DEVELOPMENT AND VALIDATION OF "T-TECHEDUQUAL": A NEW MEASURING INSTRUMENT FOR TEACHER PERCEIVED SERVICE QUALITY IN TECHNICAL EDUCATION.

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Abstract

Present study is intended to develop a unique multi-dimensional scale to measure the service quality in higher education particularly technical education from teacher perspective. The data has been collected from 425 teachers of technical education spread across the state of Andhra Pradesh. EFA and CFA were conducted to extract and confirm the factor structure. The study concluded by validating the five factor 26 item model of "t-TechEduQual". Implications and directions for future research are presented at the end.

Key words:t-TechEduQual, EFA and CFA, Service Quality, Higher Education.

Introduction

Indian Higher education system is one of the largest in the world with 51,649 colleges and 993 universities. During the period from 2001 to 2016, 26.9 million students were engrossed to higher education in India. With 35.7 million students currently enrolled, India is second to China's 41.8 million. The improvement in the GER necessitates the need for measurement of quality of higher education.

Among various service types (Kilbourne, Duffy, Duffy, & Giarchi, 2004; Lam, 2002; Parasuraman, Zeithaml, & Berry, 1994), SERVQUAL (Parasuraman, Zeithaml, & Berry, 1988) and SERVPERF (Cronin & Taylor, 1992) are most extensively applied models for measuring the quality of service. Many researchers have identified different approaches in the service quality of higher education domain. Few studies have used the SERVQUAL model in higher education domain (Calvo-Porral, Lévy-Mangin, & Novo-Corti, 2013; Cuthbert, 1996a, 1996b; Galeeva, 2016) but many studies reported the unsuitability of the SERVQUAL model in higher education (Abdullah, 2006a; Cuthbert, 1996a, 1996b; Jain, Sahney, & Sinha, 2013) and emphasized a specific model to measure the service quality in higher education.

Studies are found on service quality in higher education from different stakeholders' perspective but most of them are from student's perspective (Annamdevula Bellamkonda,

2016; 2017) and a few are from faculty perspective (Narendra Lakal, Kanchan Joshi & Karuna Jain, 2018). But, service quality in technical education is needed to be focused on. The present proposed scale't-TechEduQual'(Higher Technical Education Service Quality) is intended to measure the service quality in technical education.

Literature Review

Parasuraman, Zeithaml, & Berry, (1985, 1988), first developed and validated the service quality model SERVQUAL. They defined service quality as the gap between expectations and perceptions of customers. Their SERVQUAL model comprises of five dimensions such as Reliability, Assurance, Tangibility, Empathy and Responsiveness. Later, Cronin and Taylor (1992) popularised the customer perceptions by considering the same five dimensions. Ladhari (2009) reported applicability of SERVQUAL model in higher education domain and highlighted the major limitations in applicability of SERVQUAL model in this field. Many authors (Calvo-Porral et al.,2013; Cuthbert, 1996a, 1996b; Dlačić, Arslanagić, Kadić-Maglajlić, Marković, & Raspor,2014; Galeeva, 2016; Git & Sulaiman, 2012; Sahney, Banwet, & Karunes, 2004; Vajda, Farkas, & Málovics, 2015) have applied the SERVQUAL model in higher education milieu and could not reach the agreement on the five dimensions in higher education and raised the problem of discriminant validity with SERVQUAL.

Firdaus Abdullah (2006), developed Higher Education Performance model (HEdPERF) for measuring the service quality in higher education with six dimensions namely Academic aspects, Non-academic aspects, Access, Reputation, Programs issues and Understanding. He revealed that Higher Education Performance model (HEdPERF) was superior than other models like SERVQUAL, SERVPERF and has relatively a better validity than other models for measuring the service quality in higher education.

Number of studies have come with (Abdullah, 2006a, 2006c; Angell, Heffernan, & Megicks, 2008;Gatfield, Barker, & Graham, 1999; Jain et al., 2013; Owlia & Aspinwall, 1998; Rave & Giraldo, 2015; Senthilkumar & Arulraj, 2011; Subrahmanyam, 2017; Sultan & Tarafder, 2007a, 2007b; Sultan & Wong, 2010; Yildiz, 2014) number of new models to measure service quality in higher education with different dimensions. Sultan and Wong (2012, 2013, 2014) proposed a model with three dimensions namely Academic services, Administrative service and Facilities for measuring the perceptions of students. Owlia and Aspinwall (1998) developed a common questionnaire for the three stakeholders

such as students, faculty and employers with 19 items and four dimensions being Academic resources, Competence, Content and Attitude. Tonći Lazibat, Tomislav Baković & Ines Duzević (2014) came up with a modified HEdPERF model for measuring the service quality in higher education with seven dimensions such as Satisfaction with job, Satisfaction with earnings, Non-academic dimension, Academic dimension, Study programmes, Reputation and Buildings.

Among all, teachers are the most important and suitable stakeholders to assess the quality of higher education and can be said as the best and meaningful source to provide feedback on service quality of the institute for which they work. Students may assess through their limited knowledge and educational qualification. Parents and employers may not be close to the educational institutions, teaching and learning processes. Hence the proposed study felt the need of developing a new scale to measure the teacher's perceptions on service quality of higher educational institutions.

Research Method

The study aimed to develop and validate a scale to evaluate service quality in technical education institutes in Andhra Pradesh from teacher perspective. The study adopted a sequential procedure for scale development starting with item development and ended with final model confirmation. Qualitative and quantitative research approaches were adopted for the study (DeVellis, 2003).

Item Development

The items of the scale are developed by extensively examining the relevant literature and conducting interactions with teachers working in AICTE affiliated private engineering and MBA colleges under the universities namely SV University, YV University and JNTUA. After generating the items content validity has been checked with experts' reviews. About 36 items have been finalised in this phase by discarding four items as they were not representative.

Pre-testing and item refinement

For the pilot study the data is collected from 40 teachers. The teachers are required to assess the quality of their respective institutes by giving ratings on a 5-point Likert scale. The study refined the draft questionnaire with required changes by eliminating

three items. The refined survey instrument with 33 items to measure the teacher perceived service quality in higher education is finalised in this phase.

Data collection

Data has been collected from 425 teachers covering three regions of Andhra Pradesh namely, Rayalaseema, south coastal Andhra and north coastal Andhra. Private Engineering and MBA colleges have been targeted to pickup the sample respondents. Multi stage random sampling technique was applied to collect the data. Teaching experience has been taken in to account while fixing the respondents.

Item Structure Formation through Exploratory Factor Analysis

Before proceeding to EFA, suitability of the data to perform EFA has been carried with appropriate tests. KMO value 0.91 was found meritorious and Bartlet test of sphericity value 0.001 was also found significant (Hair, Anderson, Black, & Babin, 2016). These two tests supported the suitability of the data to perform EFA. Item total correlation has been carried out for further filtration of items of the scale. Five items were discarded due to low item total correlation and low commonalities (<4.0) and finally 31 items were retained for conducting EFA. Principal Component Analysis with Varimax rotation was applied to extract the factor structure. Total variance explained method was used to identify the number of factors to extract. The results of the EFA are presented in table 1.

TABLE 1
EFA Results

Physical Facilities for effective teaching	Factor Loading	Eigenvalue	Variance %	Cumulative %	Cronbach's Alpha
PF1 Lecture halls with advanced teaching aids	0.938				
PF2 Laboratories with technical Equipment	0.912				
PF3 Volume of books and journals in Library	0.833	8.282	26.715	26.715	
PF4 software and hardware equipment support	0.824				
PF5 In campus and out campus transportation	0.763				0.922
PF6 Regular conduct of FDPs	0.755				
PF7 Physical fitness facilities (sport/recreation)	0.717				
PF8 Internet & Access to e-journals and books	0.683				
Work load as per UGC/ACITE					
WL1 Class working hours and lab sessions viable	0.892				
WL2 Evaluating assignments and exam papers	0.873				
WL3 Provision for external evaluation	0.866	6.024	19.434	46.148	0.916
WL4 sufficient time to prepare for the class	0.853				
WL5 Time for research and extra-curricular activities	0.805				

Item					
WL6 Pay scale as per UGC/AICTE	0.793				
Recompense and Perquisites					
RP1 Pay scale as per UGC/AICTE	0.945				
RP2 Increments / hikes are imputed on time	0.879				
RP3 Exam remuneration is viable	0.82	2.954	9.530	55.679	0.920
RP4 DA and other allowances as per norms	0.767				
RP5 Allowances for the FDPs/Workshops	0.736				
RP6 Ratification and Recognition	0.714				
Career Development					
CD1 On time Promotions	0.854				
CD2 Industrial training	0.842	2.252	7.265	62.944	0.911
CD3 Financial support for research	0.810				
CD4 Administrative obligation	0.809				
CD5 Admission Management	0.772				
CD6 College Promotional Functions	0.612				
Institutional Development Responsibilities					
ID1 Student and Industry Network management	0.852				
ID2 College Development functions	0.769		5.301	68.245	
ID3 Lecture halls with advanced teaching aids	0.768	1.643			0.914
ID4 Laboratories with technical Equipment	0.749				
ID5 Volume of books and journals in Library	0.739				
Extraction Method: Principal Component Analysis.					
Rotation Method: Promax with Kaiser Normalization.					

Five factors have been extracted from the 31 items of the scale and named them as Physical Facilities for effective teaching, Work load as per UGC/ACITE, Recompense and Perquisites, Career Development and Institutional Development Responsibilities. Five factor 31 item model explains 68.245 % of variance. Cronbach alpha values for all the five factors (>0.9) reveal that the model possess good reliability.

Model Confirmation through Confirmatory Factor Analysis (CFA)

Further, CFA was executed for the 31 items and five items were discarded due to low factor loadings.
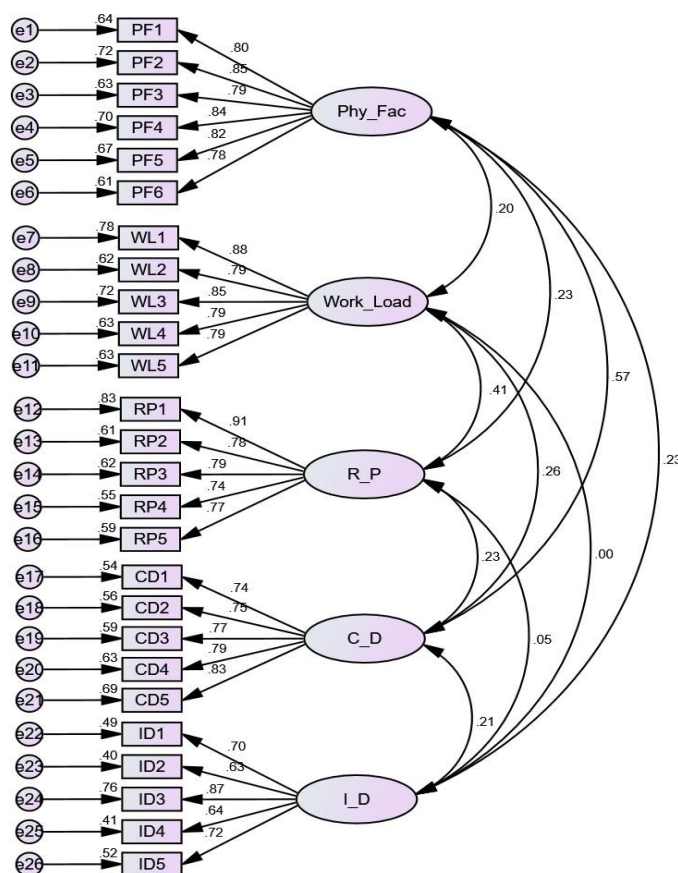
Fig.1 Measurement model

The Goodness of Fit Index 0.949 reveals a satisfactory level of acceptability and the model explains 94.9% data variance and the Root Mean Square Error of Approximation (RMSEA) value (0.055) is in between 0.03 and 0.08, indicating the model theory fits the sample data (Hair et al., 2008).

TABLE 2

Model Fit Summary of t-TechEduQual Measurement Model

χ^2	Df	χ^2/df	GFI	AGFI	NFI	RFI	IFI	TLI	CFI	RMSEA
1340.224	269	4.982	0.949	0.912	0.943	0.919	0.947	0.923	0.947	0.055

Further, Average Goodness of Fit Index (AGFI), Normed Fit Index (NFI), Tucker–Lewis Index (TLI), Comparative Fit Index (CFI), Incremental Fit Index (IFI) and Relative Fit Index (RFI) were used to assess how well a specified model fits relative to an

alternative baseline model. All of these values were above 0.90 indicating that the model fits well (Hu & Bentler, 1995; Hair et al., 2008).

Reliability

The reliability of a measure is the extent to which it is free from random error. Construct reliability examines the internal consistency of indicators of the CFA factor. The construct reliability of the factors ranges from 0.63 to 0.91 which are equal to and above the minimum level of 0.70. Thus, the reliability of the scales was deemed acceptable (Bagozzi & Yi, 1988).

Face validity

Face (content) validity was examined at the stage of items generation from extensive literature and by adopting changes and suggestions from various experts.

Convergent Validity

Convergent validity was assessed by three measures: standardized coefficients (factor loadings) of the five latent variables, average variance extracted (AVE) and construct reliability (CR) for each latent variable.

TABLE 3

Convergent Validity

			Estimate	C.R.	P	AVE	CR
PF1	<---	PF	0.798				
PF2	<---	PF	0.848	27.604	***		
PF3	<---	PF	0.793	24.71	***	0.66	0.92
PF4	<---	PF	0.836	26.282	***		
PF5	<---	PF	0.818	25.694	***		
PF6	<---	PF	0.784	24.549	***		
WL1	<---	WL	0.884				
WL2	<---	WL	0.785	27.575	***	0.67	0.91
WL3	<---	WL	0.851	31.874	***		
WL4	<---	WL	0.793	28.448	***		

WL5	<---	WL	0.792	28.043	***		
RP1	<---	R_P	0.909				
RP2	<---	R_P	0.78	27.158	***		
RP3	<---	R_P	0.786	28.544	***	0.63	0.89
RP4	<---	R_P	0.739	24.84	***		
RP5	<---	R_P	0.768	28.046	***		
CD1	<---	C_D	0.737				
CD2	<---	C_D	0.750	21.091	***		
CD3	<---	C_D	0.771	20.239	***	0.6	0.88
CD4	<---	C_D	0.791	21.154	***		
CD5	<---	C_D	0.828	21.752	***		
ID1	<---	I_D	0.702				
ID2	<---	I_D	0.633	16.314	***		
ID3	<---	I_D	0.870	21.098	***	0.51	0.84
ID4	<---	I_D	0.643	16.206	***		
ID5	<---	I_D	0.718	18.195	***		

*Note: *Probability level of 0.001; ** The critical ratio is not available, because the regression weights are fixed at 1; CR# = Critical Ratio; AVE= Average variance Extracted; CR=Construct Reliability*

It is observed from the table 3 that all the indicators are statistically significant at a level significance of 0.001, which indicates that they are connected to their particular constructs. The estimation of all the indicators ranges in between 0.53 and 0.88, which is above the standard estimation of at least 0.50 (Hair et al., 2008). It is also noticeable that the AVE value of each construct exceeded the minimum level 0.50. It indicates measured variables of concerned construct are sharing high proportion of variance in common (Hair et al., 2008).

Discriminant Validity

Discriminant validity assesses the unidimensionality of the construct which means that the extent to which the construct is purely distinct from another construct. The examination of the discriminant validity is done by the comparison of square root average variance extracted for each construct with inter construct correlations related to that

construct. Table 4 presents the results of the discriminant validity, where all the squared AVE estimates are more than the inter construct correlations. It specifies that the construct is unique and captures some experience which other measures do not

TABLE 4

Discriminant Validity

	CR	AVE	PF	WL	R_P	C_D	I_D
PF	0.921	0.661	**0.813**				
WL	0.912	0.676	0.204	**0.822**			
R_P	0.897	0.637	0.234	0.40	**0.798**		
C_D	0.883	0.602	0.572	0.264	0.234	**0.776**	
I_D	0.840	0.516	0.225	0.002	0.050	0.213	**0.718**

Nomological Validity

The Nomo logical validity can be tested by examining the Pearson product-moment correlations between the constructs in a measurement model. From Table 5, it can be seen that all the correlations are positive and statistically significant. It indicates that the constructs have nomological validity.

TABLE 5

Nomological Validity

			Estimate	S.E.	C.R.	P
P_F	<-->	W_L	0.186	0.036	5.129	***
W_L	<-->	R_P	0.595	0.062	9.605	***
R_P	<-->	C_D	0.196	0.035	5.641	***
C_D	<-->	I_D	0.102	0.02	5.036	***
P_F	<-->	R_P	0.204	0.035	5.847	***
P_F	<-->	C_D	0.297	0.026	11.524	***
P_F	<-->	I_D	0.113	0.021	5.413	***
W_L	<-->	C_D	0.231	0.036	6.376	***
W_L	<-->	I_D	0.002	0.033	0.059	0.953
R_P	<-->	I_D	0.041	0.032	1.262	0.207

*Note: *Probability level of 0.0001; CR – Critical Ratio*

Criterion Validity

Criterion validity refers to the extent to which the factors measured are related to pre-specified criteria. The multiple regression analysis for a dependent variable (teacher perceptions of overall service quality) is conducted to assess the criterion validity of the derived dimensions. The average scores of each dimension are entered as independent variables. The overall model for multiple regression equation was fit (F=23.993) at significant level 0.001. All the five dimensions were positive and significantly related with the overall service quality.

TABLE 6

Regression Analysis results between Overall Service Quality and five Dimensions for Criterion Validity

Dimension	Standardized Coefficients Beta	t	P Value
Physical Facilities	.327	15.151	.000
Workload	.467	22.925	.000
Recompense	.437	21.661	.000
Career Development	.331	15.458	.000
Institutional Development	.285	16.805	.000

Implications

The study provides a t-TechEduQual scale to evaluate service quality in technical education and it has many substantial implications. This reliable and valid scale can be used as investigative tool for institutions like universities, private technical educational institutions, tertiary institutions etc. for evaluating the service quality from teacher perspective. It is also useful in ascertaining the problem areas of service delivery of educational institutions.

Limitations and Directions for future research

The present study has been done by considering the teachers working in AICTE affiliated private engineering and MBA colleges only. The inferences made out of the study may not be generalised and applicable to other higher educational institutes. Future researches may include other stakeholders like parents, employers, government and community. Further studies may concentrate on other disciplines like vocational science, engineering, technology, undergraduate courses. Furthermore, it would be worthwhile that

studies in different developing countries should test the t-TechEduQual scale with the aim of testing whether results are more consistent in terms of quality of education in developing countries

Conclusion

The present study was aimed to develop the theoretical model of t-TechEduQual, for measuring the service quality of AICTE affiliated private engineering and management educational institutes in Andhra Pradesh. The model was developed by using extensive literature and expert reviews and developed 31 items for the scale. Later, EFA and CFA have been carried on for extracting and confirming the factors. Finally the multi-dimensional scale t-TechEduQual was developed with five factors and 26 items which possessed all the required Reliability and validity measures.

References

1. Abdullah, F. (2005). HEdPERF versus SERVPERF: The quest for ideal measuring instrument of service quality in higher education sector. Quality Assurance in Education, 13(4), 305–328. doi:10.1108/09684880510626584

2. Abdullah, F. (2006a). Measuring service quality in higher education: HEdPERF versus SERVPERF. Marketing Intelligence & Planning, 24(1), 31–47. doi:10.1108/02634500610641543

3. Abdullah, F. (2006b). Measuring service quality in higher education: Three instruments compared. International Journal of Research & Method in Education, 29(1), 71–89. doi:10.1080/01406720500537445

4. Abdullah, F. (2006c). The development of HEdPERF: A new measuring instrument of service quality for the higher education sector. International Journal of Consumer Studies, 30(6), 569–581. doi:10.1111/j.1470-6431.2005.00480.x

5. "AICTE Dashboard". (2020). Retrieved from http://www.aicte-india.org/dashboard/pages/dashboardaicte.php

6. Angell, R. J., Heffernan, T. W., & Megicks, P. (2008). Service quality in postgraduate education.

7. Quality Assurance in Education, 16(3), 236–254. doi:10.1108/09684880810886259

8. Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. Journal of the academy of marketing science, 16(1), 74-94.

9. Brochado, A. (2009). Comparing alternative instruments to measure service quality in higher education. Quality Assurance in Education, 17(2), 174–190. doi:10.1108/09684880910951381

10. Calvo-Porral, C., Lévy-Mangin, J.-P., & Novo-Corti, I. (2013). Perceived quality in higher education: An empirical study. Marketing Intelligence & Planning, 31(6), 601–619. doi:10.1108/MIP-11-2012-0136

11. Chua, C. (2004). Perception of quality in higher education. Proceedings of the Australian Universities Quality Forum, AUQA Occasional Publication, Melbourne, pp. 181–187.

12. Cronin, J. J., & Taylor, S. A. (1992). Measuring service quality: A re-examination and extension. Journal of Marketing, 56(3), 55–68. doi:10.2307/1252296

13. Cronin, J. J., & Taylor, S. A. (1994). SERVPERF versus SERVQUAL: Reconciling performance based and perceptions-minus-expectations measurement of service quality. *Journal of Marketing, 58*(1), 125–131. doi:10.2307/1252256

14. Cuthbert, P. F. (1996a). Managing service quality in HE: Is SERVQUAL the answer? Part 1.

15. Managing Service Quality: An International Journal, 6(2), 11–16. doi:10.1108/
    a. 09604529610109701

16. Cuthbert, P. F. (1996b). Managing service quality in HE: Is SERVQUAL the answer? Part 2 *Managing Service Quality: An International Journal, 6*(3), 31–35. doi:10.1108/ 09604529610115858

17. DeVellis, R. F. (2003). *Scale development: Theory and applications.* Thousand Oaks, CA: SAGE Publications.

18. Dlačić, J., Arslanagić, M., Kadić-Maglajlić, S., Marković, S., & Raspor, S. (2014). Exploring perceived service quality, perceived value, and repurchase intention in higher education using structural equation modelling. *Total Quality Management & Business Excellence, 25*(1–2), 141–157. doi:10.1080/14783363.2013.824713

19. Galeeva, R. B. (2016). SERVQUAL application and adaptation for educational service quality assessments in Russian higher education. *Quality Assurance in Education, 24*(3), 329–348. doi:10.1108/QAE-06-2015-0024

20. Gatfield, T., Barker, M., & Graham, P. (1999). Measuring student quality variables and the implications for management practices in higher education institutions: An Australian and international student perspective. *Journal of Higher Education Policy and Management, 21*(2), 239–252. doi:10.1080/1360080990210210

21. Git, H. M., & Sulaiman, S. A. (2012). Measuring service quality of a multi-disciplinary engineering course. *Procedia - Social and Behavioral Sciences, 56,* 31–41. doi:10.1016/j.sbspro.2012.09. 629

22. Hair, J. F. Jr., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2008). *Multivariate Data Analysis.* (6th ed.). Pearson Prentice Hall, India.

23. Hair, J., Anderson, R., Black, B., & Babin, B. (2016). *Multivariate data analysis* (7th ed.). Noida, India: Pearson Education.

24. Hu, L. T., & Bentler, P. M. (1995). Evaluating model fit. In R. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications,* 76–99

25. Jain, R., Sahney, S., & Sinha, G. (2013). Developing a scale to measure students' perception of service quality in the Indian context. *The TQM Journal, 25*(3), 276–294. doi:10.1108/ 17542731311307456

26. Kilbourne, W. E., Duffy, J. A., Duffy, M., & Giarchi, G. (2004). The applicability of SERVQUAL in cross-national measurements of health-care quality. *Journal of Services Marketing, 18*(7), 524–533. doi:10.1108/08876040410561857

27. Ladhari, R. (2009). A review of twenty years of SERVQUAL research. *International Journal of Quality and Service Sciences, 1*(2), 172–198. doi:10.1108/17566690910971445

28. Lam, T. K. P. (2002). Making sense of SERVQUAL's dimensions to the Chinese customers in Macau. *Journal of Market-Focused Management, 5*(1), 43–58. doi:10.1023/
    a. A:1012575412058

29. Lazibat, T., Baković, T., & Dužević, I. (2014). How perceived service quality influences students'satisfaction? Teachers' and students' perspectives. *Total Quality Management & Business Excellence, 25*(7–8), 923–934. doi:10.1080/14783363.2014.916036

30. Owlia, M. S., & Aspinwall, E. M. (1996). A framework for the dimensions of quality in higher education.*Quality Assurance in Education, 4*(2), 12–20. doi:10.1108/09684889610116012

31. Owlia, M. S., & Aspinwall, E. M. (1998). A framework for measuring quality in engineering education. *Total Quality Management, 9*(6), 501–518. doi:10.1080/0954412988433

32. *Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. Journal of Marketing, 49(4), 41–50. doi:10.2307/1251430*

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

34. *Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1994). Alternative scales for measuring service quality: A comparative assessment based on psychometric and diagnostic criteria. Journal of Retailing, 70(3), 201–230. doi:10.1016/0022-4359(94)90033-7*

35. *Rave, J. P., & Giraldo, L. M. (2015). ClassroomQual: A scale for measuring the use-of-classroomsfor-teaching–learning service quality. Total Quality Management & Business Excellence, 0(0),1–28.*

36. *Sahney, S., Banwet, D. K., & Karunes, S. (2004). A SERVQUAL and QFD approach to total quality education: A student perspective. International Journal of Productivity and Performance Management, 53(2), 143–166. doi:10.1108/17410400410515043*

37. *Narendra Lakal, Kanchan Joshi & Karuna Jain (2018): Development of engineering education service quality model from faculty perspective, Total Quality Management & Business Excellence, DOI: 10.1080/14783363.2018.1473028*

38. *Senthilkumar, N., & Arulraj, A. (2011). SQM-HEI – determination of service quality measurement of higher education in India. Journal of Modelling in Management, 6(1), 60–78. doi:10.1108/17465661111112502*

39. *Sharma, P. (2010). Measuring personal cultural orientations: Scale development and validation. Journal of the Academy of Marketing Science, 38(6), 787–806. doi:10.1007/s11747-009-0184-7*

40. *Subrahmanyam, A. (2017). Relationship between service quality, satisfaction, motivation and loyalty: A multi-dimensional perspective. Quality Assurance in Education, 25(2), 171–188. doi:10.1108/QAE-04-2013-0016*

41. *Sultan, P., & Tarafder, T. (2007a). A model for quality assessment in higher education: Implications for ODL Universities. Malaysian Journal of Distance Education, 9(2), 125–142.*

42. *Sultan, P., & Tarafder, T. (2007b). Critical factors in service quality measurement for private universities: The case of Bangladesh. Ritsumeikan Journal of Asia Pacific Studies, 22, 75–98.*

43. *Sultan, P., & Wong, H. (2010). Performance-based service quality model: An empirical study on Japanese universities. Quality Assurance in Education, 18(2), 126–143. doi:10.1108/09684881011035349*

44. *Sultan, P., & Wong, H. Y. (2012). Service quality in a higher education context: An integrated model. Asia Pacific Journal of Marketing and Logistics, 24(5), 755–784. doi:10.1108/13555851211278196*

45. *Sultan, P., & Wong, H. Y. (2013). Antecedents and consequences of service quality in a higher education context. Quality Assurance in Education, 21(1), 70–95. doi:10.1108/09684881311293070*

46. *Sultan, P., & Wong, H. Y. (2014). An integrated-process model of service quality, institutional brand and behavioural intentions. Managing Service Quality: An International Journal, 24(5), 487– 521. doi:10.1108/MSQ-01-2014-0007*

47. *Tonći Lazibata , Tomislav Baković a & Ines Duževic(2014). How perceived service quality influences students' satisfaction? Teachers' and students' perspectives, Total Quality Management & Business Excellence, 25:7-8, 923-934, DOI: 10.1080/14783363.2014.916036.*

48. *Vajda, B. K., Farkas, G., & Málovics, É. (2015). Student evaluations of training and lecture courses: Development of the COURSEQUAL method. International Review on Public and Nonprofit Marketing, 12(1), 79–88. doi:10.1007/s12208-015-0127-6*

49. *Yildiz, S. M. (2014). Service quality evaluation in the school of physical education and sports: An empirical investigation of students' perceptions. Total Quality Management & Business Excellence, 25(1–2), 80–94. doi:*10.1080/14783363.2011.637804