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Multinomial modelling of customer satisfaction in the education sector

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Abstract

Aim/purpose – This paper aims at analysing the influence of the quality of services offered by higher learning institutions on student satisfaction.

Design methodology/approach – Stratification sampling design was utilised to select a representative sample of 606 students from different schools/faculties of Mzumbe University in Tanzania. Data were collected using the closed questionnaire. The data were then processed and analysed through the prediction of categories of response variables of satisfaction against several explanatory variables using multinomial logistic regression model.

Findings – The results indicated that responsiveness, reliability, tangibility, assurance and empathy variables have significant influence on student satisfaction. The study concluded that improving services on these variables is bound to lead to maximisation of satisfaction which would result into increased students' enrolment.

Research implications/limitation – The findings of the investigation reveal further that apart from competence and attitude of lectures, teaching facilities was another important criterion for satisfaction.

Originality/value/contribution – Understanding the quality of services offered by higher learning institution is imperative for the development of any institution. This paper serves as a bench mark in evaluating the quality of services as perceived by students.

Keywords: university, satisfaction, quality. **JEL Classification:** H830, I23, I21.

1. Introduction

The services industry plays a vital role in the economic development of many nations around the globe. Higher education is one of the predominant industries in the services sector and plays a significant role toward social and economic development of a nation. According to literature (Özgüngör, 2010) once students are satisfied with the services, they would put more effort in attending class, reviewing books and in doing other academic activities with the aim of attaining knowledge and build competence. Attractive environment should be created and maintained to ensure enrolment of qualified candidates so as to guarantee the survival of any academic institution. In order to provide demand driven services, critical investigation of the determinants of student satisfaction is important for any higher leaning institution to remain competitive (Poturak, 2014). In this respect, the institution of higher learning should devise strategies of improving the quality of the services that meet or exceed the needs of students through taking into account their views while implementing institutional development plans.

In view of the many challenges that face institutions of higher learning, which include but not limited to inadequacy of funds, the need for public accountability and the ongoing competition in students' enrolment, understanding students' opinions and preference is inevitable (Elliott & Shin, 2002). Thus, students' satisfaction has often been used as a key indicator of the quality of services provided by a particular institution. Recently, working environment in higher learning institutions has changed due to the changing social and economic dynamics around the globe. These changes therefore call for understanding of these global dynamics. The ever rising demand of producing competitive candidates has exerted great pressure upon the university of improving the quality of its services. This trend calls for close attention on the monitoring and evaluation of the services provided by higher learning institution. Owing to the role of education in the social and economic development of a community, it is essential to make a comparative analysis between the customers expectation in terms of quality against the actual service which are provided. It is widely acknowledged that if any academic institution is to become the centre of excellence, the production of candidates who are competent and marketable in the labour market is inevitable. One of the mechanisms is to create the environment that makes students comfortable and can efficiently acquire knowledge and skills. The means through which the needs of students can be met is the evaluation of the quality of

services from the students' point of view. Mzumbe is one of the reputable public universities in Tanzania. The university was established in 2001 as a result of the promotion of the former Institute of Development Management. Since Independence in 1961, the higher learning sector in Tanzania has been expanding from one to more than seventy higher learning institutions (United Republic of Tanzania [URT], 2015). The competition among universities at both national and international levels and the need for increasing the internal generated revenue has led to the need of examining the quality of service as a measure of improving performance and attracting more applicants.

The concept of student satisfaction has been documented worldwide though conceptualised differently by different people. Scholars (e.g. Khozaei, Ayub, & Hassan, 2013; Mogenet & Rioux, 2014) conceptualise student satisfaction with regards to accommodation. Owing to the importance of assessing the quality as perceived by students, Coll & Zalaquett (2007), examined satisfaction with regards to advising. Elsewhere, Voss, Gruber, & Szmigin (2007) looked at satisfaction with the quality of teaching and other scholars (Beqiri, Chase, & Bishka, 2010; Bradford & Wyatt, 2010) – with the quality of e-learning. Similarly, Angel, Alfredo, Lidia, Bettylu, & Humberto (2001) conceptualise satisfaction with the quality of health service.

While students' satisfaction and service quality is a well-researched topic, there are still a few questions about how to study the concept of satisfaction by conceptualizing student satisfaction with the general services provided by higher leaning institutions. Thus, this paper analysed the overall students' satisfaction with the general services. The study contributes to the body of knowledge on the perception of students' satisfaction on the quality of services provided by higher learning institution in Tanzania.

The services that satisfy candidate may vary from year to year as a result of technological improvement, the onset of new skills and knowledge which are needed in a particular programme. According to the available literature, previous studies on students' satisfaction worldwide have mostly employed non-probability sampling methods which are not representative, subject to bias and hence their findings cannot be generalised for the entire population. In order to increase the precision of results, an attempt has been made in this study to fill the gap through utilising stratification sampling method. Unlike in the previous studies on the subject matter, the current study employs advanced statistical model namely multinomial logistic regression to assess students' satisfaction.

The objective of this research is to determine the influence of five dimensions of service quality namely assurance, empathy, responsiveness, tangibility and reliability on students' satisfaction. Assurance means competency and courtesy of employee to convey trust. Empathy refers to the extent to which organisation care and help customers in individualised maters. Responsiveness refers to the ability of the service provider to provide the service promptly, capturing and willingness to adapt to the needs of the customers. Tangibility refers to physical facilities of what is provided to customers while reliability refers to the ability to accurately fulfil what was promised to users.

The next parts of this paper were organised as follows: section 2 presents literature review, methodology of the study was presented in section 3. The results, discussion and conclusion were presented in section 4, 5, and 6, respectively.

2. Literature review

Feedback on customer satisfaction is a core function of quality assurance to any service provider. Since services and consumer behaviours vary, satisfaction may also vary from one individual to another and from one service to another (Munteanu, Ceobanu, Bobâlca, & Anton, 2010). Therefore the same customer may report high satisfaction with one item but dissatisfaction with another item. McDougall & Levesque (2000) define customer satisfaction as an affective feedback as a result of experiencing various services. Hence, students' satisfaction is a condition whereby the services of an institution meet the perceived expectation of the students. Students experience which has been gathered from the services which have been provided by an institution for a considerable number of years is a base of making judgment on the perceived quality.

Studies from different parts of the world have widely looked at student satisfaction regarding the services provided by academic institutions. A student as a key stakeholder usually makes an evaluation of the services based on the comparison between their expectation and what they are actually experiencing (Pertuzzekis, D'Uggento, & Romanazzi, 2006). When students' satisfaction is higher than what they are getting, it implies dissatisfaction; otherwise when the services offered by an institution match or exceed students' expectation that indicates maximum satisfaction. In a study by scholars (e.g. Marzo Navarro, Iglesias, & Torres, 2005) concluded that the key variables influencing students' satisfaction are the quality of teachers, methods of delivery, and management of an In-

stitution. Learning involves interaction not only between lecturers and students but also between students and other non-teaching staff that support key functions of the institution. According to Umbach & Wawrzynski (2005), the level of students' satisfaction can be determined through interaction that focuses on customer care. And as pointed out by Farahmandian, Minavand, & Afshardost, (2013), teaching facilities, advisory services, tuition fee and curriculum are potential variables that influence student satisfaction. In another study, Manzoor (2013) reveals that accommodation, sports and transport had significant impacts on students' satisfaction. Similarly, Weerasinghe, & Fernando (2018) concluded that teaching facilities, quality of course offered and university image are significant predictors of students' satisfaction. Documented paper by Ali, Zhou, Hussain, Nair, & Ragavan (2016) revealed that among the factors influencing student satisfaction, institutional image contribute significantly to the satisfaction level.

The potential of lecturers particularly regarding the competence which observed during lecture delivery in the class, the correction of the evaluation tools such as tests, exercises, responses to students' questions during lecturing and availability of the lecturers for consultation were found to have an impact on students' satisfaction. A study by Hill, Lomas, & MacGregar (2003) revealed that that student's decision to attend a particular session depends largely on the quality of delivery, attitude and overall capacity of the lecturer during the lecture. Generally, it has been observed that competence of the lecture and methods of lecturing are major determinants of satisfaction (Jalali, Islam, & Ariffin, 2011; Tsedzah, & Obuobisa-Darko, 2015). In another paper, Siming (2005) pointed out that key variables that influence student satisfaction includes student-teacher relationship, competence of lecturers, and teaching facilities. The perceived quality of service varies from one community to another due to variability of social values in the society (Kashan, 2012).

3. Methodology

3.1. Sampling procedures

The study aimed at obtaining views of undergraduate, students on satisfaction with university services. Undergraduate students were selected because they account to a large proportion of the total student's population (62%), which also include postgraduates, certificate, and diploma students. Thus, a representative

sample of 606 was obtained using the following formula which was developed by Cochran (1963):

$$n = \frac{z^2 \cdot p \cdot q \cdot N}{(N-1)err^2 + p \cdot q} = \frac{1.96^2 \times 0.07 \times 0.93 \times 5188}{(5188 - 1)0.02^2 + 0.07 \times 0.93} = 606$$
 (1)

where:

P =sample proportion, q = l - p,

N = (5118) refer to a number of undergraduate students,

n = (606) stands for number of sampled students,

err = (0.02) is an acceptance margin error,

z =standard variate at a given confidence level.

Stratification sampling design was obtained such that the targeted students were grouped into faculties/schools, then the total sample of 606 students were proportionally distributed in each group using the following formula:

$$n_{st} = (N_{st} / N)n$$

where:

 n_{st} = sample size of a particular group (strata,)

 N_{st} = population size of a particular group,

N = population size, n = sample size.

Thus, a total sample of 606 students came from different schools and faculties as follows, 166 students were from the school of business, 182 students were from the school of public administration, 116 students were from the Faculty of Social Science, 77 students were from the Faculty of Science & Technology and 75 students from the Faculty of Law.

3.2. Data collection processing and analysis

The study intended to collect views from students using questionnaires. The questionnaires were designed to measure students' perception towards five dimensions of quality and the overall satisfaction. The questionnaires contained five parts where each part contains the items related to specific service dimension. Each part was developed to capture student perception on satisfaction with each dimension using a five- point Likert scale ranging from 1 – 'not satisfied' to 5 – 'extremely satisfied'. First part contains five statements which measure

the perception of student towards tangible variables. The rest fifteen statements were constructed to capture the perception of students on reliability, responsiveness, assurance and empathy. The collected data were processed and analysed using Statistical packages software for Social Science (SPSS) version 20. Multinomial logistic regression model was utilised in estimating predictors of student satisfaction. Since the response variables had three categories, multinomial as an extension of binary model was appropriate. The multinomial in this case brought about two different binary models where the first model involved regressing the category of satisfaction of 'somewhat satisfaction' (ST) against 'not satisfied' (NS) while the second model involved 'satisfaction' (S) against reference (NS). The model was parameterised as follows:

$$Log(\pi_{j}) = \ln \left[\frac{P(\pi_{i} = j/X)}{P(\pi_{i} = J/X)} \right] = \beta_{j0} + \beta_{j1}X_{1} + \beta_{j2}X_{2} + \dots + \beta_{jk}X_{k} + e$$
 (2)

Whereby $j \in \{S, ST, NS\}$, J is the baseline category and k is the number of predictors. The letters labelled $X_1, X_2, ..., X_k$ are predictors which include reliability, tangibility responsiveness, sympathy and assurance, β_j stands for the parameter to be estimated, and β_0 is a constant term. In this case, we have (3-1) two linear functions model. Odds refer to the ratio of the probability of an event to occur against non-occurrence of the event. Specifically, the first model for the log odds of 'somewhat satisfied' (ST) against 'not satisfied' (NS) as reference category was formulated as follows:

$$Log\left(\frac{\pi_{i}^{ST}}{\pi_{i}^{S}}/\pi_{i}^{NS} = 0\right) = \beta_{0}^{ST} + \beta_{1}^{ST} responsiveness + \beta_{2}^{ST} reliability + \beta_{3}^{ST} tangibility + \beta_{4}^{ST} assurance + \beta_{5}^{ST} empathy + e$$

$$(3)$$

Similarly, the second model for 'satisfied'(S) against 'not satisfied' (NS) was formulated as:

$$Log\left(\pi_{i}^{S}/\pi_{i}^{ST}/\pi_{i}^{NS}=0\right) = \beta_{0}^{S} + \beta_{1}^{S} responsive \ ness + \beta_{2}^{S} reliabilit \ y + \beta_{3}^{S} \tan gibility + \beta_{4}^{S} assurance + \beta_{5}^{S} empathy + e$$

$$(4)$$

3.3. Measuring service quality

Some of the existing measures have been adopted from different sectors on the ongoing studies on the development of measures of service quality (Marimuthu & Ismail, 2012). Various scholars identified several measures of service quality as perceived by consumer and specifically students in the education sector. However, each of the proposed measures has some limitations, thus, the decision on the choice of the measure depends largely on the interest of the researcher (Ibrahim, Ab Rahman, & Yasin, 2012). Since this study is quantitative in nature, the researcher selected Parasuraman's SERVQUAL dimensions model, which was developed by Parasuraman, Zeithaml, & Berry (1988) as the appropriate measure. The rationale for selecting this model is its strength of being applicable in different service sectors in various countries with different cultural backgrounds. Moreover, the model provides a framework which can easily be adapted by any organisation to fit its attributes. The model is composed of five sections that provide an opportunity of observing/analysing the potential service areas that need improvement. Thus in this model, the service quality as response variable was investigated based on different explanatory variables namely:

- Reliability: ability to perform promised services to customers dependably and accurately.
- Tangibility: the degree to which physical facilities, equipment and communication materials are sufficient.
- Responsiveness: willingness of the service provider to help customers and provide prompt service.
- Assurance: the extent to which employees are knowledgeable, courteous and able to convey trust and confidence.
- Empathy: the degree to which the firm offers caring and individualisation attention to its customers.

4. Results

4.1. Model evaluation

Prior to model estimation using maximum likelihood method, checking significant contribution of individual variables to the response variables, it was crucial to evaluate significance of the overall model.

	Model	Model Fitting Criteria	Likelihood Ratio Tests				
Model		−2 log likelihood	chi-square	Df	C:a		
	Intercept Only	1047.973	cm-square	DI	Sig.		
	Final	778.790	269.183	10	.000		

Table 1. Model fitting information

Source: Author's computation.

Table 1 presents the findings on the model fitting using log likelihood criteria as a measure of unexplained variability presence in the data. The final row presents information that was used to determine whether any of the coefficients were statistically significant. In comparison, the model included five variables namely responsiveness, reliability, tangibility, assurance, empathy and the intercept reduces the -2 log likelihood by 269.183 unlike the base model that includes the intercept only. The chi-square tests the change between unexplained variance from the basin line model (1047.973) to the final model (778.790) and its lowest p-value, which indicates significance contribution of the combined five explanatory variables to the model. This implies that the full model statistically contributes better than the intercept-only model alone.

Table 2. Likelihood ratio tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests			
Effect	−2 log likelihood of reduced model	chi-square	Df	Sig.	
Intercept	793.946	15.157	2	.001	
Responsiveness	810.074	31.284	2	.000	
Reliability	847.926	69.136	2	.000	
Tangibility	850.891	72.102	2	.000	
Assurance	833.816	55.026	2	.000	
Empathy	833.896	55.107	2	.000	

Source: Author's computation.

The likelihood ratio tests the significance of the contribution of explanatory variable under the null hypothesis that all parameters of the effect are zero. Since p-values in each of the explanatory variables are less than 0.05; it is evidence that the variables contribute significantly to the model as indicated in Table 2.

4.2. Model estimation

Table 3 indicates the logistic parameter (B), Standard error, Wald, degrees of freedom, significance, Exp (B) and its 95% confidence interval for each of the explanatory variables in each of the categorical variables excluding the reference category of response variables.

Table 3. Parameter estimates

Overall Satisfaction	Variables	В	Std. Error	Wald	df	Sig.	Exp (B)	95% Confidence Interval for Exp(B)		
Satisfaction								Lower Bound	Upper Bound	
	Intercept	-1.989	1.068	3.469	1	.063				
C l 4	Responsiveness	1.991	.375	28.151	1	.000	7.324	3.510	15.283	
Somewhat	Reliability	-1.297	.196	43.760	1	.000	.273	.186	.401	
satisfied	Tangibility	1.814	.274	43.732	1	.000	6.134	3.583	10.500	
	Assurance	106	.255	.173	1	.678	.900	.546	1.482	
	Empathy	553	.235	5.531	1	.019	.575	.363	.912	
	Intercept	-3.685	1.048	12.360	1	.000				
	Responsiveness	1.410	.349	16.318	1	.000	4.094	2.066	10.500 1.482 .912 8.113	
Satisfied	Reliability	517	.189	7.508	1	.006	.596	.412	.863	
Saustied	Tangibility	1.810	.257	49.396	1	.000	6.108	3.687	10.117	
	Assurance	-1.128	.254	19.765	1	.000	.324	.197	.532	
	Empathy	.563	.213	6.984	1	.008	1.756	1.157	2.666	

Source: Author's computation.

Table 3 presents the outcome of 'somewhat satisfied' compared to 'not satisfied' reference categories. It also presents the results of 'satisfied' compared to 'not satisfied' reference categories. When the values of coefficient of explanatory variables are closer to zero implies that the corresponding variables have less influence in predicting the model. Holding other explanatory variables constant, an increase in one unit of satisfaction level in responsiveness variables, multiplies the odds of being somewhat satisfied rather than that of not being satisfied by 7.324 as presented in Table 3 for the category of somewhat satisfied. The Wald statistics is 28.151 with a p-value of 0.00, which implies that the effect of responsiveness variables is significant. The results suggest that reliability (0R = 0.273, p-value, 0.00 < 0.05), tangibility (0R = 6.134, p-value, 0.00 < 0.05), and empathy (0R = 0.575, p-value, 0.00 < 0.05) have significant effect on students' satisfaction. However, assurance was not a significant predictor of satisfaction (p-value, 0.678 > 0.05).

The results of 'satisfied' against 'not satisfied' reference categories revealed that an increase in the degree of satisfaction in responsiveness variables multiplies the odds of being satisfied rather than that of not being satisfied by 4.094. Similarly holding other variables constant, the odd ratios for reliability and tangibility assurance and empathy ranged from 0.324 to 6.108. Thus, the statistical analysis shows that those participants who were satisfied with responsiveness (OR = 4.094), reliability (OR = 0.412, p-value, 0.006 < 0.05), tangibility (OR = 6.108, p-value, 0.00 < 0.05), assurance (OR = 0.324, p-value, 0.00 < 0.05), empathy (OR = 1.756, p-value, 0.008 < 0.05) were significantly more likely to be satisfied with the services provided by the university.

4.3. Diagnosis of residual

Classification Table 4 indicates how well the model was correctly classified. The values across the rows indicate the number of cases in each category while the values across the column show the number of cases for each of the categories of the full model. The interesting outcome is the overall percentage that indicates that the predictors and constants were correctly classified by 65% as indicated in Table 4

Table 4. Classification table

Obsamuad	Predicted					
Observed	Not satisfied	Somewhat satisfied	Satisfied	Percent Correct		
Not satisfied	17	19	34	24.3%		
Somewhat satisfied	11	97	92	48.5%		
Satisfied	12	44	280	83.3%		
Overall Percentage	6.6%	26.4%	67.0%	65.0%		

Source: Author's computation.

4.4. Diagnosis of multicollinearity

Multinomial logistic regression modelling does not require key assumptions of linear regression model such as linearity, normality and homoscedasticity which are based on ordinary least square method. However, it assumes little or no multicollinearity between predictors. Although logistic procedure does not have collinearity diagnosis, the linear regression procedure was adopted by generating a random number (observations) to have new continuous dependent variable which was regressed on explanatory variables. The multicollinearity was assessed based on two statistics namely tolerance and Variance Inflation Factor (VIF). Result from Table 5 indicates that VIF values for each predictor are less than ten (10) implying absence of multicollinearity symptoms.

Table 5. Collinearity statistics

Variable	Collinearity Statistics				
variable	Tolerance	VIF			
Responsiveness	0.413	2.421			
Reliability	0.869	1.151			
Tangibility	0.926	1.08			
Assurance	0.872	1.147			
Empathy	0.452	2.214			

Source: Author's computation

5. Discussion

This study aimed at investigating key factors that influence the level of students' satisfaction with the services which are provided by the university. Five variables were estimated under multinomial logistic model with two different binary logistic models with one variable treated as reference category. In the first category of response, the variable model, 'somewhat satisfaction' was regressed on responsiveness, reliability, tangibility, assurance and empathy variables. The results indicated that all the variables were found to have some influence on students' satisfaction. The exception was on empathy variable, which included availability of classroom for reading and handling of student matters. In the first model, interaction between students and lecturers was found to have no influence on satisfaction, which implies that some students were much interested in the quality of education that makes them competent in the labour market. As Douglas, Douglas, & Barnes (2006) argue, although other services may attract students, the major factor that attracted student is competence based education that enables them to complete their progammes as qualified graduates. Contrarily, responsiveness variables such as availability of staff for consultation, capacity of lecturers in handling students' problems, and 'efficiency in handling students' queries were found to have significant influence on students' satisfaction. These findings are well supported by the findings in study by Arambewela & Hall (2009) who concluded that the quality of education, which is provided by competent lecturers, has significant impact on students' satisfaction. Similar findings are reported by Saepudin & Marlina (2013) who revealed that reliability and responsiveness variables have a significant impact on students 'satisfaction.

In the second model of predicting 'satisfied' against the explanatory variables, the key observation was the significance of the impact of the entire explanatory variable to the full satisfaction of the students. This is consistent with a study by Hanaysha, Abdullah, & Warokka (2011) who documented a positive relationship between satisfaction and physical teaching facilities. On the other hand, the results of this study is in contrast with the findings in a study by Saepudin & Marlina (2013) who reported reliability and responsiveness as the only aspects with major impact on student satisfaction unlike the rest of the variables namely tangibility, assurance, and empathy which had no influence. In a learning process, students need best services so that they can enjoy and focus on studies. Even if the key target of students is to receive high quality education, the findings revealed that other variables such as accessibility of the internet, customer

support services, which are provided timely, are among the tangible and responsiveness factors that have an impact on satisfaction. Thus, putting more emphasis on these factors is a step towards maximising satisfaction among students. Once students are satisfied with the quality of services and teaching facilities, they will likely recommend the University to their relatives, the action which ensures reasonable enrolment and revenue to the Institution. As Kang & James (2004) recommend, a clear and favourable image of the university is an advantage to the management in attracting applicants and hence achieve their objective.

6. Conclusions

Determining satisfaction of the students in higher learning institution is vital for the success of any institution. Students, like any other customers have expectation of receiving treatment that matches their needs and wants. The study findings would be useful bench mark inputs in evaluating quality of services in other institutions. In order to maximise students' satisfaction, the respective Institutions should adhere to the ethics of customer care services. Therefore, it is the responsibility of the management to examine students' needs in the order of preference with aim of maximising satisfaction. After improving the quality of education as the major concern, the supporting services such as infrastructure also need to be improved. The findings of this study would also be useful to managers and educators within the university under the study and other Institutions by emphasising on major aspects that promote student satisfaction, higher learning institutions worldwide are competing nationally and internationally. Thus in order to attract new students, such institutions should identify areas of weakness that need improvement so as to maximise satisfaction. Since satisfaction is judged by student perception, student satisfaction studies should be undertaken on regular basis.

The analysis on the dimension of quality that influences students' satisfaction was clearly presented. However, it is worthwhile to mention that there are many other variables that influence satisfaction and therefore it was difficult to address all of them in a single study. The next research should look at such variables as field of study, Grade Point Average (GPA), age, and sex. The data in the current study were collected from only one public higher learning institution and among undergraduate students; thus future studies may extend the coverage and include postgraduate students and involve more than one institution.

Reference

- Ali, F., Zhou, Y., Hussain, K., Nair, P. K., & Ragavan, N. A. (2016). Does higher education service quality effect student satisfaction, image and loyalty? A study of international students in Malaysian public universities. *Quality Assurance in Education*, 24(1), 70-94. doi: 10.1108/QAE-02-2014-0008
- Angel, M. D. L. E., Alfredo, H. S. M., Lidia, N. G. B., Bettylu, R. C., & Humberto, C. S. C. (2001). Student satisfaction with the student health service at Escuela Preparatoria No. 5 in Guadalajara, México. *Journal of School Health*, 71(6), 242-244. doi: 10.1111/j.1746-1561.2001.tb01326.x
- Arambewela, R., & Hall, J. (2009). An empirical model of international student satisfaction. *Asia Pacific Journal of Marketing and Logistics*, 21(4), 555-569, doi: 10.1108/13555850910997599
- Beqiri, M. S., Chase, N. M., & Bishka, A. (2009). Online course delivery: An empirical investigation of factors affecting student satisfaction. *Journal of Education for Business*, 85(2), 95-100. doi: 10.1080/08832320903258527
- Bradford, G., & Wyatt, S. (2010). Online learning and student satisfaction: Academic standing, ethnicity and their influence on facilitated learning, engagement, and information fluency. *The Internet and Higher Education*, 13(3), 108-114. doi: 10.1016/j.iheduc.2010.02.005
- Cochran, W. G. (1963) Sampling techniques (2nd ed.), New York: John Wiley & Sons.
- Coll, J. E., & Zalaquett, C. (2007). The relationship of worldviews of advisors and satisfaction with advising: A case of homogenous group impact. *Journal of College Student Retention: Research, Theory & Practice*, *9*(3), 273-281. doi: 10.2190/CS.9.3.b
- Douglas, J., Douglas, A., & Barnes, B. (2006). Measuring student satisfaction at a UK University. *Quality Assurance in Education*, 14(3), 251-267. doi: 10.1108/09684 880610678568
- Elliott, K. M., & Shin, D. (2002). Student satisfaction: An alternative approach to assessing this important concept. *Journal of Higher Education Policy and Management*, 24(2), 197-209, doi: 10.1080/1360080022000013518
- Farahmandian, S., Minavand, H., & Afshardost, M. (2013). Perceived service quality and student satisfaction in higher education. *IOSR Journal of Business and Management*, 12(4), 65-74. doi: 10.9790/487X-1246574
- Hanaysha, J. R., Abdullah, H. H., & Warokka, A. (2011). Service quality and students' satisfaction at higher learning institutions: The competing dimensions of Malaysian universities' competitiveness. *The Journal of Southeast Asian Research*, 2011, 1-10. doi: 10.5171/2011.855931
- Hill, Y., Lomas, L., & MacGregor, J. (2003). Students' perceptions of quality in higher education. Quality Assurance in Education, 11(1), 15-20. doi: 10.1108/09684880 310462047

- Ibrahim, M. Z., Ab Rahman, M. N., & Yasin, R. M. (2012). Assessing students perceptions of service quality in technical educational and vocational training (TEVT) institution in Malaysia. *Procedia-Social and Behavioral Sciences*, *56* (pp. 272-283). Amsterdam: Elsevier. doi: 10.1016/j.sbspro.2012.09.655
- Jalali, A. R., Islam, M. A., & Ariffin, K. H. K. (2011). Service satisfaction: The case of a higher learning institution in Malaysia. *International Education Studies*, 4(1), 182-192. doi: 10.5539/ies.v4n1p182
- Kang, G. D., & James, J. (2004). Service quality dimensions: An examination of Grönroos's service quality model. *Managing Service Quality: An International Journal*, 14(4), 266-277. doi: 10.1108/09604520410546806
- Kashan, A. (2012). Measuring student satisfaction of master level students; evidence from University of Sargodha, Pakistan. *School of Doctoral Studies (European Union) Journal*, 4, 216-222.
- Khozaei, F., Ayub, N., Hassan, A. S., & Khozaei, Z. (2010). The factors predicting students' satisfaction with university hostels, case study, universiti sains Malaysia. *Asian Culture and History*, 2(2), 148-158. doi: 10.5539/ach.v2n2p148
- Manzoor, H. (2013). Measuring student satisfaction in public and private universities in Pakistan. *Global Journal of Management and Business Research*, 13(3), 1-13.
- Marimuthu, M., & Ismail, I. (2012, January). Service quality in higher education: Comparing the perceptions of stakeholders. In *Ninth AIMS International Conference on Management* (pp. 515-523), 1-4 January, Pune, Maharashtra, India.
- McDougall, G. H. G., & Levesque, T.(2000). Customer satisfaction with services: Putting perceived value into the equation. *Journal of Service Marketing*, *14*(5), 392-410. doi: 10.1108/08876040010340937
- Mogenet, J. L., & Rioux, L. (2014). Students' satisfaction with their university accommodation. *Nordic Psychology*, 66(4), 303-320. doi: 10.1080/19012276.2014.982441
- Munteanu, C., Ceobanu, C., Bobâlca, C., & Anton, C. (2010). An analysis of customer satisfaction in a higher education context'. *International Journal of Public Sector Management*, 23(2), 124-240. doi: 10.1108/09513551011022483
- Marzo Navarro, M., Pedraja Iglesias, M., & Rivera Torres, P. (2005). A new management element for universities: Satisfaction with the offered courses. *International Journal of Educational Management*, 19(6), 505-526. doi: 10.1108/095135405106 17454
- Özgüngör, S. (2010). Identifying dimensions of students' ratings that best predict students' self efficacy, course value and satisfaction. *Eurasian Journal of Educational Research*, *38*, 146-163.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 16-40.
- Poturak, M., (2014). Private universities service quality and student satisfaction. *Global Business and Economic Research Journal*, *3*(2), 33-49.

- Pertuzzekis, L., D'Uggento, A. M., & Romanazzi, S. (2006). Student satisfaction and quality services in Italian universities. *Managing Service Quality*, 16(4), 349-364. doi: 10.1108/09604520610675694
- Saepudin, A., & Marlina, A. (2013). The effects of institution service quality on student satisfaction of Smpn 3 Cibadak, Sukabumi. *International Journal of Scientific & Technology Research*, 2(3), 162-172.
- Siming, L. (2015). Factors leading to students' satisfaction in the higher learning institutions. *Journal of Education and Practice*, 6(31), 114-118.
- Tsedzah, V. A., & Obuobisa-Darko, T. (2015). Assessing students' satisfaction: An approach to help improve services rendered to university students. *European Journal of Business and Management*, 7(5), 115-120.
- United Republic of Tanzania [URT]. (2015). *Undergraduate admission guidebook for higher education institutions in Tanzania*. Retrieved from www.tcu.go.tz
- Umbach, P. D., & Wawrzynski, M. R. (2005). Faculty do matter: The role of faculty college in student learning and engagement. *Research in Higher Education*, 46(2), 153-184, doi: 10.1007/s11162-004-1598-1
- Voss, R., Gruber, T., & Szmigin, I. (2007). Service quality in higher education: The role of student expectations. *Journal of Business Research*, 60(9), 949-959. doi: 10.1016/j.jbusres.2007.01.020
- Weerasinghe, I. M. S., & Fernando, R. L. S. (2018). Critical factors affecting students' satisfaction with higher education in Sri Lanka. *Quality Assurance in Education*, 26(1), 115-130. doi: 10.1108/QAE-04-2017-0014

Appendix

Questionnaire

Please rate the following items with scale values: $I = Not \ Satisfied$; $2 = Somewhat \ Satisfied$; 3 = Satisfied; $4 = Very \ Satisfied$; $5 = Extremely \ Satisfied$.

	No.	Item		Tick ($$) appropriate option				
	- 101			2	3	4	5	
	1	Lighting in lecture/seminar rooms						
lity	2	External appearance of buildings						
Fangibility	3	Lecture/seminar rooms are in comfortable temperature						
Та	4	Adequacy of computers in computer laboratory						
	5	Internet accessibility						
	6	Efficiency of registration						
Reliability	7	University tendency of keeping record accurately						
Relia	8	Lecture and seminar take on regular basis						
	9	Services are provided in time						
	10	Availability of personnel to help students						
SSS	11	Availability of lecturers for consultation and assistance						
Responsiveness	12	Capacity of the lecturers to solve immediate problems						
sbons	13	Capacity of the administrative staff to solve immediate problem						
Re	14	Availability of the channels of communication for complains						
	15	Efficiency in dealing with queries						
ece	2 16 Staffs interaction with students	Staffs interaction with students						
Assurance	17	Lecturers are proficient for teaching and research						
As	18	Staffs awareness on university policy and responsibilities						
Empathy	19	University management has focus on students						
Emp	20	Availability of study room for students						
How would	you rat							