

Service Quality and Student Satisfaction in Higher Education: Evidence from a Public University in Zambia

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Abstract

This study examined the relationship between service quality and student satisfaction in higher education, using evidence from a public university in Zambia. Guided by the SERVQUAL Model, the study focused on five dimensions of service quality: tangibility, reliability, responsiveness, assurance and empathy. A quantitative descriptive research design was adopted. The target population comprised 9,000 registered full-time undergraduate students, from which a sample of 200 respondents was selected using simple random sampling. Data were collected through a structured online questionnaire and analysed using descriptive statistics and multiple linear regression. The findings revealed that reliability, responsiveness and tangibility had statistically significant positive effects on student satisfaction, while assurance and empathy did not demonstrate significant independent effects. Reliability emerged as the strongest predictor of student satisfaction ($\beta = .345, p < .001$), followed by responsiveness ($\beta = .266, p = .001$) and tangibility ($\beta = .145, p = .030$). These results suggest that students place greater emphasis on dependable and accurate service delivery, prompt responses to their needs, and adequate physical and technological learning resources. The findings provide partial empirical support for the SERVQUAL Model and demonstrate that the relative importance of service quality dimensions is context-specific. The study concludes that public higher education institutions should prioritise reliable and responsive service delivery while continuously improving physical and technological infrastructure. It further recommends regular assessment of service quality and student satisfaction to guide institutional quality improvement, resource allocation and student-centred service delivery.

1. Introduction

Higher education occupies a strategic position in national development through the creation, utilisation and dissemination of knowledge, development of human capital, and preparation of skilled professionals capable of responding to changing social and economic needs (van Schalkwyk & Steenkamp, 2014; Umashankar & Dutta, 2007). Universities are therefore expected not only to provide academic instruction but also to create an institutional environment that supports effective learning, professional development and positive student experiences. Within the service perspective of higher education, students are increasingly regarded as important customers and stakeholders because they interact directly with universities and invest financial and non-financial resources in acquiring knowledge, skills and qualifications (Abili et al., 2011; Doherty, 2008; Mwiya et al., 2017). Consequently, the ability of universities to provide high-quality academic and administrative services has become increasingly important for institutional effectiveness, competitiveness and student satisfaction (Mwiya et al., 2017; Amoako et al., 2023).

Higher education is fundamentally service-intensive because students continuously interact with academic and administrative systems throughout their university experience. These interactions begin with application, admission and registration and extend to teaching and learning, assessment, examinations, library services, information and communication technology, records management, student welfare and other support services (Kobero & Swallehe, 2022). Students therefore evaluate their university experience not only according to the quality of academic instruction but also through the efficiency, reliability, accessibility and responsiveness of institutional services (Douglas et al., 2015; Kobero & Swallehe, 2022). Effective service delivery can consequently strengthen satisfaction, institutional image, student loyalty and positive word-of-mouth, while poor service experiences may contribute to dissatisfaction and negative perceptions of an institution (Malik et al., 2010; Mwiya et al., 2017). Indeed, empirical evidence from Zambia has demonstrated that perceived higher education service quality is significantly associated with student satisfaction and subsequent behavioural intentions, including loyalty and positive word-of-mouth (Mwiya et al., 2017).

Service quality generally concerns customers' evaluations of the excellence or superiority of services received relative to their expectations (Parasuraman et al., 1988). One of the most influential frameworks for conceptualising and measuring service quality is the SERVQUAL model developed by Parasuraman et al. (1988). The framework conceptualises service quality through five dimensions: tangibles, reliability, responsiveness, assurance and empathy (Parasuraman et al., 1988; Ladhari, 2009). Tangibles relate to physical facilities, equipment and the appearance of personnel; reliability concerns the ability to deliver promised services dependably and accurately; responsiveness reflects willingness to assist customers and provide prompt services; assurance captures employees' knowledge, courtesy and ability to inspire trust and confidence; while empathy relates to caring and individualised attention provided to customers (Parasuraman et al., 1988). Despite debates surrounding its applicability across different service contexts, SERVQUAL and its dimensions remain extensively applied in higher education service-quality research (Ladhari, 2009; Kobero & Swallehe, 2022; Bwachele et al., 2023).

Student satisfaction, on the other hand, represents students' overall evaluation of their educational and institutional experiences and the extent to which those experiences meet or exceed their expectations (Oliver, 1980). In higher education, satisfaction is multidimensional because students encounter both academic and non-academic aspects of university life. Their satisfaction can therefore be influenced by teaching quality, staff competence, administrative efficiency, learning resources, institutional facilities, communication, responsiveness and the degree of individual attention they receive (Douglas et al., 2015; Amoako et al., 2023). Consequently, superior service quality is expected to contribute to higher levels of student satisfaction, whereas deficiencies in critical service areas can negatively affect students' perceptions of their overall institutional experience (Chandra et al., 2018; Sudiharto et al., 2019; Kobero & Swallehe, 2022). Research from Tanzania, for example, found that students were satisfied with reliability but recorded negative service-quality gaps for several other SERVQUAL dimensions, illustrating that satisfaction can vary substantially across different components of university service delivery (Kobero & Swallehe, 2022).

Empirical research across different higher education environments generally supports a positive relationship between perceived service quality and student satisfaction, although the strength and significance of individual dimensions vary across institutional and national contexts (Brochado, 2009; Cardona & Bravo, 2012; Twaissi & Al-Kilani, 2015; Mwiya et al., 2017; Amoako et al., 2023). For instance, studies have identified reliability, responsiveness, assurance, empathy and tangibility as important elements shaping students' evaluations of educational services (Kundi et al., 2014; Ariyanto et al., 2020). More recent evidence from Tanzania established that reliability significantly predicted student satisfaction within an extended SERVQUAL framework incorporating transparency and institutional trust (Bwachele et al., 2023). These findings demonstrate that service quality remains an important concern in higher education but also suggest that the relative contribution of particular service dimensions is context dependent.

The issue is particularly important within African higher education, where universities increasingly operate within environments characterised by expanding enrolment, resource limitations, infrastructure pressures, technological changes and growing student expectations (Anim & Mensah, 2015; Mwiya et al., 2017; Bwachele et al., 2023). As competition among public and private higher education institutions intensifies, students potentially have greater choice regarding where to pursue their education, making service quality an increasingly important source of institutional differentiation. Universities therefore require systematic feedback concerning students' perceptions of academic and administrative services to identify weaknesses, prioritise resource allocation and strengthen their competitive capabilities (Lam et al., 2002; Cardona & Bravo, 2012). Evidence from contemporary African higher education continues to demonstrate the relevance of service quality, transparency, trust and institutional responsiveness to students' evaluations of their university experiences (Bwachele et al., 2023).

This concern is particularly relevant in Zambia, where the higher education sector has undergone substantial expansion and transformation. Mwiya et al. (2017) observed that Zambia had only two public universities for several decades following independence, but subsequent growth in both public and private institutions considerably changed the higher education landscape. The establishment of the Higher Education Authority under the Higher Education Act No. 4 of 2013 further reflected increasing policy attention to regulation and quality assurance within the sector (Higher Education Authority [HEA], 2017). Expansion of higher education provision has increased access while simultaneously intensifying competition and creating greater pressure on universities to provide services capable of meeting increasingly diverse student expectations (Mwiya et al., 2017). The Zambian study involving 656 final-year undergraduate students found that tangibility, reliability, responsiveness, empathy and assurance were each positively associated with overall student satisfaction, providing important empirical support for applying service-quality frameworks within the Zambian higher education environment (Mwiya et al., 2017).

Nevertheless, existing evidence does not eliminate the need for further institution-specific investigation. Service quality perceptions are inherently influenced by institutional characteristics, available resources, administrative systems, staff behaviour and students' experiences with particular service encounters (Parasuraman et al., 1988; Kobero & Swallehe, 2022; Bwachele et al., 2023). Findings obtained from one institution or national setting therefore cannot automatically be assumed to apply uniformly to another. This is particularly relevant because empirical studies have produced variations regarding which SERVQUAL dimensions exert the strongest influence on satisfaction (Mwiya et al., 2017; Kobero & Swallehe, 2022; Bwachele et al., 2023). Whereas the Zambian evidence reported positive relationships across the five dimensions, Tanzanian evidence has demonstrated that some dimensions can exert stronger effects than others depending on the institutional setting and analytical approach.

Kwame Nkrumah University in Kabwe, Zambia, therefore provides an important setting for further investigation. As a public higher education institution, students interact with numerous academic and administrative service points throughout their university journey. The quality of these interactions can shape their perceptions of the institution and ultimately their level of satisfaction. Although previous research has provided valuable evidence on higher education service quality in Zambia (Mwiya et al., 2017), there remains limited institution-specific and dimension-focused empirical evidence regarding the relative effects of tangibility, reliability, responsiveness, assurance and empathy on student satisfaction at Kwame Nkrumah University. The present study addresses this contextual gap by examining the effect of the five SERVQUAL dimensions on student satisfaction at the institution. In doing so, the study contributes additional empirical evidence to the growing African higher education service-quality literature and provides institution-specific insights that can support management in identifying service-delivery priorities, allocating resources more effectively and enhancing the overall student experience.

Research Objectives

The study was guided by the following specific objectives:

- To determine the effect of reliability on student satisfaction.
- To assess the effect of responsiveness on student satisfaction.
- To examine the effect of assurance on student satisfaction.
- To determine the effect of empathy on student satisfaction.
- To assess the effect of tangibility on student satisfaction.

2 Literature Review

2.1 Theoretical Framework

SERVQUAL Model

This study is anchored on the SERVQUAL Model, developed by Parasuraman, Zeithaml and Berry (1985, 1988) as a framework for conceptualising and measuring service quality. The model proposes that service quality reflects customers' evaluation of service performance in relation to their expectations. Parasuraman et al. (1988) conceptualised service quality as a multidimensional construct comprising five dimensions: tangibility, reliability, responsiveness, assurance and empathy. Despite debates regarding its universal applicability, SERVQUAL remains one of the most influential frameworks in service-quality research and has been extensively applied within higher education settings (Ladhari, 2009; Zeithaml et al., 2018).

The five SERVQUAL dimensions capture distinct but related aspects of service delivery. Tangibility refers to physical facilities, equipment, communication materials and the appearance of personnel. Within higher education, this encompasses classrooms, libraries, ICT infrastructure and other learning facilities. Reliability represents an institution's ability to deliver promised services accurately, consistently and dependably, including adherence to academic schedules and accurate processing of student records and results. Responsiveness concerns employees' willingness to assist students and provide prompt services, particularly in addressing enquiries, requests and complaints. Assurance reflects employees' competence, knowledge, courtesy and ability to inspire trust and confidence, while empathy involves providing caring, individualised attention and understanding students' particular needs (Parasuraman et al., 1988; Zeithaml et al., 2018).

The SERVQUAL Model is particularly applicable to higher education because university services are predominantly intangible and involve continuous interactions between students and academic and administrative personnel. Students consequently evaluate their university experience through both physical resources and interpersonal service encounters. Empirical studies have demonstrated that SERVQUAL dimensions can influence student satisfaction, although their relative importance may differ across institutional and national contexts (Ladhari, 2009; Mwiya et al., 2017; Kobero & Swallehe, 2022; Bwachele et al., 2023). In Zambia, Mwiya et al. (2017) established significant positive relationships between service-quality dimensions and student satisfaction, providing important empirical support for applying service-quality frameworks within the Zambian higher education environment.

Nevertheless, SERVQUAL has attracted methodological criticism, particularly regarding its measurement of service quality through the gap between expectations and perceived performance. Cronin and Taylor (1992) proposed the performance-based SERVPERF approach, arguing that perceived performance alone may provide a stronger measure of service quality. This alternative approach has subsequently been applied in higher education research, including within Zambia. Despite these criticisms, the five SERVQUAL dimensions remain valuable for identifying specific aspects of university service delivery that may shape student satisfaction.

In this study, therefore, SERVQUAL provides the theoretical basis for explaining the relationship between service quality and student satisfaction in a public university in Zambia. Service quality is operationalised through tangibility, reliability, responsiveness, assurance and empathy, while student satisfaction constitutes the dependent variable. The framework enables the study to determine both the collective contribution of service quality and the relative effect of each dimension on student satisfaction. This is consistent with the study's empirical analysis, which simultaneously evaluates the five dimensions as predictors of satisfaction. Consequently, SERVQUAL provides an appropriate theoretical foundation for identifying areas of service delivery that require managerial attention to enhance students' overall university experience.

2.2 Empirical Review

Empirical research on service quality in higher education has expanded considerably as universities increasingly recognise student satisfaction as an important indicator of institutional effectiveness and competitiveness. Service quality is generally understood as customers' overall assessment of the excellence of services received and the extent to which service performance meets or exceeds expectations (Eshghi et al., 2008; Khodayari & Khodayari, 2011; Twaissi & Al-Kilani, 2015). Within higher education, this relationship is particularly important because students experience numerous academic and non-academic service encounters throughout their studies. Consequently, previous research generally establishes service quality as an antecedent of student satisfaction, although the magnitude and significance of individual service-quality dimensions vary across institutional and national contexts (Arambewela & Hall, 2006; Cardona & Bravo, 2012; Jiewanto et al., 2012; Mwiya et al., 2017).

The empirical assessment of service quality has largely been influenced by Parasuraman et al. (1988), who developed and validated the SERVQUAL instrument around five dimensions: tangibility, reliability, responsiveness, assurance and empathy. SERVQUAL evaluates quality by comparing customers' expectations with perceptions of actual service performance. However, Cronin and Taylor (1992) challenged this expectation–performance gap approach and demonstrated that performance-based measurement, subsequently associated with SERVPERF, could provide a stronger explanation of service quality. Similar conclusions have been reported by Brochado (2009), Dabholkar et al. (2000) and Adil et al. (2013). Despite this methodological debate, the five SERVQUAL dimensions continue to provide an important empirical foundation for examining the determinants of student satisfaction in higher education.

Regarding reliability, empirical evidence generally indicates that students place considerable value on institutions delivering promised services dependably and accurately. In higher education, reliability encompasses accurate student records, timely processing of results, adherence to schedules and consistent delivery of academic and administrative services. Studies conducted in Malaysia (Hasan et al., 2009; Hassan & Ibrahim, 2010), Australia (Sultan & Wong, 2012) and Romania (Negricea et al., 2014) established positive relationships between reliability and student satisfaction. More recently, Bwachele et al. (2023), using data from 398 university students in Tanzania, established that reliability significantly predicted student satisfaction alongside perceived transparency and institutional trust. This suggests that students are more likely to be satisfied when universities consistently fulfil service promises and demonstrate dependable service performance.

Responsiveness has similarly received substantial empirical attention. It reflects employees' willingness to assist students and provide services promptly (Parasuraman et al., 1988). In universities, students may evaluate responsiveness through waiting times, speed of handling enquiries and complaints, accessibility of staff and timely communication. Positive relationships between responsiveness and student satisfaction have been reported in Australia (Arambewela & Hall, 2006), Malaysia (Wei & Ramalu, 2011), Pakistan (Kundi et al., 2014) and Indonesia (Jiewanto et al., 2012). However, Andoh et al. (2020), studying 125 postgraduate distance-education students at the University of Cape Coast in Ghana, found that although students were generally satisfied with facilities and staff relationships, dissatisfaction remained evident regarding student-support services. Such findings indicate that

responsiveness remains a potential service-quality challenge within African higher education institutions.

Evidence concerning assurance also demonstrates its importance to student satisfaction. Assurance encompasses staff competence, knowledge, courtesy, professionalism and the ability to inspire confidence and trust (Parasuraman et al., 1988). Empirical studies conducted in Colombia (Cardona & Bravo, 2012), Indonesia (Jiewanto et al., 2012; Sumaedi et al., 2011) and Malaysia (Farahmandian et al., 2013; Yunus et al., 2010) established positive relationships between assurance and student satisfaction. This is particularly relevant to higher education because students frequently depend upon academic and administrative personnel for information and decisions that affect their academic progression. Staff professionalism and competence can therefore substantially influence students' confidence in institutional services.

Similarly, empathy, which reflects caring and individualised attention, has been positively associated with student satisfaction. Evidence from Malaysia (Wei & Ramalu, 2011), Iran (Rezaei et al., 2011) and Pakistan (Kundi et al., 2014) suggests that students report greater satisfaction when university personnel understand their individual needs and demonstrate genuine concern. Empathy is especially relevant because university services involve extensive interpersonal interaction, meaning that students' perceptions can be shaped by how respectfully and individually they are treated. Recent African evidence also reinforces the importance of relational and trust-related elements of university service delivery (Bwachele et al., 2023).

Research further identifies tangibility as an important component of students' service experiences. Tangibility encompasses physical facilities, equipment, learning resources, communication materials and the physical environment (Parasuraman et al., 1988). Studies from Malaysia (Farahmandian et al., 2013; Rajab et al., 2011), Pakistan (Kundi et al., 2014) and Jordan (Twaissi & Al-Kilani, 2015) established significant relationships between tangible aspects of university services and student satisfaction. These findings suggest that although higher education is predominantly intangible, students use visible evidence such as classrooms, ICT infrastructure, libraries, furniture and equipment when evaluating institutional service quality.

Within the broader international literature, studies continue to establish a service quality–student satisfaction nexus, although alternative measures of higher education quality have emerged. Ali et al. (2016), using structural equation modelling among 241 international students in Malaysian public universities, established that service quality influenced student satisfaction, which subsequently influenced student loyalty. Khoo et al. (2017), analysing 324 students from two private universities in Singapore, similarly reported a positive association between perceived service quality and satisfaction with non-academic services. Teeroovengadam et al. (2019), using 501 university students in Mauritius, further found that service quality influenced student satisfaction and demonstrated the value of conceptualising higher education service quality as a multidimensional construct. More recently, Nguyen et al. (2024) reported an influence of university service quality on student satisfaction and loyalty in Vietnam, although their operationalisation of service quality differed from the traditional SERVQUAL dimensions.

Within Zambia, Mwiya et al. (2017) provide particularly important empirical evidence. Using SERVPERF among 656 final-year undergraduate students at a Zambian public university, the study established that all five service-quality dimensions were significantly and positively associated with student satisfaction. Satisfaction subsequently influenced student loyalty and positive word-of-mouth. These findings demonstrated that the SERVQUAL dimensions remain applicable for understanding university students' service experiences within the Zambian context. The present article's literature similarly identifies the study as important Zambian evidence supporting positive relationships between the five dimensions and satisfaction. Extending this evidence, Siachinji Bwalya et al. (2019), using 824 students across full-time, evening and distance modes at a Zambian public university, established significant relationships between the service-quality dimensions and student satisfaction across the different study modes, with distance students reporting comparatively higher satisfaction.

Overall, the reviewed empirical evidence demonstrates considerable support for a positive relationship between service quality and student satisfaction. However, variations in institutional settings, countries, measurement approaches, study modes and the relative significance of individual SERVQUAL dimensions demonstrate that these relationships remain context dependent. Moreover, although previous Zambian studies provide valuable sectoral evidence, institution-specific empirical evidence remains limited. This creates a contextual need to establish how reliability, responsiveness, assurance, empathy and tangibility individually influence student satisfaction within the specific setting of a Zambian public university. The present study therefore extends existing evidence by simultaneously examining the five SERVQUAL dimensions as predictors of student satisfaction at Kwame Nkrumah University, thereby providing evidence that can inform institution-specific service improvement and managerial decision-making.

3 Methodology

3.1 Research Design

The study adopted a descriptive research design using a quantitative approach to examine the relationship between service quality and customer satisfaction among students at a public university in Zambia. The descriptive design is appropriate for testing the theoretically grounded relationships between variables and determining the extent to which independent variables influence a dependent variable (Creswell, 2014; Mundia et al., 2026; Mufalali et al., 2026c). This design was suitable for the present student as it enabled the analysis of how tangibility, responsiveness, empathy, reliability, assurance influence customer satisfaction.

3.2 Study Area

The study was conducted at Kwame Nkrumah University, a public higher education institution located in Kabwe District, Central Province, Zambia. The university serves students from diverse geographical and socio-economic backgrounds and provides various academic, administrative and student-support services. Students interact with services relating to registration, teaching, examinations, academic records, library facilities and ICT support. These diverse service encounters made the university an appropriate setting for examining how the five SERVQUAL dimensions - tangibility, reliability, responsiveness, assurance and empathy - influence student satisfaction within the Zambian public higher education context.

3.3 Target Population and Sampling

The target population comprised 9,000 registered full-time undergraduate students at Kwame Nkrumah University who were actively utilising university services during the study period. A sample of 200 students was determined using Slovin's formula and drawn from different schools/faculties using simple random sampling. This technique was adopted to provide eligible students with an equal opportunity of selection, thereby minimising selection bias and enhancing representativeness. The resulting sample was considered adequate for descriptive and multiple regression analyses and for generating reliable empirical findings (Cohen, 1992; Hair et al., 2019; Mundia et al., 2025; Mwiya et al., 2025).

3.4 Data Collection Methods and Instrument

Data were collected using a structured online questionnaire administered to the selected students. The instrument comprised three sections covering respondents' demographic characteristics, the five service quality dimensions - reliability, responsiveness, assurance, empathy and tangibility - and student satisfaction. Service quality items were adapted from the SERVQUAL framework developed by Parasuraman et al. (1988). Responses were measured using a five-point Likert scale, ranging from Strongly Disagree (1) to Strongly Agree (5). The structured questionnaire ensured standardised and comparable responses suitable for subsequent quantitative statistical analysis (Saunders et al., 2019; Mufalali et al., 2026b).

3.5 Validity and Reliability

To ensure the validity and reliability of the research instrument, several measures were undertaken. Content validity was established through a review of relevant literature and the adaptation of measurement items from the established SERVQUAL scale developed by Parasuraman et al. (1988) and subsequent higher education service-quality studies. Construct validity was assessed using Exploratory Factor Analysis (EFA) to determine whether the measurement items adequately represented the five service quality dimensions and student satisfaction (Hair et al., 2019; Mufalali et al., 2026a). Reliability was assessed using Cronbach's Alpha, with a coefficient of 0.70 or above considered indicative of acceptable internal consistency (Hair et al., 2019; Mundia et al., 2023). These procedures ensured that the instrument provided valid and reliable measures of the study constructs.

3.6 Data Analysis Procedures

Data analysis involved both descriptive and inferential statistical techniques. Descriptive statistics were used to summarise the demographic characteristics of the respondents and provide an overview of the study variables. Inferential analysis, specifically multiple linear regression analysis, was employed to examine the relationships between the five service quality dimensions - tangibility, reliability, responsiveness, assurance and empathy - and student satisfaction. This approach enabled the estimation of the relative contribution of each service quality dimension to student satisfaction while controlling for the overlapping effects among the predictors. Statistical significance was assessed at the 5% level ($p < .05$).

3.7 Ethical Considerations

Ethical clearance for the study was obtained prior to data collection. Participation was voluntary and respondents were informed of the study's purpose before giving their informed consent. Anonymity and confidentiality were strictly maintained and all data collected were used solely for academic purposes. These ethical procedures align with the principles of responsible and ethical research practice outlined by Creswell and Plano Clark (2017).

4 Findings and Discussion

This section presents the study findings. Literature and related studies assisted in the discussion of the findings. The section begins with the demographic profile of respondents and then moves into the presentation and discussion of the thematic findings.

4.1 Profile of Study Respondents

This section provided a detailed analysis of the demographics of the respondents.

Table 1: Profile of Study Respondents

Variable	Category	Frequency (n)	Percentage (%)
Gender	Female	87	43.5
	Male	78	39
	Prefer not to say	35	17.5
	Total	200	100
Age Group	18-25 years	114	57
	26-35 years	69	34.5
	36 years and above	17	8.5
	Total	200	100
Level of Study	First Year	36	18
	Second Year	61	30.5
	Third Year	54	27
	Fourth Year	49	24.5
	Total	200	100
School	Education	57	28.5
	Business Studies	52	26
	Humanities and Social Sciences	46	23
	School of Natural Sciences	45	22.5
	Total	200	100

Source: Field Data (2026)

Table 1 presents the demographic characteristics of the 200 students who participated in the study. Regarding gender, female respondents constituted the largest proportion at 43.5% ($n = 87$), followed by males at 39.0% ($n = 78$), while 17.5% ($n = 35$) preferred not to disclose their gender. This distribution indicates relatively balanced representation between male and female respondents. In terms of age, the majority of respondents were aged 18–25 years (57.0%), followed by those aged 26–35 years (34.5%), while only 8.5% were aged 36 years and above. This indicates that the sample was predominantly composed of younger students, consistent with the typical undergraduate university population. Regarding level of study, second-year students represented the largest group (30.5%), followed by third-year students (27.0%), fourth-year students (24.5%) and first-year students (18.0%). The distribution demonstrates that students from all four levels of study participated, thereby capturing service experiences across different stages of university education. Regarding school affiliation, Education accounted for the largest proportion (28.5%), followed by Business Studies (26.0%), Humanities and Social Sciences (23.0%) and Natural Sciences (22.5%). Overall, the distribution demonstrates broad representation across schools,

study levels, age groups and gender categories, providing a diverse basis for assessing students' perceptions of service quality and satisfaction.

4.2 Effect of Service Quality Dimensions on Student Satisfaction

Table 2 presents the results of the multiple linear regression analysis conducted to determine the effect of the five service quality dimensions - tangibility, reliability, responsiveness, assurance and empathy - on student satisfaction. The analysis estimated the independent contribution of each SERVQUAL dimension to student satisfaction while controlling for the effects of the other dimensions in the model. The regression coefficients, standard errors, standardised beta coefficients, t-statistics and significance levels provide the basis for determining the direction, magnitude and statistical significance of each relationship.

Table 2: Regression Results for the Effect of Service Quality Dimensions on Student Satisfaction

Predictor	B	SE	Beta	T	Sig.
(Constant)	0.623	0.202	—	3.088	0.002
Empathy	0.003	0.067	0.003	0.049	0.961
Tangibles	0.15	0.069	0.145	2.192	0.030
Assurance	0.028	0.051	0.033	0.557	0.578
Responsiveness	0.237	0.071	0.266	3.337	0.001
Reliability	0.328	0.075	0.345	4.349	0.000

Source: Field Data (2026)

Tangibility

The regression results revealed that tangibility had a statistically significant positive effect on student satisfaction ($B = 0.150$, $\beta = .145$, $t = 2.192$, $p = .030$). Since the p-value was below the .05 significance threshold, the findings indicate that improvements in tangible aspects of university service delivery are associated with increased student satisfaction, after controlling for the other SERVQUAL dimensions. The standardised coefficient ($\beta = .145$) indicates a positive, although relatively modest, contribution of tangibility to student satisfaction.

The finding supports the SERVQUAL Model of Parasuraman et al. (1988), which identifies physical facilities, equipment, personnel and communication materials as important cues through which customers evaluate service quality. Within higher education, these tangible attributes include classrooms, libraries, ICT infrastructure, learning resources, furniture and the overall physical learning environment.

The finding is consistent with Farahmandian et al. (2013), Kundi et al. (2014) and Twaissi and Al-Kilani (2015), who established positive relationships between tangibility and student satisfaction. It also corroborates Mwiya et al. (2017), whose study of 656 final-year students at a Zambian public university established positive relationships between service-quality dimensions and overall student satisfaction. The findings therefore demonstrate that physical and technological resources remain relevant to students' evaluation of university services. Consequently, continued investment in classrooms, ICT infrastructure, libraries and learning resources can contribute to improved student satisfaction, although these investments should complement improvements in other service-quality dimensions.

Reliability

The results established that reliability had the strongest statistically significant positive effect on student satisfaction ($B = 0.328$, $\beta = .345$, $t = 4.349$, $p < .001$). The standardised coefficient ($\beta = .345$) was the highest among all five SERVQUAL dimensions, indicating that reliability was the most influential independent predictor of student satisfaction. Thus, improvements in the consistency, accuracy and dependability of university services are associated with substantial improvements in students' satisfaction.

This finding strongly supports the SERVQUAL Model, which conceptualises reliability as the ability of an organisation to perform promised services dependably and accurately (Parasuraman et al., 1988). In a university context, reliability includes adherence to academic schedules, accurate maintenance of student records, timely processing of examination results, consistency of administrative procedures and fulfilment of commitments made to students.

The result is consistent with previous empirical evidence. Studies by Hasan et al. (2009), Hassan and Ibrahim (2010), Sultan and Wong (2012), and Negricea et al. (2014) established positive relationships between reliability and student satisfaction. More importantly, Bwachele et al. (2023) found that reliability significantly predicted satisfaction among 398 students in Tanzanian higher learning institutions. The result also reinforces earlier Zambian evidence from Mwiya et al. (2017). The prominence of reliability suggests that students particularly value universities that consistently deliver what they promise. Management should therefore prioritise accurate records, timely results, dependable academic schedules and consistent administrative services.

Responsiveness

The regression analysis revealed that responsiveness had a statistically significant positive effect on student satisfaction ($B = 0.237$, $\beta = .266$, $t = 3.337$, $p = .001$). Responsiveness emerged as the second strongest predictor after reliability. The positive standardised coefficient indicates that increased responsiveness in university service delivery is associated with higher levels of student satisfaction, while controlling for the remaining SERVQUAL dimensions.

The finding supports Parasuraman et al.'s (1988) SERVQUAL Model, which conceptualises responsiveness as employees' willingness to assist customers and provide prompt service. In higher education, responsiveness may be reflected through timely responses to student enquiries, efficient handling of complaints, accessibility of academic and administrative staff, prompt communication and timely feedback.

The finding is consistent with empirical studies by Arambewela and Hall (2006), Wei and Ramalu (2011), Jiewanto et al. (2012) and Kundi et al. (2014), which established positive relationships between responsiveness and student satisfaction across different higher education settings. It also complements the Zambian findings of Mwiya et al. (2017), whose research demonstrated that perceived service-quality dimensions were positively related to overall satisfaction.

The relatively strong effect of responsiveness suggests that students attach considerable importance to the speed and willingness with which their needs are addressed. Consequently, university management should strengthen response mechanisms, reduce unnecessary service delays, improve communication channels and ensure that academic and administrative personnel respond promptly to students' enquiries and concerns.

Assurance

The results showed that assurance had a positive but statistically insignificant effect on student satisfaction ($B = 0.028$, $\beta = .033$, $t = 0.557$, $p = .578$). Since the p -value exceeded .05, assurance did not independently explain significant variation in student satisfaction when tangibility, reliability, responsiveness and empathy were simultaneously controlled for. The small standardised coefficient ($\beta = .033$) further demonstrates its limited unique contribution within the regression model.

This finding provides limited empirical support for the assurance dimension of the SERVQUAL Model. Parasuraman et al. (1988) conceptualise assurance in terms of employees' knowledge, courtesy and ability to inspire trust and confidence. Within universities, this encompasses staff competence, professionalism, courtesy and students' confidence in academic and administrative personnel.

The result contrasts with Cardona and Bravo (2012), Jiewanto et al. (2012), Sumaedi et al. (2011) and Farahmandian et al. (2013), who established significant positive relationships between assurance and student satisfaction. It also differs from earlier Zambian evidence from Mwiya et al. (2017), which found that the SERVPERF service-quality dimensions positively influenced student satisfaction.

The divergence suggests that the relative influence of assurance may vary according to institutional context and the simultaneous effects of other service dimensions. Importantly, statistical insignificance does not imply that staff competence, courtesy and professionalism are unimportant. Rather, assurance did not provide significant additional explanatory power after the other dimensions were controlled. Universities should therefore maintain professional and knowledgeable personnel while prioritising dimensions such as reliability and responsiveness that demonstrated stronger independent effects.

Empathy

The regression results indicated that empathy did not have a statistically significant effect on student satisfaction ($B = 0.003$, $\beta = .003$, $t = 0.049$, $p = .961$). Empathy recorded the smallest standardised coefficient among all five dimensions, indicating virtually no unique contribution to student satisfaction after controlling for the remaining SERVQUAL dimensions.

The finding provides limited support for the empathy dimension of the SERVQUAL Model. Parasuraman et al. (1988) define empathy as caring and individualised attention provided to customers. Within higher education, empathy may include understanding students' individual circumstances, providing personalised assistance, demonstrating concern for their welfare and maintaining convenient opportunities for students to interact with staff.

The result contrasts with earlier studies from Malaysia (Wei & Ramalu, 2011), Iran (Rezaei et al., 2011) and Pakistan (Kundi et al., 2014), which reported positive relationships between empathy and student satisfaction. It also differs from the broader findings of Mwiya et al. (2017) in the Zambian higher education context, where the service-quality dimensions were positively associated with satisfaction.

The finding may indicate that students in the present institutional setting place greater emphasis on whether services are reliably and promptly delivered than on the extent of personalised attention received. This interpretation is supported by the substantially stronger coefficients recorded for reliability ($\beta = .345$) and responsiveness ($\beta = .266$). Nevertheless, empathy remains an important component of student-centred service delivery. The university should therefore continue promoting respectful, supportive and individualised student interactions while ensuring that such interpersonal attention is accompanied by dependable and responsive service delivery.

5 Conclusion and Recommendations

5.1 Conclusion

This study examined the relationship between service quality and student satisfaction in higher education, drawing empirical evidence from a public university in Zambia. Guided by the SERVQUAL Model, the study assessed the effects of tangibility, reliability, responsiveness, assurance and empathy on student satisfaction. The findings demonstrate that service quality is important in shaping students' higher education experiences, although the individual dimensions vary considerably in their influence on satisfaction.

Reliability emerged as the strongest predictor of student satisfaction ($\beta = .345$, $p < .001$), followed by responsiveness ($\beta = .266$, $p = .001$) and tangibility ($\beta = .145$, $p = .030$). These findings demonstrate that students particularly value higher education institutions that provide dependable and accurate services, respond promptly to their needs, and maintain adequate physical and technological learning resources. Conversely, assurance and empathy did not significantly predict student satisfaction when the five dimensions were considered simultaneously.

The findings therefore provide partial empirical support for the SERVQUAL Model and reinforce the argument that the relative importance of service quality dimensions is context-specific. In the context of the public university studied, functional aspects of service delivery, particularly reliability and responsiveness, appear more influential in determining satisfaction than interpersonal dimensions such as assurance and empathy.

Overall, the study concludes that enhancing student satisfaction in higher education requires more than improvements in academic provision alone. Public universities must provide an integrated service experience characterised by dependability, responsiveness and adequate supporting infrastructure. The findings contribute institution-specific evidence to the growing literature on service quality and student satisfaction in Zambia and demonstrate the continued relevance of systematically assessing students' experiences as part of higher education quality improvement.

5.2 Recommendations

Based on the findings, public higher education institutions should adopt a student-centred and evidence-based approach to service quality improvement, with particular attention to the dimensions that significantly influence student satisfaction. First, greater priority should be given to service reliability, which emerged as the strongest predictor of satisfaction. Universities should strengthen systems for accurate student records, timely processing and publication of results, adherence to academic calendars, consistent implementation of administrative procedures and dependable delivery of promised services. Increased digitalisation and routine monitoring of service standards could further enhance consistency and minimise delays and errors.

Second, universities should strengthen responsiveness by reducing waiting times and improving the speed with which student enquiries, complaints and requests are addressed. Clear service-response timelines should be established across academic and administrative units. Digital communication platforms, student help desks and feedback mechanisms should also be strengthened to facilitate timely communication and resolution of student concerns.

Third, continued investment in tangible aspects of higher education service delivery is recommended. Universities should progressively improve classrooms, libraries, ICT infrastructure, internet connectivity, teaching equipment and other learning resources. Such investments should be guided by students' changing academic and technological needs.

Although assurance and empathy did not independently predict satisfaction, universities should continue promoting staff professionalism, competence, courtesy and student-centred interactions, as these remain important components of overall service quality.

Finally, public universities should institutionalise periodic service quality and student satisfaction assessments to identify emerging service gaps and guide resource allocation and quality-improvement strategies. At the sector level, similar studies should be conducted across multiple public and private universities in Zambia to determine whether the observed relationships are consistent across different institutional settings. Future research could also employ mixed-method and longitudinal approaches to provide deeper explanations of how students' service-quality expectations and satisfaction evolve throughout their higher education experience.

Declaration of Competing Interests

The Authors declare no competing interests.

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Authors' Contribution Statement

Formulated and designed the study; established the research framework and technique; directed the composition of the initial manuscript draft.

Ethical considerations

The article followed all ethical standards appropriate for this kind of research.

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