the relationship between service quality and satisfaction in the South African automobile industry remains limited. While Terblanche (2006) and Jain et al. (2019) explored service quality dimensions in this sector, they primarily focused on the direct effects. They did not investigate the moderating influence of customer support on this

relationship. Furthermore, although the potential of marketing analytics to optimise customer support is recognised in the general marketing literature, its practical application and examination in enhancing the moderating effect of customer support within the South African automobile industry, despite its economic significance and unique market dynamics (Ikome & Laseinde, 2020; Inyang et al., 2023), is still underexplored. This aspect underscores a substantial gap in marketing and analytics literature regarding how data-driven approaches can fortify the moderating role of support in this specific context (Alwaely et al., 2024). Additionally, South Africa's distinctive socioeconomic and cultural context, characterised by economic disparities and diverse consumer preferences, necessitates localised research to comprehend how these dynamics might affect the interplay of service quality, customer support, and satisfaction (Ikome & Laseinde, 2020; Sharma & Naude, 2021).

Therefore, while the literature confirms the positive association between service quality and customer satisfaction, the moderating role of customer support in influencing the strength and nature of this relationship, particularly within the specific context of the South African automobile industry, remains significantly underexplored. This gap is further compounded by the limited research on how marketing analytics can be leveraged to understand and optimise this specific moderating effect in this context. This study addresses these interconnected gaps by investigating the moderating role of customer support informed by a multi-theoretical framework and explicitly considering how marketing analytics can contribute to understanding and potentially enhancing this role in the South African automobile industry.

Research and Methodology

We employed a quantitative research design, using a cross-sectional survey. Cross-sectional surveys efficiently gather data from a large sample at a specific time, allowing for a snapshot of the relationship between the variables (Zuleika & Legiran, 2022). A survey methodology was chosen because it collects data from many South African automobile industry respondents, enabling the generalisation of the findings to the broader population of interest (Goodfellow, 2023). This cost-effective method allows for standardised data collection and facilitates statistical analysis.

Target Population

The target population for this study consisted of customers who had purchased or leased vehicles from car manufacturers and dealerships in South Africa over the past five years, and thus interacted with after-sales services within the South African automobile industry. These interactions include experiences with maintenance, repair, customer service, and warranty claims. Convenience sampling was employed because of its practicality in accessing the target population(Emerson, 2021). This method involves recruiting readily available respondents, such as customers visiting dealerships or service centres. Although convenience sampling may introduce bias, it is often necessary in real-world research settings(Doebel & Frank, 2024). Employing Slovin's formula, a sample of at least 336 respondents was deemed sufficient to achieve adequate statistical power (Bag et al., 2021).

Sampling

A combination of purposive and stratified random sampling approaches was applied to derive the sample in this study within practical constraints such as cost, time, and access difficulties (Berndt, 2020; Turner, 2020). Initially, a purposive sample was selected, focusing on customers who had purchased vehicles within the past five years from South African automobile dealers or service centres. This method was supplemented by a stratified random sample drawn from the customer databases provided by several automobile companies. Stratification was based on age, gender, economic status, and vehicle type to ensure representation across diverse demographic and vehicle-related attributes, thus allowing for a holistic analysis of customer experience and satisfaction in the South African automobile industry. Snowball sampling was then employed to augment the stratified random sample and reach potentially hard-to-reach populations (Dosek, 2021).

Data Collection

This study utilised a comprehensive methodology to develop and validate a structured questionnaire to assess customer satisfaction and experiences within the South African automobile sector. The process began by establishing a theoretical framework encompassing key constructs, such as vehicle quality, service quality, dealership experience, and overall satisfaction, which was informed by an extensive literature review and discussions with marketing specialists at Walter Sisulu University. A pilot test with 30 respondents allowed for question clarity and relevance feedback, leading to the necessary modifications to enhance the instrument's robustness. Validation and reliability were rigorously addressed through factor analysis to confirm construct validity and expert review to ensure content validity. Reliability assessments utilised Cronbach's Alpha, with a benchmark of $\alpha \geq 0.70$ considered acceptable(Berndt, 2020), although test-retest reliability was not considered feasible due to time constraints. These methods ensure a reliable and valid tool is used to capture insights into customer experiences within the targeted market.

Data were collected using a validated, structured questionnaire consisting of closed-ended questions. Closed-ended questions used Likert scales to measure customers' perceptions of service quality and satisfaction. The SERVQUAL framework has been used to measure service quality and assess customer expectations and perceptions of tangibles, reliability, responsiveness, assurance, and empathy (Zygiaris et al., 2022). Customer satisfaction was measured using a multi-item scale adapted from previous research (Famiyeh et al., 2018). A web-based survey using closed-ended questions and Likert scales was administered to a stratified random

sample of 504 individuals who had purchased or leased an automobile within five years. This method was deemed cost-effective, practical, and able to ensure the respondents' anonymity (Bryman et al., 2022). The online platform facilitated efficient data collection and management and gave respondents easy access.

Data Analysis

Quantitative data analysis for this research was conducted using the Statistical Package for the Social Sciences (SPSS), with guidance from a professional statistician. The analytical process commenced with the systematic preparation of survey data, where the collected responses were coded and imported into SPSS. Data cleaning procedures were then applied to ensure accuracy and consistency and address missing information. Descriptive statistics were used to summarise customer experiences and satisfaction levels, covering central tendency and dispersion measures and highlighting key trends through frequency distributions and percentages. Inferential statistical techniques explored the relationships between service quality dimensions and customer satisfaction. Simple and multiple regression analyses modelled the predictive relationships between service quality dimensions and overall satisfaction. A moderation analysis is then conducted to assess the impact of customer support on this relationship. Specifically, hierarchical regression analysis was used to test the moderating effect, as outlined in similar studies (Shava, 2021). The analysis was controlled for demographic variables such as age, gender, and education level.

Findings and Discussions

In total, 504 respondents participated in the online survey. The key demographic variables examined were age, sex, educational attainment, occupation, and geographical distribution. A diverse sample primarily comprised of males (57.3%) and individuals aged 26-34 (35.1%), with notable representations in the 36-44 (22.4%) and 55+ (21.0%) age groups, respectively. Most respondents lived in suburban areas (53.8%), followed by rural (23.2%) and urban locations (23.0%), indicating a significant suburban influence on automobile preferences. The majority were full-time employees (80.8%), with fewer part-time workers (10.1%), retirees (8.5%), or students. Household income varied, with 41.3% earning between R30,001 and R50,000 monthly, predominantly in the middle-income bracket. This demographic context is vital for understanding the link between service quality and customer satisfaction in South Africa's automobile sector, and its diversity enhances the representativeness of the data for subsequent analysis.

To establish the moderating role of customer support on service quality and satisfaction, a structured survey was administered to 504 automobile purchasers across various regions of South Africa. The survey included questions evaluating multiple dimensions of customer satisfaction and experience. Exploratory factor analysis (EFA) was employed to identify the underlying factors influencing customer satisfaction within the South African automobile industry. EFA is a statistical method that condenses numerous variables into a smaller set of constructs (Bilgin, 2018), helping to unveil latent dimensions that explain the relationships among observed variables

However, before conducting the EFA, the suitability of the data for analysis was assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. A KMO value of 0.959, significantly above the 0.60 threshold (Shrestha, 2021), indicates that the data are appropriate for factor analysis. Additionally, Bartlett's test of sphericity was significant (chi-squared = 42443.575; df = 496; $p < 0.001$), confirming the adequacy of the dataset for EFA. Subsequently, EFA was conducted on the 33 survey items to reveal the empirical factors impacting customer satisfaction and experience. Using principal component extraction and varimax rotation, three key factors emerged, retaining 31 items and accounting for 91.50% of the total variance. This substantial percentage underscores the importance of identified factors in explaining customer satisfaction in the automobile sector. The rotated component matrix detailed the variables associated with each factor, revealing the close relationship among customer support, overall service quality, and customer satisfaction. For instance, variables related to customer service and support, after-sales services, and overall positive customer experiences demonstrated strong loadings. These findings illuminate the critical role of customer support as an influential factor in customer satisfaction, setting the stage for a more nuanced analysis in the subsequent sections. All 31 items exhibited strong factor loadings (≥ 0.60), validating the constructs and providing solid groundwork for further investigating the dynamics between service quality, customer support, and satisfaction.

Having established the foundational insights gained from the Exploratory Factor Analysis (EFA) regarding the underlying structure of the perceptions of customer satisfaction and experience drivers in the South African automobile market, the analysis proceeded to the Confirmatory Factor Analysis (CFA) to assess the validity and robustness of the identified factor structure.

Table 1: Results of CFA and Reliability Outputs for Single-Factor Measurement Models

Variable	Initial Items	Items After CFA	CFA Factor Loadings Range	AVE	CR	Alpha	GFI	AGFI	NFI	RFI
Customer satisfaction	7	5	[0.961 – 0.995]	0.950	0.990	0.989	1.000	1.000	1.000	1.000
Perceived Service Quality	13	13	[0.911 – 0.988]	0.947	0.994	0.994	1.000	1.000	1.000	1.000
Customer Support Dimensions	14	14	[0.734 – 0.984]	0.897	0.989	0.988	0.912	0.877	0.902	0.882
Full Measurement Model							0.970	0.965	0.969	0.966

CFA = Confirmatory factor analysis. AVE = Average variance extracted. CR = Composite reliability. Alpha = Cronbach's alpha coefficient, GFI/AGFI = The (Adjusted) Goodness of Fit. NFI = The (Non) Normed Fit Index. RFI = The Relative Fit Index.

Table 1 illustrates that all factor loadings exceeded 0.60, indicating robust measurement characteristics (Rogers, 2024). The "Factors Driving Customer Experience and Satisfaction" measurement model retained all 14 items identified through exploratory factor analysis (EFA). Similarly, the "Perceived Service Quality" measurement model retained 13 items. The average variance extracted (AVE) values for these models surpassed the accepted 0.50 threshold, with overall customer satisfaction reaching 0.950, perceived service quality reaching 0.947, and factors driving customer experience and satisfaction reaching 0.897. Given that the recommended minimum threshold is 0.50, the established measurement scales have satisfactory convergent validity (Bryman et al., 2022).

Internal consistency was evaluated using Cronbach's Alpha, with all measurement models achieving scores greater than 0.70. The alpha values are 0.989 for overall customer satisfaction, 0.994 for perceived service quality, and 0.988 for customer support. Composite reliability (CR) was assessed using Jöreskog's rho, with all constructs surpassing the 0.70 threshold (Dimitrov, 2014). The CR results were 0.990 for overall customer satisfaction, 0.994 for perceived service quality, and 0.989 for customer support. The results exceeded the minimum threshold, indicating that the measurement models attained a satisfactory composite reliability. This validation confirmed an acceptable level of construct validity and demonstrated that the factor measurements were reliable and accurately reflected the intended theoretical constructs. Establishing composite reliability enhances the credibility and relevance of measurement models, reinforcing the foundation upon which research conclusions are constructed, and facilitating further investigation and application based on these constructs (Hair et al.,2021). Evaluation of the robustness of the measurement models necessitated verification of their appropriateness and precision in quantifying the intended constructs.

The data presented in Table 1 also indicate that the absolute fitness index values satisfy the requisite criteria for model fitness (Rönkkö & Cho, 2022). The individual factors and comprehensive measurement models met these standards, rendering them suitable for establishing relationships between factors and determining how constructs contribute to the various established measurement scales. The assessment of the structural model's fitness indices in the confirmatory factor analysis revealed that the developed models were adequate for the single-factor and full-measurement models. The model labelled 'Customer Support Dimensions and Satisfaction' demonstrated only a satisfactory fit, thus reinforcing the reliability and validity of our theoretical framework.

Influence of customer support on overall customer satisfaction

To investigate the influence of customer support on the relationship between perceived service quality and customer satisfaction, a generalised linear model was employed using survey data collected from customers in the automobile industry. The null hypothesis (H1d0) states that customer support does not significantly influence overall customer satisfaction, whereas the alternative hypothesis (H1d1) asserts that it has a significant influence. Table 2 presents the results of the generalised linear regression model.

Table 2: Regression Results for Customer Support on Satisfaction

Variable/ Statistic	Generalised Linear Regression Beta Estimates and Model Significance				
	Beta (SE)	Wald 95% CI	Wald Chi-square	df	*p*-value
(Intercept)	2.143 (0.187)	[1.777; 2.509]	131.819	1	<0.001*
Customer Support	0.331 (0.046)	[0.240; 0.422]	50.829	1	<0.001*
Model Fit	R^2 = 0.264; Adj. R^2 = 0.243, df = 1; Chi-square = 12.6; *p* = <0.001*				
Omnibus Test	*Likelihood Ratio Chi-Square = 154.185; p* = <0.001*				

*Significant predictive effect by the predictor at Alpha = 0.05.Predictor: (Intercept), Customer support. Dependent variable: Overall customer satisfaction.

This generalised linear regression model demonstrated a statistically significant fit (chi-squared = 12.6; $p < 0.001$), confirming its adequacy. As presented in Table 5, customer support accounted for a substantial portion of the variance in overall customer satisfaction, explaining 26.4% of the variance ($R^2 = 0.264$, R^2 adjusted = 0.243). The results of the omnibus test (Likelihood-ratio Chi-square = 154.185; $p < 0.001$) further indicate that this model performs significantly better than the null model. The regression parameter estimates revealed that customer support had a positive and statistically significant impact on overall customer satisfaction, with a beta coefficient (β_1) of 0.331. This estimate's Wald 95% confidence interval ranged from [0.240 to 0.422], and the p-value was < 0.001. Figure 1 illustrates the positive relationship between customer support and overall customer satisfaction.

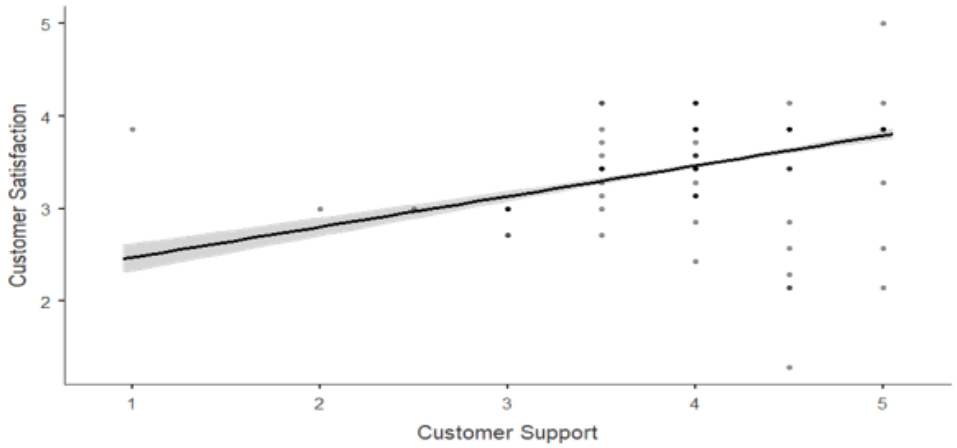

Figure 1: Scatter Plot of the Relationship between Customer Support and Satisfaction.

Given that the beta estimate for customer support is positive and statistically significant, the robust evidence rejects the null hypothesis at the 5% significance level. This result suggests that customer support positively influences the overall customer satisfaction.

Influence of Perceived Service Quality on Overall Customer Satisfaction

This analysis delved into the crucial relationship between perceived service quality and overall customer satisfaction in the South African automobile industry. Guided by the following hypotheses, this study investigates whether perceived service quality exerts a statistically significant influence on customer satisfaction.

H10: Perceived service quality does not significantly affect overall customer satisfaction in the automobile industry.

H11: Perceived service quality significantly affects overall customer satisfaction in the automobile industry.

A generalised linear model was used to determine whether perceived service quality significantly influenced overall customer satisfaction. Table 6 presents the generalised linear regression model beta estimates and model significance of the influence of perceived service quality on overall customer satisfaction. The established generalised linear regression model was statistically significant (chi-squared = 22.8; $p < 0.001$), indicating an acceptable model fit.

Table 3: Regression Results for Service Quality's Impact on Customer Satisfaction

Variable/ Statistic	**Generalised Linear Regression Beta Estimates and Model Significance**				
	Beta (SE)	Wald 95% CI	Wald Chi-square	df	*p*-value
(Intercept)	1.886 (0.157)	[1.579; 2.193]	144.654	1	<0.001*
Perceived service quality	0.383 (0.038)	[0.310; 0.457]	103.908	1	<0.001*
Model Fit	$R^2 = 0.476$; Adj. $R^2 = 0.455$, df = 1; Chi-square = 22.8; $p = <0.001$*				
Omnibus Test	*Likelihood Ratio Chi-Square = 325.333; p =* <0.001				

*Significant predictive effect by the predictor at Alpha = 0.05. Predictor: (Intercept) Perceived Service Quality. Dependent variable: Overall customer satisfaction.

Table 3 reveals that perceived service quality accounts for a substantial portion of the variance in overall customer satisfaction, at 47.6% ($R^2 = 0.476$; Adjusted $R^2 = 0.455$). The results of the omnibus test, indicated by a likelihood-ratio chi-square of 325.333 ($p < 0.001$), suggest that the regression model significantly outperformed the null model. The regression parameter estimates demonstrate that perceived service quality has a positive and statistically significant effect on overall customer satisfaction, with a beta coefficient of $\beta_1 = 0.381$ (Wald 95% CI [0.310 – 0.457]; $p < 0.001$). Figure 2 illustrates the nature and direction of the relationship between perceived service quality and customer satisfaction.

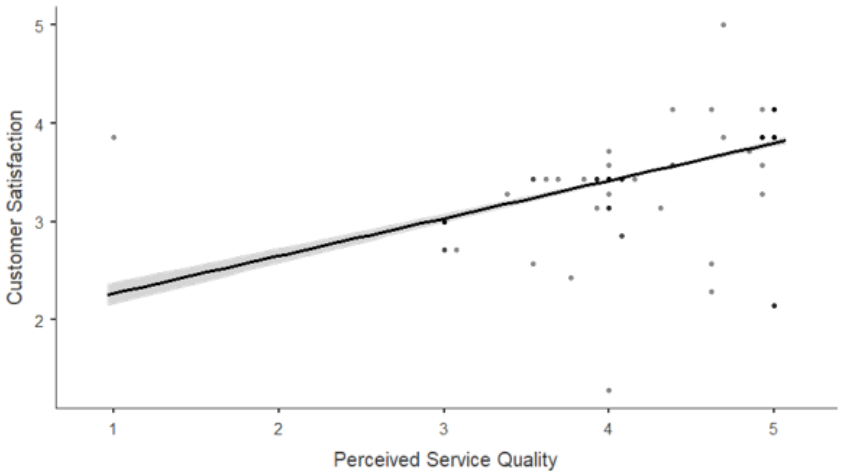

Figure 2: Scatter Plot of the Relationship between Perceived Service Quality and Overall Customer Satisfaction.

A series of hypotheses was tested using generalised linear models to determine the influence of various factors on overall customer satisfaction. The findings provide substantive evidence that both perceived service quality and customer support significantly contribute to satisfaction in the automobile industry. Specifically, perceived service quality demonstrated a strong predictive effect, accounting for 47.6% of the variance in satisfaction, while customer support accounted for 26.4%. These results affirm that while customer support enhances satisfaction, perceived service quality remains a foundational driver. The moderation analysis further revealed that customer support amplifies the positive effect of service quality, underscoring the importance of integrating both elements in a holistic strategy to improve customer satisfaction

Further investigation was then required into the complex relationships between these two factors and their potential moderating effects. Specifically, this study then sought to determine whether and how customer support moderates the relationship between perceived service quality and overall customer satisfaction. A moderation analysis was conducted using Hayes' PROCESS macro to achieve this objective. The resulting multiple regression models were examined for interaction effects to ascertain significant moderating influences. Cohen's f^2 was employed as the measure of effect size. According to established guidelines, a Cohen's f^2 value of approximately 0.02 indicates a small effect, 0.15 suggests a medium effect, and values exceeding 0.35 signify an enormous impact (Pardo, 2020). All requisite assumptions for the analysis were rigorously evaluated. The moderating influence of customer support on the relationship between perceived service quality and overall customer satisfaction in the automobile industry is examined using the following hypothesis:

H3d0: Customer support does not moderate the relationship between service quality and customer satisfaction in the automobile industry.

H3d1: Customer support significantly moderates the relationship between service quality and customer satisfaction in the automobile industry.

To examine the moderating influence of customer support on the connection between perceived service quality and overall customer satisfaction, the Hayes Process Macro was utilised. A multiple linear regression analysis was performed to determine whether customer support significantly affected this relationship. The model incorporates perceived service quality, customer support, and their interaction effect (perceived service quality × customer support) as independent variables that predict overall customer satisfaction. Table 4 presents the results of the multiple linear regression for the moderation effect of customer support in the automobile industry in South Africa.

Table 4: Multiple Linear Regression Model for the Moderating Effect of Customer Support

Dependent Variable in the Model	Model Significance		R-Square Value and Effect Size	
	F-value	*p*-value	R^2	Cohen's f^2
Overall customer satisfaction	173.214	<0.001*	0.510	1.041

(*) Significant fit at Alpha = 0.05. Note: Independent variables: (constant), Perceived service quality, Customer support and Interaction Effect (Perceived service quality * Customer support).

The results of the multiple linear regression model examining the moderating effect of customer support on overall customer satisfaction indicate a substantial and statistically significant fit, with an F-value of 173.214 and a p-value of less than 0.001, confirming the model's adequacy at an alpha level of 0.05. The model accounted for 51.0% of the variance in overall customer satisfaction, as evidenced by an R^2 of 0.510, and a substantial effect size indicated by a Cohen's f^2 value of 1.041, suggesting the considerable influence of the predictor variables on customer satisfaction. Parameter estimates from the model in Table 5 indicated that the interaction term ($\beta3 = 0.084$; $t = 4.784$; $p < 0.001$) had a positive and significant effect. This provides strong evidence to reject the null hypothesis at the 5% significance level. Consequently, customer support significantly moderates the relationship between the perceived service quality and overall customer satisfaction. The detailed results are presented in Table 5.

Table 5: Model Parameter Estimates for the Moderating Effect of Customer Support

Parameter	Unstandardized Coefficients		t	Sig	95% CI	
	Beta	SE			LLCI	ULCI
(Constant)	3.310	0.282	11.725	<0.001	2.755	3.864
Perceived service quality	0.140	0.076	1.839	0.066	-0.010	0.290
Customer support	-0.456	0.078	-5.832	<0.001	-0.610	-0.303
Interaction Effect	0.084	0.018	4.784	<0.001	0.050	0.119

The analysis revealed that perceived service quality has a positive but marginally significant influence on customer satisfaction, with a coefficient of 0.140 and a p-value of 0.066. While this effect is not statistically strong, it becomes more impactful when considered alongside customer support. The coefficient for customer support was -0.456 ($p < 0.001$), indicating that lower levels of support are strongly associated with reduced satisfaction. Notably, the interaction effect between perceived service quality and customer support was statistically significant ($\beta = 0.084$, $p < 0.001$), confirming that customer support moderates the relationship. This finding means that the positive influence of service quality on satisfaction is amplified when customer support is high. These findings underscore the strategic importance of integrating robust customer support mechanisms with service quality initiatives to enhance overall customer satisfaction and foster loyalty in the automobile industry.

To further elucidate the moderation effect, conditional effects analysis was conducted to explore the influence of varying levels of customer support. Table 5 presents the analysis of the conditional effects on the focal predictor at customer support values.

Table 6: Conditional Effects of the Focal Predictor at Values of Customer Support

Customer support	Effect on the Model		t	Sig	95% CI	
	Effect	SE			LLCI	ULCI
4.000	0.476*	0.031	15.216	<0.001	0.415	0.538
4.000	0.476*	0.031	15.216	<0.001	0.415	0.538
4.500	0.518*	0.033	15.839	<0.001	0.454	0.583

Results showed that higher levels of customer support significantly enhance the model's outcomes. For instance, at a customer support level of 4.000, the effect on the model was 0.476 ($p < 0.001$), and at a level of 4.500, the effect increased to 0.518 ($p < 0.001$). These results were confirmed by minor standard errors and high t-values, reinforcing the robustness of the findings. Therefore, organisations should prioritise developing and enhancing customer support strategies to improve overall customer satisfaction. The results indicate

that increasing customer support positively influences the relationship between perceived service quality and customer satisfaction and is crucial for driving better customer outcomes in a competitive environment.

Furthermore, this study revealed that increasing customer support positively influenced the relationship between perceived service quality and overall customer satisfaction, as illustrated by the slopes in the interaction plot in Figure 2.

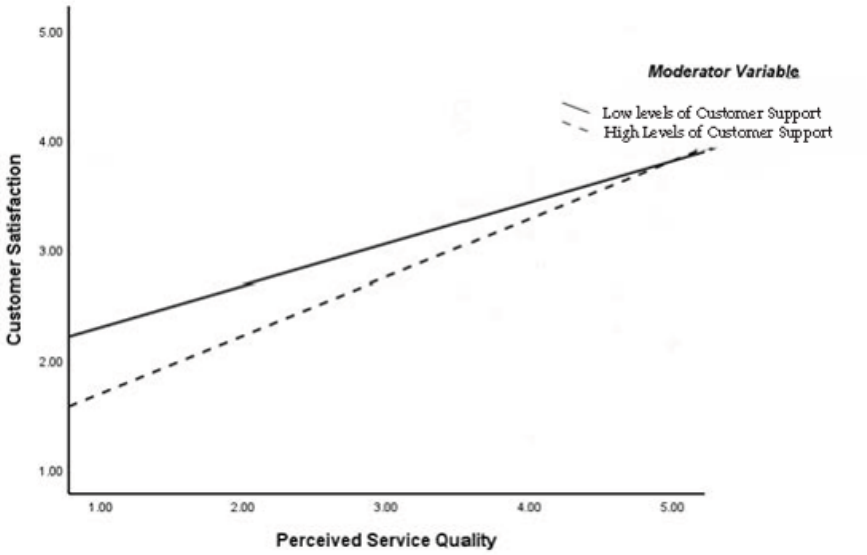

Figure 3: Interaction Plot for the Relationship between Perceived Service Quality and Overall Customer Satisfaction at Low and High Levels of Customer Support.

As illustrated in Figure 3, the correlation between perceived service quality and overall customer satisfaction becomes notably more robust as customer support levels increase from low to high. This observation suggests that customer support significantly moderates and enhances the relationship between the two variables. The strengthening of this association at higher levels of customer support implies that organisations should prioritise development and investment in their customer support strategies.

These research outcomes demonstrate that customer support is crucial in moderating the connection between perceived service quality and overall customer satisfaction in the automobile sector. The statistical analysis rejected the null hypothesis (H3d0), with customer support exhibiting a statistically significant influence, as evidenced by the test statistics and p-values being well below the established threshold. This finding elucidates the complex nature of customer satisfaction dynamics and underscores the need for automobile firms to incorporate adequate customer support into their operations strategically. Companies can enhance customer satisfaction and foster loyalty in a highly competitive market environment through this integration.

Discussion

The findings of this study underscore the pivotal role of customer support in shaping customer satisfaction, particularly through its interaction with perceived service quality. The statistically significant interaction effect ($\beta = 0.084$, $p < 0.001$) confirms that customer support amplifies the positive influence of service quality on satisfaction. This observation aligns with the SERVQUAL model, where responsiveness and empathy, often delivered through customer support, enhance perceived service quality. The Gap Model is supported by the moderating role of customer support in bridging expectation–perception gaps. Moreover, the Disconfirmation Paradigm and Expectation-Confirmation Theory are validated by the conditional effects analysis, which shows that higher levels of customer support lead to greater satisfaction through positive disconfirmation and expectation confirmation. These findings suggest that perceived service quality alone may not fully drive satisfaction unless complemented by robust customer support. Therefore, organisations should integrate customer support strategically to reinforce service quality and foster customer loyalty.

In contrast to studies by some scholars (for instance, Allan et al., 2025; Doriza, 2019; Hariyanto & Anandya, 2021; Parasuraman et al., 1988) focusing primarily on the dimensions of service quality, this study highlights that the effects of these dimensions are not isolated but are significantly bolstered by strong customer support. This interaction suggests a nuanced understanding of service quality; specifically, perceived service quality alone may not maximise customer satisfaction unless coupled with adequate customer support mechanisms.

Moreover, this study echoes the findings of several studies (for example, Budianto, 2019; Chawla & Singh, 2022; Khan et al., 2023; Siddiqi et al., 2024) that argue that customer service encounters are critical moments that can enhance or diminish customer

perceptions. In addition, this study extends their work by quantitatively demonstrating how the interaction between customer support and service quality significantly shapes overall customer satisfaction in the South African automobile industry. This insight is vital in today's competitive landscape, where customers' expectations of automobile products and services continually evolve.

Practically, the findings suggest that businesses should strive to enhance the quality of their services and prioritise the development of their customer support infrastructure. Organisations that effectively integrate customer support with high service quality will likely foster greater customer loyalty and satisfaction. This approach resonates with the conclusions of some scholars(for example, Hussain et al., 2024; Shava, 2021; Zeithaml et al., 1990; Zygiaris et al., 2022), who recommend a holistic approach that combines service delivery and customer interaction strategies.

This study contributes to the literature by illustrating the significant role of customer support in shaping customer satisfaction through perceived service quality. Future studies may explore the specific mechanisms that facilitate this interaction and examine industry-specific factors that affect these dynamics, thereby providing a more comprehensive understanding of how best to enhance the customer experience.

Conclusion

This study examines the complex interconnections among customer support, perceived service quality, and customer satisfaction. The findings indicate that sufficient customer assistance markedly amplifies the beneficial effect of service quality on customer satisfaction, highlighting support as a crucial element of the customer experience. This study establishes that customer assistance is not just a supplementary role but essential for cultivating client loyalty and obtaining a competitive edge in the market. By incorporating supportive client interactions into their company strategies, firms can revolutionise their service methodologies and respond to the changing customer demands.

In today's environment of widespread connection and intensified rivalry, organisations who overlook the importance of service quality and customer support jeopardise their clientele to competitors who excel in these areas. Consequently, it is clear that enterprises must adopt cohesive customer support strategies. Organisations that prioritise both service quality and effective customer assistance are more likely to thrive. This method not only meets customer expectations but also cultivates loyalty.

To succeed in the modern market, organisations must prioritise both the delivery of superior services and the improvement of their customer support processes. A customer-centric strategy based on extensive support during each stage of the customer journey is essential for cultivating lasting relationships and attaining brand success. Achieving outstanding customer satisfaction transcends product quality and crucially relies on how organisations interact with and assist their consumers during their engagements.

Acknowledgement

Author Contributions: by authors with equal participation. All authors have read and agreed to the published the final version of the manuscript.
Institutional Review Board Statement: Ethical review and approval were waived for this study, due to that the research does not deal with vulnerable groups or sensitive issues.
Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy.
Conflicts of Interest: The authors declare no conflict of interest.

References

Allam, Z., Sharifi, A., Bibri, S. E., Jones, D. S., & Krogstie, J. (2022). The metaverse as a virtual form of smart cities: Opportunities and challenges for environmental, economic, and social sustainability in urban futures. Smart Cities, 5(3), 771–801. https://doi.org/10.3390/smartcities5030040

Allan, M. M., Alomenu, C., & Anabila, P. (2025). Service quality and customer loyalty in Ghana's auto detailing service industry. International Journal of Quality & Reliability Management, 42(6), 963–985. https://doi.org/10.1108/IJQRM-08-2023-0258

Alwaely, S. A., Abusalma, A., Alwreikat, A. A. M., Al-Shakri, K. S., Ahmad, A. Y. A. B., & Alkhawaldeh, B. Y. (2024). Examining the relationship between business intelligence adoption and marketing effectiveness: The mediating role of customer satisfaction. International Journal of Data Networks and Security, 8, 1541–1556. https://doi.org/10.5267/j.ijdns.2024.3.012

Antić, Z., & Bogetić, S. (2024). The importance of problem-solving competencies in achieving customer satisfaction. Journal of Engineering Management & Competitiveness, 14(1), 21–32. https://doi.org/10.5937/JEMC2401021A

Augustyn, M. M., Seakhoa-King, A., & Mason, P. (2022). SERVQUAL scale. In D. Buhalis (Ed.), Encyclopedia of tourism management and marketing (pp. 65–68). Edward Elgar Publishing. https://doi.org/10.4337/9781800377486.servqual.scale

Bag, S., Pretorius, J. H. C., Gupta, S., & Dwivedi, Y. K. (2021). Role of institutional pressures and resources in adopting big data analytics-powered artificial intelligence, sustainable manufacturing practices, and circular economy capabilities. Technological Forecasting and Social Change, 163, 120420. https://doi.org/10.1016/j.techfore.2020.120420

Bambang Suwarno. (2021). Customer-based brand equity, product quality, price, and customer loyalty in the electronic industry of refrigerators. International Journal of Science and Technology Management, 2(6), 2143–2154. https://doi.org/10.46729/ijstm.v2i6.394

Baquero, A. (2023). Is customer satisfaction achieved only with good hotel facilities? A moderated mediation model. Administrative Sciences, 13(4), 108. https://doi.org/10.3390/admsci13040108

Berndt, A. E. (2020). Sampling methods. Journal of Human Lactation, 36(2), 224–226. https://doi.org/10.1177/0890334420906850

Bhattacherjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. MIS Quarterly, 25(3), 351–370. https://doi.org/10.2307/3250921

Bryman, A., Bell, E., & Harley, B. (2022). Business research methods (6th ed.). Oxford University Press.

Budianto, A. (2019). Customer loyalty: Quality of service. Journal of Management Review, 3(1), 299–310. https://doi.org/10.25157/jmr.v3i1.1808

Chawla, B. K., & Singh, B. (2022). Impact of supportive after-sales services on customer satisfaction in automobile industry. Orissa Journal of Commerce, 43, 59–72. https://doi.org/10.54063/ojc.2022.v43i04.05

Dimitrov, D. M. (2014). Statistical methods for validation of assessment scale data in counseling and related fields. John Wiley & Sons.

Doebel, S., & Frank, M. C. (2024). Broadening convenience samples to advance theoretical progress and avoid bias in developmental science. Journal of Cognitive Development, 25, 261–272. https://doi.org/10.1080/15248372.2023.2270055

Doriza, S. (2019). The impact of service quality and customer satisfaction on trust of students at university. In Proceedings of the 2nd International Conference on Research of Educational Administration and Management (ICREAM 2018) (pp. 47–57). Atlantis Press. https://doi.org/10.2991/icream-18.2019.51

Dosek, T. (2021). Snowball sampling and Facebook: How social media can help access hard-to-reach populations. PS: Political Science & Politics, 54(3), 651–655. https://doi.org/10.1017/S104909652100041X

Emerson, R. W. (2021). Convenience sampling revisited: Embracing its limitations through thoughtful study design. Journal of Visual Impairment & Blindness, 115(1), 76–77. https://doi.org/10.1177/0145482X20987707

Felix, A., & Rembulan, G. D. (2023). Analysis of key factors for improved customer experience, engagement, and loyalty in the e-commerce industry in Indonesia. Aptisi Transactions on Technopreneurship, 5(2), 196–208. https://doi.org/10.34306/att.v5i2sp.350

Goodfellow, L. T. (2023). An overview of survey research. Respiratory Care, 68(9), 1309–1313. https://doi.org/10.4187/respcare.11041

Hariyanto, M. A. D., & Anandya, D. (2021). The significance of service quality on customer loyalty with corporate image and customer satisfaction as mediators. Journal of Management & Business, 20, 1–12. https://doi.org/10.24123/jmb.v20i2.541

Hossain, M. A., & Dwivedi, Y. K. (2014). What improves citizens' privacy perceptions toward RFID technology? A cross-country investigation using mixed methods. International Journal of Information Management, 34(6), 711–719. https://doi.org/10.1016/j.ijinfomgt.2014.07.002

Hussain, M., Javed, A., Khan, S. H., & Yasir, M. (2024). Pillars of customer retention in the services sector: Understanding the role of relationship marketing, customer satisfaction, and customer loyalty. Journal of Knowledge Economy. https://doi.org/10.1007/s13132-024-02060-2

Ikome, J. M., & Laseinde, O. T. (2020). The global constraints of the South African automotive industry and a way forward. In E. Markopoulos et al. (Eds.), Advances in creativity, innovation, entrepreneurship and communication of design (pp. 219–226). Springer. https://doi.org/10.1007/978-3-030-51626-0_27

Inyang, V., Kanakana, G. M., & Laseinde, O. T. (2023). Application of sustainable smart manufacturing technologies and toolkits in the automotive industry. International Journal of Low-Carbon Technologies, 18, 412–422. https://doi.org/10.1093/ijlct/ctad023

Jain, N. K., Singh, A. K., & Kaushik, K. (2019). Evaluating service quality in automobile maintenance and repair industry. Asia Pacific Journal of Marketing and Logistics, 32(1), 117–134. https://doi.org/10.1108/APJML-07-2018-0277

Jeremiah, S. N. (2021). Analysis of the moderating role of customer communication on the relationship between service quality and customer satisfaction: Evidence from Kenya's mobile phones sector. International Journal of Business Management, 9(7). https://doi.org/10.24940/theijbm/2021/v9/i7/BM2107-058

Kesharwani, A., Mani, V., Gaur, J., Wamba, S. F., & Kamble, S. S. (2021). Service quality measurement in information systems: An expectation and desire disconfirmation approach. Journal of Global Information Management, 29(4), 1–19. https://doi.org/10.4018/JGIM.20211101.oa30

Khan, I., Naushad, A., & Sheharyar, M. (2023). Impact of quality of service on customer loyalty: A critical study of cellular mobile broadband sector in Pakistan. Internet of Things and Cloud Computing, 1(2). https://doi.org/10.11648/j.iotcc.20221004.11

Kumar, V., & Ayodeji, O. G. (2021). E-retail factors for customer activation and retention: An empirical study from Indian e-commerce customers. Journal of Retailing and Consumer Services, 59, 102399. https://doi.org/10.1016/j.jretconser.2020.102399

Marikyan, D., Papagiannidis, S., & Alamanos, E. (2023). Cognitive dissonance in technology adoption: A study of smart home users. Information Systems Frontiers, 25(4), 1101–1123. https://doi.org/10.1007/s10796-020-10042-3

Mhlongo, B., & Msosa, S. K. (2023). Vehicle brand perception among Generation X in the South African higher education sector. Management & Entrepreneurship Trends and Development, 3(1), 19–29. https://doi.org/10.26661/2522-1566/2023-3/25-02

Mosahab, R., Mahamad, O., & Ramayah, T. (2010). Service quality, customer satisfaction, and loyalty: A test of mediation. International Business Research, 3(4), 72–82. https://doi.org/10.5539/ibr.v3n4p72

Octavia, A., & Chotib. (2021). Service quality gap analysis of water supply in urban areas: Water supply company, Bogor Regency. In S. S. Emamian et al. (Eds.), ICSDEMS 2019 (pp. 47–57). Springer. https://doi.org/10.1007/978-981-15-3765-3_5

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. Journal of Retailing, 64(1), 12–40.

Pardo, S. (2020). Statistical analysis of empirical data: Methods for applied sciences. Springer. https://doi.org/10.1007/978-3-030-43328-4

Puspa Zuleika, & Legiran. (2022). Cross-sectional study as research design in medicine. Archives of Medical & Case Reports, 3(2), 256–259. https://doi.org/10.37275/amcr.v3i2.193

Ramasamy, G., Ramasamy, G. D., & Ramasamy, P. (2024). Conceptual review of consumer satisfaction theories with expectation-confirmation and disconfirmation paradigm. F1000Research, 13, 1399. https://doi.org/10.12688/f1000research.158612.1

Rane, N. L., Achari, A., & Choudhary, S. P. (2023). Enhancing customer loyalty through quality of service. International Research Journal of Modern Engineering and Technology Studies. https://doi.org/10.56726/IRJMETS38104

Raza Shaikh, N. (2024). Customer satisfaction in service industry. International Journal of Advanced Multidisciplinary Research Studies, 4(3), 1081–1085. https://doi.org/10.62225/2583049X.2024.4.3.2904

Rönkkö, M., & Cho, E. (2022). An updated guideline for assessing discriminant validity. Organizational Research Methods, 25(1), 6–14. https://doi.org/10.1177/1094428120968614

Sebastián-Morillas, A., Monfort, A., & López-Vázquez, B. (2024). Effects of perceived value and customer service on brand satisfaction. Journal of Promotional Management, 30(2), 187–203. https://doi.org/10.1080/10496491.2023.2253231

Sharma, A., Gupta, J., Gera, L., Sati, M., & Sharma, S. (2020). Relationship between customer satisfaction and loyalty. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3913161

Sharma, M. G., & Naude, M. J. (2021). Interdependence analysis of supplier relationship challenges in the South African automotive industry. Journal of Global Operations and Strategic Sourcing, 14(4), 438–453. https://doi.org/10.1108/JGOSS-01-2020-0005

Shava, H. (2021). Service quality and customer satisfaction experience among South African mobile telecommunications consumers. Eurasian Journal of Business and Management, 9(3), 217–232. https://doi.org/10.15604/ejbm.2021.09.03.004

Sheth, J. N., Jain, V., & Ambika, A. (2023). The growing importance of customer-centric support services for improving customer experience. Journal of Business Research, 164, 113943. https://doi.org/10.1016/j.jbusres.2023.113943

Sheth, J. N., Jain, V., & Ambika, A. (2024). Designing an empathetic user-centric customer support organisation: Practitioners' perspectives. European Journal of Marketing, 58(5), 845–868. https://doi.org/10.1108/EJM-05-2022-0350

Sheth, J., Jain, V., & Ambika, A. (2020). Repositioning the customer support services: The next frontier of competitive advantage. European Journal of Marketing, 54(11), 1787–1804. https://doi.org/10.1108/EJM-02-2020-0086

Shrestha, N. (2021). Factor analysis as a tool for survey analysis. American Journal of Applied Mathematics & Statistics, 9(1), 4–11. https://doi.org/10.12691/ajams-9-1-2

Siddiqi, K. O., Rahman, J., Tanchangya, T., Rahman, H., Esquivias, M. A., & Rahman, H. Md. (2024). Investigating the factors influencing customer loyalty and the mediating effect of customer satisfaction in online food delivery services. Cogent Business & Management, 11(1), 2431188. https://doi.org/10.1080/23311975.2024.2431188

Terblanche, N. S. (2006). An application of the American customer satisfaction index (ACSI) in the South African motor vehicle industry. South African Journal of Business Management, 37(4), 29–38. https://doi.org/10.4102/sajbm.v37i4.611

Turner, D. P. (2020). Sampling methods in research design. Headache, 60(1), 8–12. https://doi.org/10.1111/head.13707

Zeithaml, V. A., Parasuraman, A., & Berry, L. L. (1990). Delivering quality service: Balancing customer perceptions and expectations. Free Press.

Zhao, J., Liu, Q., Son, H., & Liu, Y. (2025). Errand delivery adoption by business users: Integrated perceived SERVQUAL model within TOE-TAM model. Research in Transportation Business & Management, 59, 101313. https://doi.org/10.1016/j.rtbm.2025.101313

Zygiaris, S., Hameed, Z., Alsubaie, M. A., & Rehman, S. U. (2022). Service quality and customer satisfaction in the post-pandemic world: A study of the Saudi auto care industry. Frontiers in Psychology, 13, 842141. https://doi.org/10.3389/fpsyg.2022.842141

Publisher's Note: Bussecon International stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

International Journal of Business Ecosystem and Strategy by Bussecon International Academy is licensed under a Creative Commons Attribution 4.0 International License.