



Evaluating Service Quality and Customer Satisfaction in Passenger Trains: A SERVQUAL Analysis

Justine Kabela

Universidad Copperbelt, Zambia
justinekabela@gmail.com

Tryson Yangailo

University of Zambia, Zambia
ytryson@yahoo.com

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profundidad@ufpso.edu.co

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Resumen: Este estudio evaluó la calidad del servicio y la satisfacción de los clientes en los servicios de pasajeros de TAZARA, centrándose en los trenes interurbanos Mukuba y Kilimanjaro. Utilizando el modelo SERVQUAL, el estudio midió las expectativas y percepciones de los pasajeros en cinco dimensiones: tangibles, confiabilidad, capacidad de respuesta, garantía y empatía. Se analizó una muestra aleatoria de 273 encuestados (de 350 cuestionarios) utilizando el software Jamovi. Si bien la satisfacción general fue alta (91 %), se encontraron diferencias significativas, especialmente en fiabilidad (81,3 % de satisfacción, siendo la puntualidad el área más débil) y aspectos tangibles (89,9 %, con preocupaciones en materia de higiene). Los pasajeros de Kilimanjaro manifestaron una mayor satisfacción que los usuarios de Mukuba, y los pasajeros de segunda clase fueron los más satisfechos. Las principales quejas se referían a la mala gestión del tiempo (43,4 % de las respuestas) y al comportamiento del personal (11,2 %). El estudio recomienda dar prioridad a la mejora de la gestión del tiempo, la rehabilitación de las infraestructuras y la mejora de la formación del personal para subsanar las deficiencias del servicio.

Palabras clave: Calidad del servicio, satisfacción del cliente, SERVQUAL, servicios al pasajero..

Abstract: This study assessed service quality and customer satisfaction in TAZARA's passenger services, focusing on the Mukuba and Kilimanjaro intercity trains. Using the SERVQUAL model, the study measured passenger expectations and perceptions in five dimensions: tangibles, reliability, responsiveness, assurance and empathy. A random sample of 273 respondents (from 350 questionnaires) was analyzed using Jamovi software. While overall satisfaction was high (91%), significant gaps were found particularly in reliability (81.3% satisfaction, with punctuality as the weakest area) and tangibles (89.9%, with sanitation concerns). Kilimanjaro passengers reported higher satisfaction than Mukuba users, and second-class passengers were the most satisfied. The main complaints were poor time management

(43.4% of responses) and staff behavior (11.2%). The study recommends that priority be given to improving time management, rehabilitating infrastructure and improving staff training to address service gaps.

Keywords: Service Quality, Customer Satisfaction, SERVQUAL, Passenger Services.

1. Introduction

In today's competitive environment, passengers prefer and demand a higher quality of service from the service provider. In evaluating the better quality of service, passengers compare their perception of the service provider's performance with the standards or reference points that represent passengers' expectations of service delivery. In general, it is interesting to study passengers' expectations and perceptions in many different contexts. It is particularly interesting to study these concepts in the context of TAZARA because railways play an important role in people's lives and it is essential for TAZARA to know what customers expect and perceive from the services it provides. TAZARA is also the lifeline of the two nations (Zambia and Tanzania) and forms a core part of the public transport industry.

The universality of the SERVQUAL model is evidenced by its adoption in healthcare (Jonkisz et al., 2022), banking (Sugiarto & Octaviana, 2021), and logistics (Sayareh et al., 2016), underscoring its relevance to the TAZARA context. The railways remain vital to the economies of Zambia and Tanzania, yet gaps in service quality persist. As with health care (Sharifi et al., 2021), addressing these gaps will require aligning perceptions with expectations through targeted interventions.

Service quality has been extensively researched because services are increasingly vital to the global economy and have characteristics that distinguish them from products, namely: heterogeneity, intangibility, inseparability of production, delivery and consumption, and customer involvement as a co-producer (Soteriou & Chase, 1998). Nowadays, customers have become very demanding about the quality of services and products they receive and they ensure that they get value for money for any service they receive. Customers expect the quality of service they receive from service providers to exceed or match what they have paid for (Lagerström, 2002). Quality tools such as Kano's model, SERVQUAL, and Quality Function Deployment (QFD) have been used to design and improve services (Lizarelli et al., 2021). The SERVQUAL framework facilitates the assessment of failures and the implementation of appropriate responses (Randhir, 2018).

Tanzania Zambia Railway Authority

The Tanzania Zambia Railway Authority (TAZARA) is a statutory body established under the TAZARA Act No. 4 of 1995 (Revised Act No. 23 of 1975) and is owned equally by the Government of the United Republic of Tanzania and the Government of the Republic of Zambia. The railway was constructed between 1970 and 1975 and commenced commercial operations in July 1976.

The railway extends from Dar es Salaam in Tanzania to New Kapiri Mposhi in Zambia, a total distance of 1,860 km, of which 975 km in Tanzania and 885 km in Zambia. It physically connects to the Zambia Railway Limited (ZRL) network at Kapiri Mposhi, while TAZARA connects to Tanzania Railways Limited (TRL) at Kidatu and the port of Dar es Salaam.

The TAZARA line forms part of the Southern African Development Community (SADC) network, linking eleven member states of the regional organisation, and has a standard gauge of 1,067mm (Cape Gauge). The line is designed to carry 5 million tonnes of goods per annum.

TAZARA mainly transports goods between Zambia, the Democratic Republic of Congo (DRC), Malawi and the port of Dar es Salaam. The railway also handles significant volumes of domestic freight within Tanzania, between the Southern Region and Dar es Salaam. This supports the national economic growth and poverty reduction strategy 'MKUKUTA' and the 'Kilimo Kwanza' policy. TAZARA also provides international and domestic passenger services with trains running between Dar es Salaam and New Kapiri Mposhi. To contribute to the development of tourism, TAZARA operates special trains to Sealous National Park as required. ROVOS Rail of South Africa also carries tourists from South Africa through Zambia to Tanzania on an annual and on-demand basis using TAZARA infrastructure.

Objective of the study

1. To determine the level of satisfaction of passengers towards the services offered by TAZARA
2. To determine the extent of gap between customers' expectations and perceptions
3. To determine if there is significant difference in satisfaction levels between Mukuba and Kilimanjaro trains
4. To determine the actual challenges TAZARA customers face

2. Literature Review

Service Quality

Service quality is defined as an organisation's ability to meet and exceed customer expectations. When expectations exceed performance, perceived quality falls short of satisfaction, resulting in customer dissatisfaction (Parasuraman et al., 1985; Lewis & Mitchell, 1990).

Service quality is the degree of discrepancy between customers' service expectations and their judgments of service performance (Parasuraman et al., 1985). Service quality is assessed by evaluating the gap between customer perceptions and expectations ($SQ=P-E$).

Customer Satisfaction

Customer satisfaction lacks a definitive definition, as different authors have proposed different interpretations. Measuring customer satisfaction is challenging because of the need to assess an individual's emotions. Satisfaction is the emotional response of disappointment or pleasure that results from comparing the actual performance of a product or outcome with one's expectations (Kotler & Keller, 2009).

Determinants of Service Quality

Initially, Parasuraman et al. (1985) identified 10 criteria for assessing service quality. The dimensions included: reliability, tangibility, responsiveness, courtesy, competence, trustworthiness, accessibility, assurance, communication and consumer understanding. Parasuraman et al (1988) refined the service quality dimensions of SERVQUAL through development and additional research. The variables were then restructured from the original ten to five. The five aspects consist of tangibles, responsiveness, reliability, assurance and empathy, which are divided into 22 components of the SERVQUAL framework.

Tangibility

Tangibles are defined as the appearance of physical facilities, staff, tools and means of communication (Zeithaml & Bitner, 2000). These are the elements that are easily observed by customers. Comparative studies in ports (Sayareh et al., 2016) and healthcare (Sharifi et al., 2021) highlight that infrastructure (tangibles) and staff responsiveness are consistent pain points across sectors.

Reliability

This is defined as "the ability to perform the promised service reliably and accurately" or "keeping one's promises" (Zeithaml et al., 2006). "Getting it right first time all the time" became the target for keeping promises, providing timely and accurate information to customers and meeting deadlines.

Responsiveness

The willingness to assist customers and provide prompt service is called responsiveness (Zeithaml et al., 2006). The service provider must be able to meet and adapt to the changing needs of customers. The 21st century, unlike other centuries, is very dynamic (Yangailo, 2023a) and requires quick response from service providers to meet customer needs and maintain competitiveness.

Assurance

Zeithaml et al. (2006) define assurance as the knowledge and courtesy of an employee and the ability of the service provider to inspire trust and confidence. Assurance also includes courtesy, competence, credibility and security.

Empathy

Empathy consists of the concern for the best interests of the customers, the customer's satisfaction with the advice, the advisor's expression and relationship skills (Zeithaml et al., 1990). Empathy also includes communication, accessibility, efforts to understand the needs of the users and the care given to the customers by the employees (Gorla, 2011).

Empirical Review

Below are some of the previous studies that have been conducted in the railway sector on service quality and customer satisfaction.

The SERVQUAL model, developed by Parasuraman, Zeithaml, and Berry in 1985, has been widely used across industries to assess service quality by measuring the gap between customer expectations and perceptions. The model's five dimensions—tangibility, reliability, responsiveness, assurance, and empathy—provide a structured framework for evaluating service performance. Jonkisz et al. (2021) demonstrated the effectiveness of SERVQUAL in health care settings, where it helped identify critical gaps in service delivery, particularly in staff competence, empathy, and facility conditions. Their study emphasized that while SERVQUAL is a valuable tool for quality improvement, its standardized questionnaire approach may not fully account for cultural and sector-specific variations. This limitation suggests the need for contextual adaptations, especially in diverse service environments such as public transportation.

Further supporting SERVQUAL's versatility, Sugiarto and Octaviana (2021) applied the model in the banking sector and found that tangible aspects, reliability, and empathy significantly influenced customer satisfaction, while responsiveness and assurance had weaker effects. Their results emphasize that service quality dimensions do not affect satisfaction uniformly across industries, reinforcing the importance of industry-specific SERVQUAL modifications. Similarly, Jonkisz et al. (2022) conducted a meta-analysis of healthcare SERVQUAL studies in Asia and confirmed that gaps in reliability and tangibility were most pronounced, particularly in public healthcare systems. The study also found demographic differences, with older and less educated patients reporting lower satisfaction, suggesting that customer profiles need to be considered when interpreting SERVQUAL results.

In addition to healthcare and banking, SERVQUAL has been used effectively in the logistics and transportation sectors. Sayareh et al. (2016) assessed service quality in a container terminal and found that tangibility and reliability were the most critical dimensions, reflecting common pain points in passenger transportation systems. Their study recommended infrastructure upgrades and process optimization to align services with customer expectations. Similarly, Sharifi et al. (2021) compared SERVQUAL with HEALTHQUAL in primary health care, revealing significant gaps in empathy and efficiency that parallel service quality challenges in rail operations, such as staff responsiveness and punctuality.

Despite its widespread use, SERVQUAL has been criticized for potential cultural bias and reliance on subjective customer perceptions. However, as Lizarelli et al. (2021) argue, when combined with other quality management tools such as Kano's model and Quality Function Deployment (QFD), SERVQUAL can provide a more holistic assessment of service performance. This integrated approach could be particularly beneficial for complex service environments such as rail operations, where multiple factors, ranging from physical infrastructure to staff behavior, influence customer satisfaction.

A study by Vanniarajan and Stephen (2008) analysed the aspects used to assess the service quality of the Indian Railways, which included assurance, reliability, empathy, responsiveness and tangibles. The study found that passengers were moderately satisfied across all criteria.

Khurshid et al. (2012) conducted a study on service quality and customer satisfaction in the public transport sector in Pakistan. The research indicated that customer satisfaction was the most important consideration for both products and services, along with issues such as unavailability of seats for women and time constraints. Inadequate safety and psychological distress were the issues that did not meet customer satisfaction.

Waris et al (2010) investigated customer perceptions of electrified commuter trains. The research found that the determinants of service quality include speed, space, comfort, safety, service status, frequency, punctuality, reliability and train operation.

Sheeba and Kumuthadevi (2013) studied the service quality of the South Indian Railways in India. The study found that the determinants of customer satisfaction include: seat availability, presence of fauna and insects, personal safety, quality of services, medical assistance, accessibility of doctors, drinking water, cleanliness of compartments, quality of power supply, sanitation, staff behaviour, security of belongings, and timeliness of service.

The railway industry appears to have received minimal research attention in the African context, underlining the importance of this work. This is supported by previous research (see Yangailo, 2024a, 2024b; Talib & Rahman, 2010; Janelle & Beuthe, 1997; Yangailo, 2022).

The applicability of SERVQUAL in the context of African rail systems remains underexplored. While studies in healthcare, banking, and logistics provide valuable insights, the unique operational and cultural dynamics of passenger rail services in developing countries require tailored research. This study addresses this gap by applying SERVQUAL to TAZARA's passenger services, assessing how well the model captures service quality challenges in an African transportation context, while contributing to broader discussions about SERVQUAL's adaptability across industries.

3. Research Methodology

This study was descriptive and used a survey method with Jamovi software. A descriptive study design was used to gain a better understanding of consumers' impressions of TAZARA's services across the five aspects of the SERVQUAL scale: tangibility, reliability, responsiveness, assurance and empathy. The descriptive survey approach was appropriate as it involves data collection and addresses research questions related to the state of the study (Mugenda, 2003).

The research focused exclusively on the Mukuba and Kilimanjaro trains and used primary data from a structured questionnaire which was administered to 273 passengers out of 350 questionnaires distributed, resulting in a response rate of 78%. All items were rated on a 5-point Likert scale from poor to excellent. Participants were selected using a random sampling technique.

4. Results

Data Presentation and Analysis

Table 1 below shows that the majority of clients were aged between 18 and 35 (55 %), over 35 (41.8 %) and under 18 (3.2 %).

Table 1
Age of Respondents

Levels	Counts	% of Total	Cumulative %
Below 18	8	3.2 %	3.2 %
Above 35	104	41.8 %	45.0 %
18 to 35	137	55.0 %	100.0 %

Table 2 below shows that of the respondents who indicated their gender, 42% are female and 58% are male. The Table 2 also presents the breakdown of gender by train type.

Table 2:
Gender of Respondents

Levels	Counts	% of Total	Cumulative %
Female	113	42.0 %	42.0 %
Male	156	58.0 %	100.0 %
Train Gender Mukuba Kilimanjaro Female 55 58 Male 97 59			

Table 3 below shows that 1.6% have a doctorate, 1.9% a master's degree, 23% a bachelor's degree, 19.1% a diploma, 18.3% a certificate, 24.9% a grade 12 certificate and 10.5% other qualifications.

Table 3:
Qualifications of Respondents

Levels	Counts	% of Total	Cumulative %				
Bachelor's Degree	61	23.7 %	23.7 %				
Certificate	47	18.3 %	42.0 %				
Diploma	49	19.1 %	61.1 %				
Grade 12	64	24.9 %	86.0 %				
Other	27	10.5 %	96.5 %				
PhD	4	1.6 %	98.1 %				
Master's Degree	5	1.9 %	100.0 %				
Train	Bachelor's Degree	Certificate	Diploma	Grade 12	Other	PhD	Master's Degree
Mukuba	19	43	29	34	20	2	5
Kilimanjaro	42	4	20	30	7	2	0

Sample adequacy, Reliability and Validity Analysis

To confirm the credibility of the instrument and the integrity of the data, sample adequacy, reliability and validity studies were conducted.

Kaiser-Meyer-Olkin (KMO) and Bartlett's tests were used to assess the adequacy of the data. The tests indicated that all scores were adequate for the subsequent investigation using factor analysis. The results of these assessments are presented in Tables 4 and 5. Bartlett's test presented in Table 4 indicates that our scores are substantially correlated, thus confirming their suitability for structure detection. The KMO values in Table 5 show that they are all adequate and can be used to analyse this data as they are all above 0.5.

Bartlett's test on Table 4 shows that our values are significantly correlated and therefore suitable for structure detection.

Table 4:
Bartlett's Test of Sphericity

χ^2	df	P
780	10	< .001

The KMO values in Table 5 below show that they are all adequate and can be used to analyse this data as they are all above 0.5.

Table 5:
KMO Measure of Sampling Adequacy

	MSA
Overall	0.861
Assurance	0.841
Responsiveness	0.844
Reliability	0.857
Tangibles	0.885
Empathy	0.880

Reliability Analysis of both Expectation and Perception of the Valuables

Table 6 below shows that the Cronbach's alpha for each value is greater than 0.6. Therefore, we conclude that the data is very suitable (Gallais et al,2017; Taherdoost, 2016; Straub et al, 2004).

Table 6
of Reliability

	Assurance(E)	Responsiveness- E	Reliability- E	Tangibles- E	Empathy- E		Assurance- P	Responsiveness- P	Reliability- P	Tangibles- P	Empathy- P	C Sat
α	0.831					α	0.750					
α		0.875				α		0.825				
α			0.890			α			0.728			
α				0.878		α				0.686		
α					0.887	α					0.816	
						α						

Corporate Performance

Table 7 shows the respondents' expectations and perceptions of various attributes. The gap between expectation and perception has been calculated and the percentage of satisfaction of different respondents regarding the above-mentioned attributes has also been calculated.

Table 7
Mean score of Five dimensions

Attributes	Expectation E	Perception(P)	Gap(E-P)	% of satisfaction
Tangibility	3.58	3.22	0.35	89.87%
Empathy	3.56	3.33	0.23	93.65%
Reliability	3.41	2.78	0.63	81.32%
Responsiveness	3.62	3.42	0.20	94.34%
Assurance	3.62	3.57	0.05	98.43%
Overall	3.56	3.26	0.29	91%

Survey (2023)

Table 8 below demonstrates the breakdown of table 7 respondents' Perceptions and Expectations regarding the services provided by TAZARA. The gaps have also been calculated for the various dimensions.

Table 7 and figure 1 below show that all dimensions of service quality are above average. The dimension of reliability records the least performance despite being above average. This was attributed to reliability component of time management which recorded below 80% according to table 8 in item 11 and 14 respectively and the highest number of complaints recorded in table 11 below.

Table 8
Mean score of 26 statements

No	Attributes	Expectation (E)	Perception(P)	Gap(E-P)	% of satisfaction
1	TAZARA is trustworthy	3.48	3.21	0.27	92.24%
2	I feel safe when I am travelling	3.73	3.96	-0.23	106.17%
3	TAZARA Employees are courteous	3.6	3.49	0.11	96.94%
4	TAZARA employees are Knowledgeable	3.66	3.6	0.06	98.36%
5	TAZARA Employees are too busy to respond to queries	3.41	3.15	0.26	92.38%
6	Attitude and helpfulness of the staff is good	3.7	3.55	0.15	95.95%
7	TAZARA staff tell exactly when services will be performed	3.53	3.12	0.41	88.39%

8	There is good communication in the train and at the station	3.68	3.42	0.26	92.93%
9	TAZARA employees are always willing to help.	3.6	3.49	0.11	96.94%
10	There is availability of Coach Attendant/Helper on train	3.79	3.77	0.02	99.47%
11	TAZARA adheres to punctuality of Trains	3.37	2.42	0.95	71.81%
12	When you have problems TAZARA shows sincere interest in solving it	3.49	2.99	0.5	85.67%
13	TAZARA performs Service Correctly	3.51	3.14	0.37	89.46%
14	TAZARA is accurate in timing of Trains	3.35	2.41	0.94	71.94%
15	TAZARA is accurate in record keeping.	3.34	2.93	0.41	87.72%
16	Time Tables, Display Boards etc are visually appealing	3.45	2.98	0.47	86.38%
17	Staff of TAZARA are neat in appearance	3.77	3.67	0.1	97.35%
18	TAZARA station facilities like Lighting, seating and Toilets are OK	3.38	2.78	0.6	82.25%
19	Toilet facilities in the train are clean	3.61	3.39	0.22	93.91%
20	Catering facilities in train is good	3.78	3.62	0.16	95.77%
21	TAZARA has a good overall station environment	3.47	2.9	0.57	83.57%
22	TAZARA employees give personal attention	3.55	3.35	0.2	94.37%
23	It is easy to plan a journey with TAZARA	3.61	3.31	0.3	91.69%
24	TAZARA has my best interest at heart	3.56	3.52	0.04	98.88%
25	TAZARA give individual attention	3.53	3.2	0.33	90.65%

26	TAZARA operations are convenient to all passengers	3.55	3.29	0.26	92.68%
Average Satisfaction					91.30%

The table above shows that on average the corporate satisfaction of passenger services is at 91%. The dimension as shown in Figure 1 below of reliability records the least performance despite being above average.

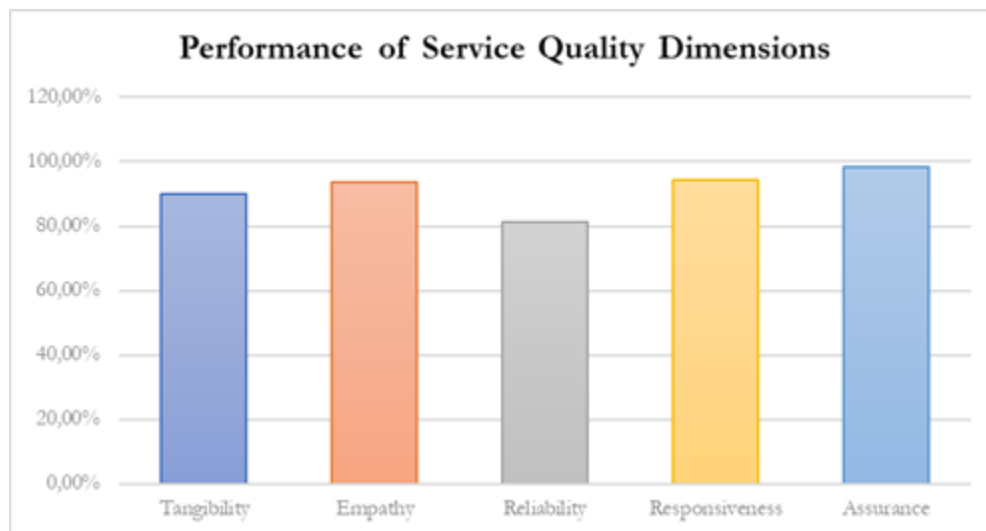


Figure 1
Performance of service quality dimensions

Performance by Train Type

Table 9 show that our p-value is less than .05 hence we conclude that there is a significant difference in satisfaction levels between the Mukuba and Kilimanjaro passengers or better still passengers in Mukuba and Kilimanjaro perceive satisfaction differently.

Table 9:
ANOVA – Customer Satisfaction (CS)

	Sum of Squares	Df	Mean Square	F	P	η^2_p
Overall model	24.2	1	24.200	26.9	< .001	
Train	24.2	1	24.200	26.9	< .001	0.090
Residuals	243.8	271	0.900			

The figure 2 below further review that Kilimanjaro Passengers are more satisfied than Mukuba passengers.

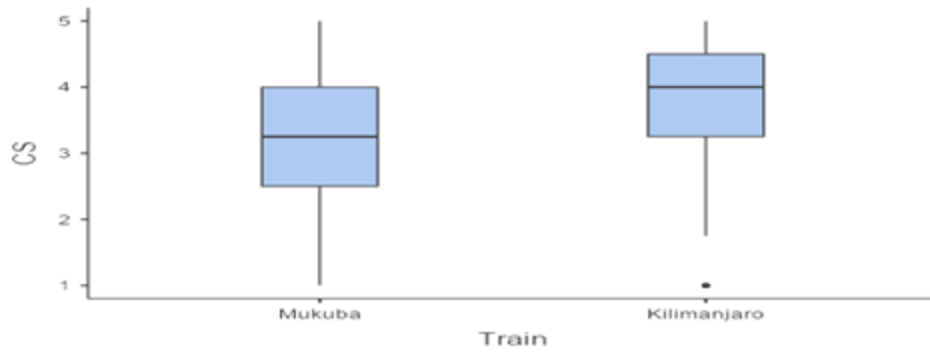


Figure 2
Performance by Train Type

Performance by Class

Table 10 below show that our p-value is less than .05 hence we conclude that there is a significant difference in satisfaction levels between the classes. Each class perceive satisfaction differently.

Table 10
ANOVA – Customer Satisfaction

	Sum of Squares	Df	Mean Square	F	P	η^2_p
Overall model	8.49	3	2.829	2.93	0.034	
Class	8.49	3	2.829	2.93	0.034	0.032
Residuals	257.56	267	0.965			

Table 11

Post Hoc Comparisons – Train and Homogeneity of Variances Test (Levene's)

Mukuba	-	Kilimanjaro	-0.599	0.116	271	-5.19	<.001
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Note. Comparisons are based on estimated marginal means

1.83	1	271	0.177
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The Figures 3 and 4 below further shows that passengers in second are the most satisfied, followed by first class, then third class and super sitter respectively.

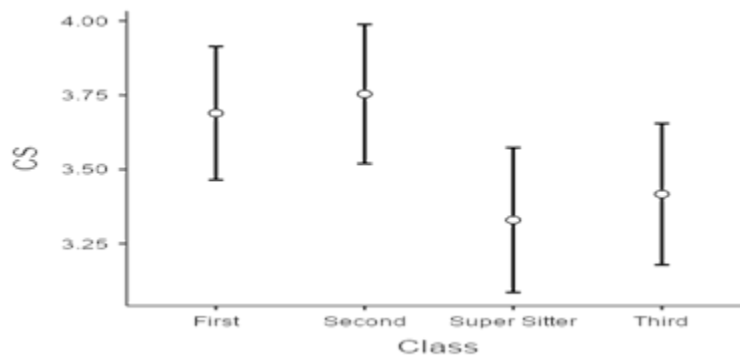


Figure 3
Performance by Class

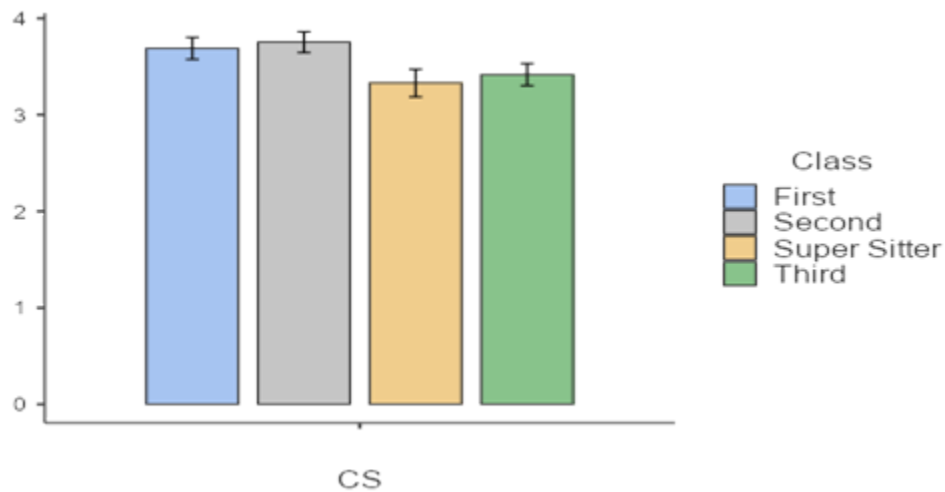


Figure 4
Performance by Class

Customer Complaints

Tables 11 and 12 below show that the most concern customers have toward TAZARA is poor time management which accounted for 66 complains representing 43.4%. Of the 66 complaints, 39 were from Mukuba and 27 from Kilimanjaro. The other second concern was poor sanitation which accounted for 20 complaints representing 13.2%. Of the 20 complaints 14 came from Mukuba and 6 from Kilimanjaro trains. The third concern was the bad conduct by TAZARA staff which accounted for 17 complaints representing 11.2%. Of the 17 complaints 16 came from Mukuba while 1 came from Kilimanjaro trans. The fourth concern was poor catering services which accounted for 15 complaints representing 9.9%. Of the 15 complaints, 9 came from Kilimanjaro while 6 from Mukuba trains.

Table 12
Complaints of Respondents

Levels	Counts	% of Total	Cumulative %
Booking System	3	2.0%	2.0%
Communication	4	2.6%	4.6%
Deception	2	1.3%	5.9%
Fan	1	0.7%	6.6%
Few Coaches	6	3.9%	10.5%
Poor Infrastructure	13	8.6%	19.1%
Price	3	2.0%	21.1%
Time Management	66	43.4%	64.5%
Sanitation	20	13.2%	77.6%
Catering Services	15	9.9%	87.5%
Financial Services	2	1.3%	88.8%
Bad Conduct by a Staff (Identified)	17	11.2%	100.0%

Table 13
Complaints by Trian

Complaint Type	Mukuba	Kilimanjaro
Booking System	2	1
Communication	3	1
Deception	1	1
Fan	0	1
Few Coaches	1	5
Poor Infrastructure	4	9
Price	0	3
Time Management	39	27
Sanitation	14	6
Catering Services	6	9
Financial Services	2	0

Bad Conduct by a Staff (Identified)	16	1
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Table 14 below shows that all classes expressed concerns about poor time management with first class recording 19, second class recording 14, super sitter recording 19 and third class recording 13. Poor hygiene attracted more concerns from first class with 10 complaints, second class recorded 7 complaints, third class recorded 2 complaints and one complaint came from the super sitter. Poor behaviour by TAZARA staff was recorded mainly by supper sitters with 6 complaints, while first and second class each recorded 5. There was one complaint from the third class. It should be noted that some respondents never included complaints or comments in the questionnaires they submitted.

Table 14
Complaints by Class

Complaint Type	First	Second	Super Sitter	Third
Booking System	0	1	1	1
Communication	1	1	2	0
Deception	1	0	0	1
Fan	0	1	0	0
Few Coaches	2	2	2	0
Poor Infrastructure	4	5	3	1
Price	1	0	0	2
Time Management	19	14	19	13
Sanitation	10	7	1	2
Catering Services	6	2	4	3
Financial Services	0	2	0	0
Bad Conduct by a Staff (Identified)	5	5	6	1

5. Discussions

The study revealed nuanced differences in satisfaction across passenger classes. While second-class passengers reported the highest levels of satisfaction (consistent with value-for-money trends in service industries), first-class passengers expressed greater dissatisfaction with time management and hygiene—a finding that contrasts with premium service expectations in sectors such as healthcare (Jonkisz et al., 2021). Notably, super-sitters (the lowest-cost option) reported the lowest levels of satisfaction, reflecting the budget-service gap in Pakistani public transportation (Khurshid et al., 2012). These class-based disparities highlight the need for tiered quality improvements, with premium services (e.g., first class) requiring greater attention to hygiene and punctuality to justify the price.

While overall satisfaction was high (91%), the persistence of specific complaints reflects the multidimensional nature of service quality. This apparent paradox is consistent with the zone of tolerance theory (Zeithaml et al., 1993), where passengers may accept deficiencies in some areas if other aspects exceed expectations. The structure of the SERVQUAL framework captures this complexity TAZARA's exceptional performance in assurance (98.43%) and empathy (93.65%) compensates for weaker performances in reliability (81.32%) and tangibles (89.87%). In addition, complaints were concentrated among certain subgroups (First Class passengers on hygiene, Mukuba drivers on staff conduct), which may be masked by aggregate scores. This suggests that while most passengers are generally satisfied, targeted improvements could increase satisfaction across all dimensions.

Kilimanjaro passengers were significantly more satisfied than Mukuba users ($p < 0.001$, likely due to better maintained infrastructure or operational efficiency. This is consistent with SERVQUAL studies in ports (Sayareh et al., 2016), where newer facilities outperformed aging systems. However, both trains shared critical gaps in time management (43.4% complaints) and hygiene (13.2%), highlighting systemic issues that transcend individual lines.

Time management was the most severe gap, replicating the findings of Indian Railways (Sheeba & Kumuthadevi, 2013). Item level analysis revealed that punctuality and station facilities were pain points.

Poor sanitation (related to tangibles) drew disproportionate complaints from first class passengers, in contrast to health studies where lower class users reported worse conditions (Sharifi et al., 2021).

TAZARA excelled in security (98.43% satisfaction), with passengers praising safety and staff courtesy. This exceeds healthcare benchmarks (Jonkisz et al., 2022), suggesting that railways could prioritize staff training more effectively.

The prevalence of staff misconduct complaints (11.2%, mostly Mukuba) mirrors the SERVQUAL gaps in responsiveness observed in Pakistan's transport sector (Khurshid et al., 2012). However, TAZARA's overall empathy score (93.65%) exceeds that of Iranian primary care (Sharifi et al., 2021), indicating contextual strengths in passenger-staff interactions.

6. Conclusions

The study confirms the usefulness of SERVQUAL in African railways, although contextual factors such as higher second-class satisfaction and systemic punctuality gaps highlight the need for model adaptations in transport sectors. This represents a pioneering effort to assess service quality in the African railway sector using the SERVQUAL instrument. The study revealed significant service gaps, particularly in the areas of reliability and tangibles, with time management and sanitation identified as the weakest areas, findings that are consistent with global transport quality concerns (Waris et al., 2010).

Despite these challenges, the study also uncovered strengths in TAZARA's service delivery. The empathy and assurance dimensions recorded satisfaction scores of 93.65% and 98.43%, respectively, outperforming benchmarks in other sectors such as healthcare (Sharifi et al., 2021). This underscores the commendable performance and professionalism of TAZARA staff in interpersonal service aspects.

The study confirms the adaptability of SERVQUAL to the African railway context and extends its application beyond traditional sectors such as healthcare (Jonkisz et al., 2021) and banking (Sugiarto & Octaviana, 2021). Furthermore, the results highlight contextual nuances, such as higher satisfaction among second-class passengers, indicating the need for sector-specific adaptations to existing service quality models.

7. Recommendations

Improve Time Management: TAZARA must prioritise the improvement of its time management practices to improve reliability and customer satisfaction. Timely communication with passengers regarding delays or other scheduling issues is essential to maintain trust and transparency. Effective time management is critical to operational efficiency and customer relations and is therefore an area that requires immediate improvement.

Addressing Staff Behaviour: The behaviour of TAZARA staff, particularly on the Mukuba train, warrants a thorough investigation. The investigation highlights inappropriate behaviour, particularly on the part of train conductors, which has a negative impact on the passenger experience. Addressing these behavioural issues is essential to promote a professional and respectful environment and ultimately improve the overall passenger experience.

Improve Hygiene Standards: There is an urgent need to improve hygiene standards in all classes on TAZARA trains. The quality of service should be commensurate with the class of service, ensuring that first class passengers receive superior cleanliness and amenities. The current scenario, where third class toilets are reported to be cleaner than first class toilets, is unacceptable and requires immediate rectification to meet customer expectations.

Overhaul Catering Services: Significant improvements are needed in the catering services provided on TAZARA trains, particularly on the Kilimanjaro route. Both the Mukuba and Kilimanjaro trains have received complaints, but the Kilimanjaro route has received the most criticism. Improving the quality and consistency of catering services is crucial to providing passengers with a more enjoyable and satisfactory travel experience.

Adopt Total Quality Management (TQM): TAZARA is strongly encouraged to adopt Total Quality Management (TQM) practices for continuous improvement. As supported by Yangailo (2023b) and Mkandawire and Yangailo (2023), the implementation of TQM in the railway sector can lead to significant advances in service quality and operational efficiency. Integrating TQM principles into TAZARA's operations could significantly improve overall performance and customer satisfaction.

Address Customer Concerns: TAZARA must promptly and effectively address all customer concerns identified in recent surveys. Taking these issues seriously and implementing corrective actions will not only increase customer satisfaction, but also reinforce TAZARA's commitment to providing excellent service.

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10. Authors' contributions:

Conceptualization: Tryson Yangailo and Justine Kabela

Data curation: Tryson Yangailo

Formal analysis: Tryson Yangailo

Research: Tryson Yangailo and Justine Kabela

Methodology: Tryson Yangailo

Project management: Tryson Yangailo and Justine Kabela

Resources: Tryson Yangailo and Justine Kabela

Software: Tryson Yangailo

Supervision: Justine Kabela

Validation: Tryson Yangailo and Justine Kabela

Presentation: Tryson Yangailo

Original draft writing: Tryson Yangailo and Justine Kabela

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profundidad@ufpso.edu.co

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