Effect of Service Quality Dimensions on Students' Satisfaction in Selected Chartered Universities in Kenya: A Multinomial Regression Application

Jane Naitore Kimaita [iD], Hellen Kabue [iD], and Stephen Ntuara Kiriinya [iD]
Department of Business Administration and Management, The Technical University of Kenya, Kenya

Phares Ochola [iD]
Department of Management Science, The Technical University of Kenya, Kenya

Abstract

The study sought to establish the effects of service quality dimensions on student satisfaction in selected chartered universities in Kenya. Service quality was measured under four dimensions: service tangibility, responsiveness, reliability, and accessibility on student satisfaction. A cross-sectional descriptive research design was employed. Sampling was conducted in two stages: stage one was the sampling of the universities which were units of analysis, while stage two was sampling students from the sampled universities. Primary data was collected from 400 respondents. Descriptive statistics, namely; cross-tabulations and frequency distributions, were used to summarize the data, whereas inferential statistics were used to determine the relationship's magnitude and direction. Statistical Package for Social Sciences (SPSS) was used for data analysis. The study used the Multinomial Logistic Regression (MLR) Model. The results revealed that service tangibility and responsiveness were statistically significant among the four hypotheses tested on the main effect MLR model.

Keywords: service quality, satisfaction, students, multinomial regression

Introduction

Service quality refers to service delivery meeting and exceeding customer expectations, creating a competitive edge for the organization (Tegambwage, 2017). Service organizations have come to appreciate the importance of customer-centered philosophies and using service quality creates a difference and leads to success (Melaku, 2015). Today's competition in the business environment is stiff; therefore, organizations must deliver high-quality services, continuously evaluate, and focus on improving the current situation (Wijetunge, 2016). A study by Pathmini et al. (2019) indicates that service institutions rendering high-quality service achieve enormous success as they can satisfy customer needs. Service quality is significantly associated with customer satisfaction, which leads to positive word of mouth (Kazungu & Kubenea, 2023).

According to Onditi and Wechuli (2017), service quality construct in higher education identifies many dimensions such as competence of staff, reputation of the institution, delivery styles by tutors and lecturers, reliability, tangibles, responsiveness, sufficiency of resources, administrative services, and staff attitude support services among others. A study by Amoako & Asamoah-Gyimah (2020) investigated indicators of education service quality measurement of universities in Ghana and found that the indicators vary from one institution to another and concluded that researchers need to do more investigations on the quality dimensions that influence students' satisfaction. Additionally, service quality is multi–dimensional construct requiring more exploration since findings from numerous studies have been inconclusive and inconsistent on the dimensions that significantly contribute to students' satisfaction. This is because there has not been a consensus among authors on the dimensions or the best model that could be used to evaluate service quality in the universities, therefore the area requires more exploration (Onditi & Wechuli, 2017).

Review of the Related Literature

Service Tangibility

Tangibility encompasses the appearance of physical facilities, location, equipment, personnel, and communication materials (Paul et al., 2016). Concerning universities, tangibility includes the classroom environment, furniture, buildings, well-printed material, the appearance of the institution, and teaching equipment (Mwiya et al., 2017). Appearance is improved by making the environment serene and attractive, instilling professionalism and ethical practices among staff members, and promoting diversity in equipment and facilities (Raphael, 2014). According to Alhkami and Alarussi (2016), well-maintained physical facilities, available visually appealing teaching materials, and modern equipment may lead to a high score in the tangibles dimension for universities. Students' satisfaction depends on various aspects, including modern classroom facilities, computer

labs, internet facilities, library facilities, and campus layout. Students' satisfaction can also be improved by appropriate support from the administration, financial aid, workshop, and extracurricular facilities. Higher education institutions must focus on quality issues and supervise them to increase student satisfaction (Barua & Uddin, 2021).

Service Responsiveness

Responsiveness can be described as speed, prompt customer service, less waiting time, short queuing time, and timeliness of service delivery (Uyoga & Lagat, 2019). Yarimoglu (2014) indicates that responsiveness is the readiness or willingness of staff members to assist in rendering services and focusing on giving the best service. According to Alhkami and Alarussi (2016), responsiveness is significant as customers feel more treasured when an organization takes action that responds to their expectations. Other authors posited that is the willingness to help clients and give quick service, communicating to customers by the length of time they have to wait to get assistance and attention to their problems and concerns (Pakurár et al., 2019).

Regarding the university, students' view of the service can be influenced by the willingness of the staff to help students, communication skills when providing the service, and the speed of the service. According to Alabboodi, 2019; Kundi et al. 2014 responsiveness impact students' satisfaction as those who perceive a university to be responsive to their needs are more satisfied. A study by Hoque et al. (2023) examined the effect of service quality on student satisfaction and loyalty to private universities. Results indicated that administrative staff's ability to address urgent issues under the responsiveness dimension significantly impacts students' satisfaction in private universities in Bangladesh. Results of a study by Sari (2023) showed that tangible factors significantly affect students' satisfaction, as these are factors that create an impression on students when entering the university. Moreover, university buildings form students' initial perception of service quality.

Service Reliability

Reliability dispenses accurate, competent, and dependable services (Kubra & Orkun, 2017). According to Chege (2020), reliability indicators included providing services as promised, staff being sincere and dependable in handling service problems, performing service right the first time, and maintaining error-free records. In the university setting, the focus is satisfying students by ensuring accuracy in billing, proper record keeping, and performing designated academic and non-academic services at the designated time (Iddrisu et al., 2015). Service reliability is among the five dimensions of the SERVQUAL model, considered the service industry's most dominant service quality dimension (Paposa et al., 2019). The ability of staff to maintain student information confidential, safe, and easy to retrieve when needed will create a sense of trust within the staff (Husain et al., 2022). Additionally, students expect skilled and experienced academic staff, transparency in the evaluation process, proper recording systems, and standard course content, thus increasing their satisfaction (Barua & Uddin, 2021).

Service Accessibility

The accessibility dimension relates to the ease of contact, friendly approachability, availability, and convenience (closeness in time and space) to getting to an institution for services (Randheer, 2015). According to Osman and Saputra (2019), accessibility means that customers can use the services provided by the organization. Approachability and ease of contact are essential elements of accessibility that can lead to increased customer satisfaction. Fonseca et al. (2010) stated that accessibility as one of the service image dimensions can have a significant direct or indirect effect on the satisfaction and loyalty of bank customers. Service accessibility influences customers' satisfaction more so when they can access an institution easily, on time and at a reasonable cost (Triono & Khalid, 2023).

Student Satisfaction

Student satisfaction is a student's total experience with academic and supporting elements of what the institution typically offers (Negricea et al., 2014). Student satisfaction is a key factor for the survival of any institution, including universities (Asma et al., 2018). As primary customers, students' satisfaction can be determined by academic and non-academic aspects and is crucial to any higher education institution (Mestrovic, 2017). Quality service in a university affects students' satisfaction and could result in referring potential students to the university even after completing their course (Gurbuz & Bayraktar, 2023). According to Pedro et al. (2018), student satisfaction leads to loyalty, enhances retention, and supports an institution in increasing its customer base through referrals and positive word of mouth.

Similarly, Al Hassani & Wilkins (2022) stated that student satisfaction enhances student retention in higher education institutions. On the other hand, Kara et al. (2016) opined that student satisfaction can be achieved when universities have knowledgeable and specialized lecturers whom students can easily access for consultation and provide feedback promptly. Providers of services need to understand students' expectations and perceptions of what constitutes a quality service to attract and serve their needs sufficiently (Ali et al., 2023).

Objectives

1. To establish the effect of service tangibility on student satisfaction in selected chartered universities in Kenya.
2. To examine the effect of service responsiveness on student satisfaction in selected chartered universities in Kenya.
3. To assess the effect of service reliability on student satisfaction in selected chartered universities in Kenya.
4. To find out the effect of service accessibility on student satisfaction in selected chartered universities in Kenya.

Hypothesis

1. H_{01} Service tangibility does not affect student satisfaction in selected chartered universities in Kenya.
2. H_{02} Service responsiveness does not affect student satisfaction in selected chartered universities in Kenya.
3. H_{03} Service reliability does not affect student satisfaction in selected chartered universities in Kenya.
4. H_{04} Service accessibility does not affect student satisfaction in selected chartered universities in Kenya.

Methodology

The study adopted a cross-sectional descriptive research design where data was collected from different respondents at a single point in time. The design supported the study's desired objectivity and allowed the logistical flexibility required for data collection and analysis (Blumberg et al., 2014). Rahi (2017) asserts that cross-sectional descriptive surveys are versatile and therefore give accurate means of evaluating the information while enabling the researcher to confirm whether or not there are significant causalities among the variables. Thus, the approach was suitable for the study since questionnaires were administered to respondents at a given time.

Modeling

Main Effect Multinomial Logistic Regression Specification

Multinomial regression is a multi-equation model similar to multiple linear regression. For a nominal dependent variable with k categories, in this case, k = 4, the multinomial regression model estimates k-1 logit equations. At the center of the multinomial regression analysis is estimating the k-1 log odds of each category. In this study, k = 4 ratings of student satisfaction, with the last category as reference multinomial regression estimates k-1 multiple linear regression function of student satisfaction rating as a function of the four explanatory variables defined as follows:

For j = 1,2,3,4

$$\text{Logit } (y = 1) = \left[\frac{P(y=1)}{1\text{-}P(y=1)}\right] = \beta_0 + \beta_1 x_{1j} + \beta_2 x_{2j} + \beta_3 x_{3j} + \beta_4 x_{4j} - - - - - - - - -(1)$$

$$\text{Logit } (y = 2) = \left[\frac{P(y=2)}{1\text{-}P(y=2)}\right] = \beta_0 + \beta_1 x_{1j} + \beta_2 x_{2j} + \beta_3 x_{3j} + \beta_4 x_{4j} - - - - - - - - -(2)$$

$$\text{Logit } (y = 2) = \left[\frac{P(y=3)}{1\text{-}P(y=3)}\right] = \beta_0 + \beta_1 x_{1j} + \beta_2 x_{2j} + \beta_3 x_{3j} + \beta_4 x_{4j} - - - - - - - - -(3)$$

Given that

X_1 – Service tangibility
X_2 – Service responsiveness
X_3 – Service reliability
X_4 – Service accessibility
Y - Student satisfaction
B_0 - The constant
B_k - The coefficient of the kth variable

Results

Goodness-of-Fit Test

The test provides results of the Chi-Square Goodness-of-Fit test used to assess the significance of the overall model. The Pearson and Deviance statistics test the same thing; whether or not the predicted values differ significantly from the observed values. A statistically significant result on the "Pearson" measure indicates that the model is not a good fit for the data. The Goodness of Fit of the model in this study is shown in Table 1.

Table 1
Evaluation of the Goodness of Fit of the Model

Tests	Chi-Square	df	p
Pearson	2710.740	90	.000
Deviance	120.787	90	.017

Table 1 contains Pearson's chi-square statistic for the model (as well as another chi-square statistic based on the deviance). These statistics are intended to test whether the observed data are consistent with the fitted model. In this case, the result gives a chi-square of $x^2_{90} = 2710.740$, $p = .000 < .05$, implying the model does not fit the data well. This result is supported by Deviance test statistic as shown on the Table 1 which gives a Deviance $x^2_{90} = 120.87$, $p = .017 < .05$, which implies that the null hypothesis is accepted and hence the model is not a good fit. However, given the result found under the Model information test criterion, one would still proceed with the modelling process to estimate the desired Multinomial Logistic Regression (MLR) model. This is in line with a study by (Chege, 2020) on service quality dimensions and customer satisfaction in the insurance industry in Kenya concluded that any such results would still be suitable for estimating a multinomial regression model for predictive studies.

Pseudo R^2

In linear regression, R^2 (the coefficient of determination) summarizes the proportion of variance in the outcome that can be accounted for by the explanatory variables, with larger R^2 values indicating that more of the variation in the outcome can be explained up to a maximum of 1. For multinomial logistic and ordinal regression models, it is impossible to compute the same R^2 statistic as in linear regression, so three approximations Cox and Snell, Nagelkerke, and McFadden are computed instead. From our results in the table below, the two most often used Pseudo R^2 estimates: Cox and Snell, and Nagelkerke. Cox and Snell's R^2 shows a value of .48, while Nagelkerke's R^2 shows a value of .69. From the results below, one would interpret the measures as the model explains between 48.4% and 68.6% of the data variance, which is a good result.

Table 2
Pseudo R^2 Estimates

Models	Pseudo R^2
Cox and Snell	.48
Nagelkerke	.69
McFadden	.54

Evaluation of the overall effect of the Predictor variables

The statistics in the Likelihood Ratio Tests Table 3 are the same types as those reported for the null and full models of the Model Fitting Information table. Here however, each explanatory of the model is being compared to the full model in such a way as to allow the researcher to determine if each element should be included in the full model. In other words, does each predictor contribute meaningfully to the full effect?

Table 3
Likelihood Ratio Tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	p
Intercept	213.687[a]	.000	0	.000
Service tangibility	209.943[b]	.000	9	.000
Service responsiveness	248.395	34.708	9	.000
Service accessibility	237.739	24.053	9	.004
Service reliability	383296.839	383083.153	9	.000

Note. [a] This reduced model is equivalent to the final model because omitting the effect does not increase the degrees of freedom.
[b] Unexpected singularities in the Hessian matrix are encountered. This indicates that some predictor variables should be excluded or some categories should be merged.

The likelihood ratio test is based on -2LL ratio. It tests the significance of the difference between the likelihood ratio (-2LL) for the researcher's model with predictors (called model chi-square) minus the likelihood ratio for the baseline model with only a constant.

Significance at the .05 level or lower means the researcher's model with the predictors significantly differs from the one with the constant only (all 'B' coefficients being zero). It measures the improvement in fit that the explanatory variables make compared to the null model. Chi-square is used to assess the significance of

this ratio as in the above to test the null hypothesis that there is no difference between the null and final models against the alternative that there is a difference between the null and final models. The best case is to reject the null as is the result here with service responsiveness being significant at $x_9^2 = 34.708$, $p = .000 < .05$ service accessibility significant at $x_9^2 = 24.053$, $p = .004 < .05$ and service reliability significant at $x_9^2 = 383083.153$, $p = .000 < .05$. The above results indicate that the estimated model should include all the predictors.

Parameter Estimates of the MLR Model

In this context, the MLR model's estimated parameters summarize each predictor's effect, where the ratio between each

coefficient and its standard error squared equals the Chi-square Wald statistic.

The Odds Ratio (OR) for each category of the dependent variable (1 - *strongly agree*, 2 - *agree*, and 3 - *disagree*) relative to the reference category (4 - *strongly agree*) are available for each independent variable in the Exp (B) column. It is instructive to note that parameters with significant negative/positive coefficients decrease/increase the likelihood of the response variable category with respect to the reference variable category. When beta is positive/negative, then Exp (B) is higher /smaller than 1which means that Odds Ratio is Exp (B). The estimates from the parameters obtained through the maximum likelihood estimation method for the final model are summarized in Table 4.

Table 4
Parameter Estimates Results

	Student satisfaction	B	SE	Wald	df	p	Exp(B)	Information
Strongly agree	Intercept	18.801	7.091	7.029	1	.008		
	Service tangibility	3.611	1.627	4.924	1	.026	37.016	Significant
	Service responsiveness	-2.877	1.221	5.555	1	.018	.056	Significant
	Service reliability	-9.060	2.358	14.759	1	.000	.000	Significant
	Service accessibility	.259	2.389	.012	1	.914	1.296	Not significant
Agree	Intercept	26.285	4.086	41.389	1	.000		
	Service tangibility	1.603	1.418	4.279	1	.038	4.970	Significant
	Service responsiveness	-1.732	.989	5.071	1	.024	.177	Significant
	Service reliability	-6.261	1.919	10.647	1	.001	.002	Significant
	Service accessibility	-3.225	1.304	6.115	1	.013	.040	Significant
Disagree	Intercept	17.857	2.496	51.190	1	.000		
	Service tangibility	-1.129	.587	3.995	1	.046	.323	Significant
	Service responsiveness	-1.750	.435	16.154	1	.000	.174	Significant
	Service reliability	.489	.959	.260	1	.610	1.631	Not significant
	Service accessibility	-2.996	.893	11.253	1	.001	.050	Significant

Note. SE = Standard error.
Reference category: Strongly disagree

From the *strongly agree* category of student satisfaction with the *strongly disagree* as the reference category, except for service accessibility ($p = .914 > .05$), the predictors that were found to be statistically significant were service tangibility ($p = .026 <. 05$), service responsiveness ($p = .018 < .05$) and service reliability ($p = .000 < .05$). As mentioned earlier, in the interpretation of the logit coefficient is the Odds Ratio (EXP (B). Exp (B) is the effect of the independent variable on the "Odds Ratio." When the Odds Ratio is greater than 1 (corresponding to a positive coefficient), a one-unit change in the independent variable would more likely affect the dependent variable by a value equivalent to the Odds Ratio. Alternatively, when the Odds Ratio is less than 1 (corresponding to a negative coefficient), a one-unit change in the independent

variable would be less likely to affect the dependent variable by a value equivalent to the Odds Ratio.

On the Exp (B) results holding the rest of the three predictor variables constant, a one-unit change in perceived service tangibility rating would more likely affect student satisfaction 37 times. Similarly, for one unit increase in perceived service responsiveness rating, there is expected to be a .056 decrease in the log –odds. A .000 decrease in the log – odds will accompany a unit increase in service reliability. While service accessibility is not statistically significant, a one-unit variable increase will increase the log odds by 1.296. The estimated MLR predictive model for the "*strongly agree*" category is as shown in Equation 1 below:

$$\log\left[\frac{\pi_1}{\pi_0}\right] = 18.801 + 3.611x_1 - 2.877x_2 - 9.060x_3 + .259x_4 - - - - - - - - - -Eqn.\ 1$$

From the "*agree*" category of student satisfaction as indicated in Table 4, service tangibility ($p = .038 < .05$), service responsiveness ($p = .024 < .05$), service accessibility ($p = .013 < .05$), and service reliability ($p = .001 < .05$) were found statistically significant compared to the reference category "*strongly disagree*". Again, a unit increase in service tangibility rating is expected to accompany a 4.970 increase in the log–odds holding the other independent

variables. Similarly, a unit increase in service responsiveness rating will also be a .177 decrease in the log odds. On the other hand, regarding the statistically significant cases, one unit increase in service accessibility and service reliability will be accompanied by a .002 and .04 decrease in the log odds of the response variable. The estimated MLR predictive model for the "*agree*" category is as shown in Equation 2 below:

$$\log\left[\frac{\pi_1}{\pi_0}\right] = 26.285 + 1.603x_1 - 1.732x_2 - 6.261x_3 - 3.225x_4 - - - - - - - - - -Eqn.\ 2$$

Lastly, for the "*disagree*" category of student satisfaction, only service reliability ($p = .610 > .05$) was found not to be statistically significant compared to the reference category "*strongly disagree*" group. However, service tangibility ($p = .046 < .05$, service responsiveness ($p = .000 < .05$) and service accessibility ($p = .001 < .05$) produced statistically significant results. As in the above case, it can be stated that a unit decrease in service tangibility

rating and service reliability are respectively expected to lead to a .323 and 1.631 increase in the log –odds of the response variable, respectively. However, for the statistically significant cases, a unit decrease in service responsiveness rating and service reliability will lead to a .174 and .050 decrease in the log odds of the response variable. The estimated MLR predictive model for the "*agree*" category is as shown in Equation 3 below:

$$\log\left[\frac{\pi_1}{\pi_0}\right] = 17.857 - 1.129x_1 - 1.750x_2 + .489x_3 - 2.996x_4 - - - - - - - - - -Eqn.\ 3$$

In this study, the following four hypotheses about the explanatory variables (service tangibility, service responsiveness, service reliability and service accessibility) and the outcome variable (service satisfaction and have been designed to guide the study:

1. H_{01} Service tangibility does not affect student satisfaction in selected chartered universities in Kenya.
2. H_{02} Service responsiveness does not affect student satisfaction in selected chartered universities in Kenya.

3. H_{03} Service reliability has no effect on student satisfaction in selected chartered universities in Kenya.
4. H_{04} Service accessibility does not affect student satisfaction in selected chartered universities in Kenya.

According to the parameter estimate results in Table 4, H_{01} to H_{04} were tested. It is instructive to note that the explanatory variables must be either significant or not over all three rating categories. Based on the results obtained in this study, it can be shown that only two of the four explanatory variables can be used to distinguish respondents across the three rating categories: service tangibility and service responsiveness since these are statistically significant for each of the three rating categories. That is, there is no evidence from the sample to accept the hypotheses corresponding to these two explanatory variables. In conclusion, there is a significant relationship between service tangibility, student satisfaction, and service responsiveness and student satisfaction. In this regard, service tangibility affects student satisfaction in selected chartered universities in Kenya. This concurs with a study by Twaussi and A-Kilani, (2015) on the impact of perceived service quality and student satisfaction in higher education that concluded tangibility dimension strongly influenced student satisfaction in the university. On the contrary, a study by Kajenthiran and Karunanithy (2015) on service quality and student satisfaction found that tangibility had no significant effect.

Similarly, service responsiveness affects student satisfaction in selected chartered universities in Kenya. This is in line with a study by (Jaza et al., 2020) on the impact of service quality on student satisfaction within higher education institutions found that the responsiveness dimension of service quality affects the achievement of student satisfaction in the universities. This meant that if university staff were highly responsive towards students' needs, consequently their satisfaction would be enhanced.

Conclusion

Results of the MLR model revealed that service quality dimensions significantly affected student satisfaction. This was based on two service quality dimensions (service tangibility and service responsiveness), which were significant across all evaluation categories under the main effect model. From the results, service tangibility was perceived to affect student satisfaction significantly. This was confirmed by findings that were revealed by the rating of the predictor across all the evaluation categories of the main effect model. This implied that the university had appropriate learning facilities which helped students to feel relaxed and motivated to work hard to pursue their studies successfully.

Results indicated that service responsiveness had a significant effect on student satisfaction. According to the study, the variable was rated significant across all categories, implying that staff commitment toward students' needs was commendable. They were prompt and committed to serving. Though universities must devise the best means to communicate promptly to students when delays occur, this could go a long way to ensuring that students are informed well, thus improving student satisfaction.

Results of the MLR model indicated that service reliability and accessibility had no significant effect on student satisfaction. The perceived rating of the variables was only significant in two categories, while in the third '*disagree*' category, the value was not significant. Hence the null hypotheses (H_{01}) were accepted.

Limitations and Direction for Future Research

The study was limited to students from business schools only in Chartered Universities, specifically second, third, and fourth-year students. Therefore, further research could focus on other university schools, such as engineering and where findings could be compared.

Recommendations

The study recommends that service quality assessment ought to be done at regular intervals by universities as this would aid in identifying and addressing service quality gaps. It also recommended that universities develop and implement an effective service quality policy. The policy would serve as a guideline for achieving expectations and enable continuous improvement in service quality.

References

Al Hassani, A. A., & Wilkins, S. (2022). Student retention in higher education: The influences of organizational identification and institution reputation on student satisfaction and behaviors. *International Journal of Educational Management*, *36*(6), 1046–1064. https://doi.org/10.1108/IJEM-03-2022-0123

Alabboodi, A. S. (2019). The effect of customer satisfaction in service quality: The case of Iraqi Banks. *International Journal of Applied Research*, *5*(1), 146–152.

Alhkami, A. A., & Alarussi, A. S. (2016). Service quality dimensions and customer satisfaction in telecommunication companies. *Asian Journal of Business and Management, 4*(3), 117–126.

Ali, M. M., Nsubuga, H., & Yusuf, S. (2023). Assessing service quality and students' satisfaction at institute of public administration (IPA) in Unguja Zanzibar. *International Journal of Academic Research in Progressive Education and Development*, *12*(1), 723-734 https://doi.org/10.6007/IJARPED/v12-i1/15890

Amoako, I., & Asamoah-Gyimah, K. (2020). Indicators of students' satisfaction of quality education services in some selected universities in Ghana. *South African Journal of Higher Education*, *34*(5), 61-72. https://dx.doi.org/10.20853/34-5-4252

Asma, S., Dine, MSB, Wafaa, B., & Redouan, A. (2018). The effect of perception quality/price of service on satisfaction and loyalty Algerians customers' evidence study Turkish airlines. *International Journal of Economics and Management Sciences*, *7*(1),1-6. https://dx.doi.org/10.4172/2162-6359.1000503

Barua, D., & Uddin, M. S. (2021). Service quality dimensions of higher education institutions and students' satisfaction: Bangladesh perspective. *International Journal of Social Science Studies*, *9*(2), 13-19. https://doi.org/10.11114/ijsss.v9i2.5126

Blumberg, B. F., Cooper, D. R., & Schindler, P. S. (2014). *Business research methods*. McGraw-Hill Education.

Chege, C. N. (2020). *The relationship between service quality dimensions and customer satisfaction in the insurance industry in Kenya* [Unpublished doctoral thesis]. Business Management of Karatina University, Kenya.

Fonseca, F., Pinto, S., & Brito, C. (2010). Service quality and customer satisfaction in public transport. *International Journal for Quality Research*, *4*(2), 125–130.

Gurbuz, E., & Bayraktar, M. (2023). Assessment of service quality effect in higher education sector on satisfaction, and behavioral intention of university students: The case of Turkey. *Tuning Journal for Higher Education*, *10*(2), 69-103. https://doi.org/10.18543/tjhe.2403

Hoque, U. S., Akhter, N., Absar, N., Khandaker, M. U., & Al-Mamun, A. (2023). Assessing service quality using servqual model: An empirical study on some private universities in Bangladesh. *Trends in Higher Education*, *2*(1), 255-269. https://doi.org/10.3390/higheredu2010013

Husain, R., Arifin, A., Cakranegara, P., Victornie, I., Perdana, I., & Nugroho, B. S. (2022). Analysis of student satisfaction with the quality of education services. *Cypriot Journal of Educational Sciences*, *17*(2), 343–356. https://doi.org/10.18844/cjes.v17i2.6802

Iddrisu, M. S., Nooni, I. K., & Fianko, S. K. (2015). Assessing the impact of service quality on customer loyalty: A case study of the cellular industry of Ghana. *British Journal of Marketing Studies*, *3*(6), 15–30.

Jaza, H. T., Mustafa, S., & Ahmet, E. (2020). The impact of service quality on student and academic staff satisfaction within higher education institutions: A case study of Sulaimani city in Northern Iraq. *Revisita Argentina de Clinica Psicologica*, *XXIX* (5), 440–450.

Kajenthiran, K., & Karunanithy, M. (2015). Service quality and student satisfaction: A case study of private external higher education institutons in Jaffna, Sri Lanka. *Journal of Business Studies*, *1*(2), 46-64.

Kara, A. M., Tanui, E., & Kalai, J. M. (2016). Educational service quality and students' satisfaction in public universities in Kenya. *International Journal for Educational Social Sciences*, *3*(10), 37–48.

Kazungu, I., & Kubenea, H. (2023). Customer satisfaction as a mediator of service facility and word of mouth in higher learning institutions. *Journal of Applied Research in Higher Education*. https://doi.org/10.1108/JARHE-04-2022-0128

Kubra, S., & Orkun, D. (2017). Modeling service quality, customer satisfaction and behavioral intentions in airline industry: A SEM approach. *Journal of International Scientific Researches*, *2*(6), 11-29. https://doi.org/10.23834/isrjournal.341694

Kundi, G. M., Khan, S. M., Qureshi, Q. A., Khan, Y., & Akhar, R. (2014). Impact of service quality on customer satisfaction in higher education. *Higher Education*, *4*(3), 23–28.

Melaku, M. (2015). *Impact of service quality on customer satisfaction: The case of bank of Abyssinia* [Unpublished master's dissertation]. Addis Ababa University.

Mestrovic, D. (2017). Service quality, students' satisfaction and behavioral intentions in STEM and IC higher education institutions. *Interdisciplinary Description of Complex Systems*, *15*(1), 66–77. https://doi.org/10.7906/indecs.15.1.5

Mohammed, H. I. (2015). 7-Ps marketing mix and retail bank customer satisfaction in Northeast Nigeria. *British Journal of Marketing Studies*, *3*(3), 71–88.

Mwiya, B., Bwalya, J., Siachinji, B., Sikombe, S., Chanda, H., & Chawala, M. (2017). Higher education quality and student satisfaction nexus: Evidence from Zambia. *Creative Education*, *8*(7), 1044–1068. https://doi.org/10.4236/ce.2017.87076

Negricea, C. I., Edu, T., & Avram, E. M. (2014). Establishing influence of specific academic quality on student satisfaction. *Procedia – Social and Behavioral Sciences*, *116*, 4430–4435. https://doi.org/10.1016/j.sbspro.2014.01.961

Onditi, E. O., & Wechuli, T. W. (2017). Service quality and student satisfaction in higher education institutions. *International Journal of Scientific and Research Publications*, 7.

Osman, A., & Saputra, R. S. (2019). A pragmatic model of student satisfaction: A view point of private higher education. *Quality Assurance in Education*, *27*(2), 142–165.

Pakurár, M., Haddad, H., Nagy, J., Popp, J., & Oláh, J. (2019). The service quality dimensions that affect customer satisfaction in the Jordanian banking sector. *Sustainability*, *11*(4), 1113. https://doi.org/10.3390/su11041113

Paposa, S. S., Ukinkar, D. V. G., & Paposa, D. K. K. (2019). Service quality and customer satisfaction: Variation in customer perception across demographic profiles in life insurance industry. *International Journal of Innovative Technology and Exploring Engineering*, *8*(10), 3767–3775. https://doi.org/10.35940/ijitee.J9970.0881019

Pathmini, M., Wiiewardana, W., Gamage, C., & Gamini. (2019). Impact of service quality on student's satisfaction in newly established public sector universities in Sri Lanka: Study based on the faculty of management studies. *Journal of Management Matters*, *1*(1), 51-64.

Paul, J., Mittal, A., & Srivastav, G. (2016). Impact of service quality on customer satisfaction in private and public sector banks. *International Journal of Bank Marketing*, *34*(5), 606–622. https://doi.org/10.1108/IJBM-03-2015-0030

Pedro, E., Mendes, L., & Lourenco, L. (2018). Perceived service quality and Student's satisfaction in higher education: The influence of teaching methods. *International Journal for Quality Research*, *12*(1).

Rahi, S. (2017). Research design and methods: A systematic review of research paradigms, sampling issues and instruments development. *International Journal of Economics and Management Sciences*, *6*(2), 403. https://doi.org/10.4172/2162-6359.1000403

Randheer, K. (2015). Service quality performance scale in higher education: Culture as a new dimension. *International Business Research*, *8*(3), 29. https://doi.org/10.5539/ibr.v8n3p29

Raphael, M. (2014). *An analysis of service quality measurements in tertiary colleges in Kenya: A case study of Zetech College* [Unpublished masters thesis]. Kenyatta University.

Sari, A. N. (2023). Impact of service quality dimensions on student satisfaction in universities. *International Journal of Social Science and Human Research*, *6*(3-10), 1416–1428. https://doi.org/10.47191

Tegambwage, A. G. (2017). The relative importance of service quality dimensions: An empirical study in the Tanzanian higher education industry. *International Research Journal Interdisciplinary Multidisciplinary Study (IRJIMS)*, *3*, 76–86.

Triono, W. A., & Khalid, J. (2023). The influence of service quality, brand image and accessibility on hotel customer satisfaction in Indonesia. *Strategic Management Business Journal*, *3*(1), 153–164. https://doi.org/10.55751/smbj.v3i01.58

Twaussi, N. M., & A-Kilani, M. H. (2015). The impact of perceived service quality on students' intentions in higher education in a Jordanian government university. *Journal of International Business Research*, *8*(5), 81–92. https://doi.org/10.5539/ibr.v8n5p81

Uyoga, D., & Lagat, C. (2019). *Relationship between customer responsive, service* performance and satisfaction among airline passengers in Kenya. *Journal of Emerging Trends in Economics and Management Sciences*, *10*(2), 61-69.

Wijetunge, D. S. (2016). Service quality, competitive advantage and business performance in service providing SMEs in Sri Lanka. *International Journal of Scientific and Research Publications*, *6*(7), 720-728.

Yarimoglu, E. K. (2014). A review on dimensions of service quality models. *Journal of Marketing Management*, *2*(2), 79–93.