



Perceptual analysis on quality management practices in select engineering educational institutions in Andhra Pradesh from the beneficiaries' perspective

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Abstract

The purpose of the paper is to analyse the perceptions on quality management practices in the select engineering educational institutions from the beneficiaries' perspective. It is accepted fact that there is a need to develop quality-centric educational institutions to sustain in the present competitive and turbulent environment. Unfortunately, at present, a host of engineering educational institutions are neglecting the beneficiary satisfaction in pursuit of their own economic goal. One can adjudge the quality of an institution on the basis of the beneficiary satisfaction. In this regard, for adjudging the quality, the researchers tried to measure the level of difference in the perceptions of beneficiaries' satisfaction of seven select engineering educational institutions by taking five determinants include teaching-learning process, involvement of teacher towards his job, commitment of teachers in preparing students for other related exams, course work, and facilities. Likert five point rating scale is used to assess the degree of satisfaction. A questionnaire was administered to engineering graduates of seven select engineering colleges in Guntur Dt., AP and one way ANOVA is deployed by using IBM SPSS Statistics 20 to test the level of difference in the perceptions of beneficiaries of various colleges.

Keywords: TQM, leadership, quality institutions, quality education, learning out come

Introduction

It is known fact that quality management practices vary from one organization to another being principles remain same. Each institution with unique personality has certain manifest qualities and rich latent potentialities. TQM is a management philosophy and the principles are applicable to all the institutions irrespective of their nature and purpose of business. It is a fact that quality bound institutions need rich emotional content and the quality of education and training being imparted in the engineering education institutions in India can be rated best or worst. But unfortunately very few institutions could able to fight with the best in the world. The quality in technical education is adjudged by its learning outcome and it is an integral part of the overall success of student fraternity. If learning outcome matches with the needs of the society and the basic purpose of the institution, then the quality of education is said to be good which in turn provides employment opportunity for the student. Till recently, the service sector did not recognize the importance of professional management practices for optimizing its outcome. The quality in education cannot be defined pinpointedly as in case of industrial products. Human beings are complex and mixture of body – mind – spirit organisms and not just knowledge and skill configurations. Human beings comprise values, attitudes and a battery of other features. Continuous quest of quality both in education and in all walks of life has thus becomes a vital goal of the new century.

Objectives

- To identify the institution related factors causing dissatisfaction among the engineering graduates
- To study the present Quality Management practices prevailing in the select engineering educational institutions.
- To suggest suitable measures for improvement of quality in imparting engineering education and enhancing the beneficiary satisfaction.

Hypotheses

Five hypotheses framed for the study include

1. There is no difference in the perceptions of students of seven institutions on teaching-learning process.
2. There is no difference in the perceptions of students of seven institutions on involvement of teacher towards his job.
3. There is no difference in the perceptions of students of seven institutions on commitment of teachers in preparing students for other related exams.
4. There is no difference in the perceptions of students of seven institutions on course work.
5. There is no difference in the perceptions of students of seven institutions on facilities available.

Methodology

Perceptions of the respondents are measured through

questionnaire. Age of the institution and the students' preference for selecting the institution (based on EAMCET ranking) at the time of their admission are the bases in selecting the sample institution. In the first phase, available seven institutions with minimum of ten years of age are selected out of 48 engineering colleges situated in Guntur Dt., Andhra Pradesh. In the second phase, researchers concentrated on dividing the seven colleges into three categories based on the students' preference while selecting the institution at the time of their admission. First category colleges include RVR&JC College of Engineering, Guntur (RVR), Bapatla Engineering College, Bapatla (BEC). Second category colleges are Narasaraopeta Engineering College, Narasaraopeta (NEC), Nalanda Institute of Information Technology, Sattenapalli (NIIT). Third category colleges include Loyola Institute of Technology and Management,

Dulipala (LITHM), Chudu Ranganayakulu Engineering College, Chilakaluripeta (CREC) and Newton Institute of Engineering, Macharla (NEWTON). The data was collected through primary and secondary sources. The questionnaires were distributed to 150 students in each of the seven select engineering institutions. The data was collected by administering a questionnaire. The questionnaire consists of the statements related to the satisfaction of the beneficiaries on teaching- learning process, involvement of teachers in their jobs, teacher commitment in the preparation of the students for related exams, course work and facilities available. Data is analyzed for drawing meaningful conclusions by using statistical measures such as Percentages, Means, Standard Deviation, and one way ANOVA. Perceptual analysis of beneficiaries on the Quality Management Practices is as follows:

Table 1: Perceptions of students about teaching and learning Process
(5) Strongly Agree, (4) Agree, (3) Can't Say, (2) Disagree, (1) Strongly Disagree.

Statement		First Category		Second Category		Third Category		
		RVR	BEC	NEC	NIIT	LITHM	CREC	NEWTON
Understand easily what teacher is teaching	5	33.33	29.33	20.00	16.00	14.00	17.33	16.67
	4	28.67	32.67	24.67	26.00	22.00	23.33	21.33
	3	14.00	14.67	27.33	28.67	22.67	18.00	17.33
	2	13.33	12.00	16.00	15.33	28.00	24.67	33.33
	1	10.67	11.33	12.00	14.00	13.33	16.67	11.33
Teacher communicates clearly	5	32.00	29.33	20.67	18.67	12.67	15.33	14.67
	4	30.67	28.67	24.00	18.00	20.00	24.67	24.00
	3	14.67	17.33	28.67	30.67	24.00	19.33	15.33
	2	12.00	13.33	15.33	17.33	30.00	24.67	34.00
	1	10.67	11.33	11.33	15.33	13.33	16.00	12.00
Teacher makes good use of examples and illustrations	5	30.67	25.33	18.67	14.00	12.00	15.33	16.00
	4	26.00	29.33	22.67	23.33	20.67	22.00	20.00
	3	17.33	18.00	27.33	27.33	21.33	18.67	21.33
	2	15.33	14.00	18.67	18.00	31.33	26.67	29.33
	1	10.67	13.33	12.67	17.33	14.67	17.33	13.33
Teacher is helpful when students raise doubts	5	31.33	24.67	22.00	20.67	21.33	16.00	14.00
	4	24.00	28.00	26.00	29.33	25.33	24.00	22.67
	3	17.33	16.00	19.33	19.33	20.67	23.33	25.33
	2	15.33	18.67	21.33	17.33	19.33	23.33	24.00
	1	12.00	12.67	11.33	13.33	13.33	13.33	14.00
Teacher completes the syllabus on time during the semester	5	26.00	27.33	18.67	20.00	10.00	12.00	10.00
	4	30.67	28.00	22.67	20.67	18.00	23.33	20.67
	3	16.00	18.00	29.33	26.00	25.33	20.67	20.00
	2	14.00	14.67	16.67	18.67	32.00	25.33	35.33
	1	13.33	12.00	12.67	14.67	14.67	18.67	14.00
Teacher completes the practical on time during the semester/year	5	29.33	28.00	21.33	22.00	14.00	16.00	11.33
	4	27.33	31.33	22.67	22.00	19.33	22.00	20.67
	3	16.00	16.00	27.33	22.67	25.33	20.00	21.33
	2	14.00	14.00	17.33	18.67	28.00	23.33	30.67
	1	13.33	10.67	11.33	14.67	13.33	18.67	16.00
Teacher is very helpful to weaker students/slow learners	5	28.67	25.33	18.67	11.33	10.67	15.33	16.00
	4	26.00	27.33	23.33	21.33	20.00	22.00	20.00
	3	16.67	18.00	25.33	28.67	22.00	18.67	21.33
	2	16.00	16.00	19.33	20.00	31.33	26.67	29.33
	1	12.67	13.33	13.33	18.67	16.00	17.33	13.33
	T	150	150	150	150	150	150	150

The survey has been taken up among the students about the teaching and learning process of the sample colleges on various aspects. With regard to 'understand easily what teacher is teaching' 50 respondents with 33.33% expressed strongly agree opinion in RVR, in BEC 44 respondents with

29.33%, 30 respondents with 20% in NEC, in NIIT 24 respondents with 16%, 21 respondents with 14% in LITHM, 26 respondents with 17.33% in CREC and in Newton 25 respondents with 16.67% followed the same opinion. From the above analysis, it can be observed that majority of the

respondents expressed strongly agree and moderate opinion in RVR & BEC. In NEC and ITT majority of the respondents opined moderate. In NEC and NIIT majority of the respondents opined moderate. The respondents expressed disagreement in LITHM, CRE and Newton when compared to first and second category colleges. Pertaining to the 'teacher communicates clearly' 18 respondents with 12% in RVR, 20 respondents with 18.33% in BEC, in NEC 23 respondents with 15.33%, in NIIT 26 respondents with 17.33%, in LITHM 45 respondents with 30%, in CRE 37 respondents with 24.67% and in Newton 51 respondents with 34% opined disagree. From the above, it can be seen that a majority of the respondents in first category colleges opined agree, in second category colleges opined agree and moderate and in third category colleges, majority of the respondents expressed moderate and disagree opinion on communication of the teachers. For the statement relating to the 'teacher

makes good use of examples and illustrations', majority of the respondents have strongly agreed and agreed that teachers makes good use of examples and illustrations in all the sample colleges.

From the above discussion, it is observed that the most of the respondents in first category colleges RVR and BEC agree with understand easily what teacher is teaching, teacher communicates with them clearly, teacher use good examples and illustrations and expresses moderate opinion on teacher is helpful when students raise doubts and helpful to weaker students/slow learners. In second category colleges, majority of the respondents agree that teacher completes the syllabus on time during the semester. Majority of the respondents felt good at first category colleges and moderate at second category colleges for the statement 'teachers teaching and learning process' and in third category colleges they were disagreed to some parameters.

Table 2: Perceptions of students about involvement of teacher to his job
(5) Strongly Agree, (4) Agree, (3) Can't Say, (2) Disagree, (1) Strongly Disagree.

Statement		First Category		Second Category		Third Category		
		RVR	BEC	NEC	NIIT	LITHM	CREC	NEWTON
Teacher is punctual to the class	5	28.00	29.33	19.33	21.33	17.33	18.00	13.33
	4	31.33	25.33	34.00	24.67	23.33	16.00	16.00
	3	16.00	18.67	20.67	28.00	30.00	21.33	23.33
	2	12.00	12.67	12.00	14.67	16.00	31.33	36.67
	1	12.67	14.00	14.00	11.33	13.33	13.33	10.67
Teacher enquires about absence to the class	5	26.00	23.33	21.33	24.00	19.33	16.67	14.00
	4	27.33	29.33	25.33	26.00	27.33	20.67	22.67
	3	19.33	17.33	21.33	16.67	22.00	23.33	25.33
	2	16.67	18.00	17.33	20.00	17.33	22.67	24.00
	1	10.67	12.00	14.67	13.33	14.00	16.67	14.00
Teacher is fair to all students in evaluations	5	22.67	23.33	21.33	24.00	19.33	16.67	14.00
	4	25.33	25.33	25.33	26.00	27.33	20.67	22.67
	3	22.67	21.33	21.33	16.67	22.00	23.33	25.33
	2	16.67	18.67	17.33	20.00	17.33	22.67	24.00
	1	12.67	11.33	14.67	13.33	14.00	16.67	14.00
Teacher is available during college hours for consultations	5	32.67	30.00	21.33	22.67	15.33	18.67	10.00
	4	30.67	32.67	24.00	23.33	21.33	25.33	19.33
	3	12.67	16.00	25.33	22.00	24.67	17.33	20.00
	2	13.33	12.67	16.00	16.67	24.00	22.00	30.00
	1	10.67	8.67	13.33	15.33	14.67	16.67	20.67
Teacher creates awareness of recent developments in the subject	5	31.33	24.00	21.33	20.67	16.67	20.67	16.67
	4	29.33	29.33	18.67	23.33	21.33	19.33	17.33
	3	13.33	16.67	24.67	17.33	22.67	14.67	18.00
	2	14.00	15.33	20.00	18.67	21.33	19.33	24.67
	1	12.00	14.67	15.33	20.00	18.00	26.00	23.33
Teacher holds the attention of students throughout the class	5	26.67	28.00	24.00	22.67	22.67	15.33	14.00
	4	27.33	27.33	24.00	27.33	24.67	23.33	22.67
	3	18.00	14.00	19.33	17.33	15.33	20.67	25.33
	2	15.33	18.00	18.67	17.33	20.67	23.33	20.67
	1	12.67	12.67	14.00	15.33	16.67	17.33	17.33
Teacher encourages discussion in the class	5	27.33	22.67	18.67	14.00	12.00	16.67	13.33
	4	22.67	26.00	22.67	23.33	20.00	21.33	17.33
	3	18.67	22.67	27.33	27.33	18.67	18.00	20.67
	2	18.00	16.00	18.67	18.00	25.33	23.33	29.33
	1	13.33	12.67	12.67	17.33	24.00	20.67	19.33
Teacher inspires the students	5	30.00	25.33	20.67	18.67	12.67	15.33	18.67
	4	26.00	26.00	24.00	18.00	20.00	24.67	25.33
	3	13.33	18.00	28.67	30.67	24.00	19.33	14.67
	2	14.00	16.67	15.33	17.33	30.00	24.67	29.33
	1	16.67	14.00	11.33	15.33	13.33	16.00	12.00
	T	150	150	150	150	150	150	150

The survey has been taken up among the students about the involvement of teacher to his job on various aspects. With regard to the statement 'teacher is punctual to the classes', 18 respondents with 12% in RVR, 19 respondents with 12.67% in BEC, 18 respondents with 12% in NEC, 22 respondents with 14.67% in NIIT, in LITHM 24 respondents with 16%, in CRE 47 respondents with 31.33% and in Newton 55 respondents with 36.67% expressed disagreement. It is observed that majority of the respondents agreed for the statement 'teacher is punctual to the classes' in RVR, BEC, NEC, NIIT and LITHM. In CRE and Newton majority of the respondents felt that teacher is not punctual to the class. In the aspect of 'teacher enquires about my absence to the class' 41 respondents with 27.33% in RVR, 44 respondents with 29.33% in BEC, 38 respondents with 25.33% in NEC and in NITT 39 respondents with 26% expressed agree opinion whereas in LITHM 41 respondents with 27.33%, 31 respondents with 20.67% in CRE and 34 respondents with 22.67% in Newton expressed the same opinion. Further, the survey has focused on 'teacher holds the attention of students throughout the class'. From the table, it is observed that

majority of the respondents are of the opinion that teacher holds the attention of the students throughout the class. For the statement 'teacher inspires the class' 45 respondents with 30% in RVR, 38 respondents with 25.33% in BES, 31 respondents with 20.67% in NEC, 28 respondents with 18.67% in NIIT, 19 respondents with 12.67% in LITHM, 23 respondents with 15.33% in CRE and 28 respondents with 18.67% in Newton strongly agreed.

From the above discussion it can be said that majority of the respondents in first category colleges RVR and BEC are of the opinion that teacher is punctual to the class, teacher is fair to all students in evaluations and teacher is available during college hours for consultation. In second category colleges of NEC and NIIT majority of the respondents are of the opinion that teacher enquires about students' absence to the class, teacher creates awareness of recent developments in the subject and teacher encourages discussion in the class. In third category colleges of LITHM, CRE and Newton majority of the respondents are of the opinion that teacher holds the attention of students throughout the class and also teacher inspires the student.

Table 3: Perceptions about commitment of teachers in preparing students for related exams
 Perceptions: (5) Strongly Agree, (4) Agree, (3) Can't Say, (2) Disagree, (1) Strongly Disagree.

Statement		First Category		Second Category		Third Category		
		RVR	BEC	NEC	NIIT	LITHM	CREC	NEWTON
Faculty teaches with commitment for other related exams	5	25.33	25.33	16.67	15.33	17.33	18.00	10.00
	4	26.00	24.00	28.00	21.33	23.33	16.00	14.00
	3	18.00	19.33	20.67	28.00	30.00	21.33	23.33
	2	14.67	16.00	16.00	19.33	16.00	31.33	36.67
	1	16.00	15.33	18.67	16.00	13.33	13.33	16.00
Faculty motivates to write national Competitive exams such as GATE / IES	5	29.33	27.33	14.67	16.67	10.00	13.33	11.33
	4	27.33	24.67	28.00	27.33	22.00	18.00	12.00
	3	18.00	19.33	27.33	22.67	31.33	30.67	30.67
	2	14.00	15.33	14.67	17.33	18.00	15.33	21.33
	1	11.33	13.33	15.33	16.00	18.67	22.67	24.67
Faculty motivates to write international Competitive exams such as TOEFL / GRE etc.	5	28.67	26.00	14.67	12.00	14.67	16.67	12.00
	4	31.33	32.67	24.67	28.67	19.33	17.33	13.33
	3	14.67	15.33	32.00	28.67	38.00	34.00	12.00
	2	13.33	14.00	15.33	17.33	15.33	18.67	42.00
	1	12.00	12.00	13.33	13.33	12.67	13.33	20.67
Faculty encourages to participate in Symposia / Workshops / Conferences	5	30.00	26.67	16.00	22.67	15.33	21.33	16.67
	4	27.33	31.33	24.00	23.33	21.33	20.67	19.33
	3	16.00	16.00	26.67	22.00	24.67	17.33	20.00
	2	14.67	12.67	18.00	16.67	24.00	22.00	21.33
	1	12.00	13.33	15.33	15.33	14.67	18.67	22.67
Evaluation process is fair	5	24.67	22.00	19.33	18.67	19.33	14.67	14.00
	4	24.67	26.00	21.33	24.00	23.33	16.00	18.67
	3	21.33	21.33	22.00	20.67	22.00	23.33	25.33
	2	15.33	18.00	20.67	20.67	19.33	24.67	24.00
	1	14.00	12.67	16.67	16.00	16.00	21.33	18.00
	T	150	150	150	150	150	150	150

The survey has been taken up among the students about commitment of teachers in preparing students for other related exams. The analysis reveals that 38 respondents with 25.33% in RVR, 38 respondents with 25.33% in BEC, 25 respondents with 16.67% in NEC, 23 respondents with 15.33% in NIIT, 26 respondents with 17.33% in LITHM, 27 respondents with 18% in CRE and 15 respondents with 10% in Newton expressed strong agreement. Further, the survey has focused on 'faculty motivates to write international competitive exams such as TOEFL/GRE etc.', majority of the

respondents are of the opinion that faculty motivate to write international competitive exams such as TOEFL/GRE etc. For the statement relating to the 'faculty encourages to participate in symposia/workshops/conferences' 41 respondents with 27.33% in RVR, 47 respondents with 31.33% in BEC, 36 respondents with 24% in NEC, 35 respondents with 23.33% in NIIT, 32 respondents with 21.33% in LITHM, 31 respondents with 20.67% in CRE and 29 respondents with 19.33% in Newton agreed to the statement. From the above table, it can be observed that majority of the respondents are

of the opinion that faculty encourages to participate in symposia/workshops/conferences. From the above discussion it can be said that most of the respondents in first category colleges of RVR & BEC, are of the opinion that faculty motivate to write international competitive exams such as TOEFL/GRE etc., and faculty encourages the students such as TOEFL/GRE etc., and faculty encourages the students to participate in

symposia/workshops/conferences. In second category, colleges of NEC and NIIT majority of the respondents are of the opinion that faculty motivate the students to write national competitive exams such as GATE/IES and evaluation process in fair. In third category colleges LITHM, CRE and Newton majority of the respondents are of the opinion that faculty teaches with commitment for other related exams.

Table 4: Perceptions of students about course work
(5) Strongly Agree, (4) Agree, (3) Can't Say, (2) Disagree, (1) Strongly Disagree.

Statement		First Category		Second Category		Third Category		
		RVR	BEC	NEC	NIIT	LITHM	CREC	NEWTON
Theoretical knowledge supplemented with practical classes	5	23.33	22.67	15.33	15.33	17.33	16.00	13.33
	4	22.67	24.00	24.67	21.33	23.33	18.67	14.00
	3	20.00	20.67	20.67	26.00	26.00	20.67	23.33
	2	17.33	16.67	18.67	21.33	18.00	28.67	30.00
	1	16.67	16.00	20.67	16.00	15.33	16.00	19.33
The quantity and quality of prescribed syllabi is satisfactory	5	30.67	22.00	18.00	18.00	14.67	12.00	18.67
	4	23.33	30.00	30.00	24.67	18.00	17.33	18.00
	3	17.33	15.33	21.33	27.33	28.67	27.33	22.67
	2	14.67	17.33	16.00	16.00	25.33	29.33	26.67
	1	14.00	15.33	14.67	14.00	13.33	14.00	14.00
A prescribed syllabus is on par with syllabi of competitive exams like GATE, IES etc.?	5	22.67	17.33	18.00	17.33	14.67	12.00	18.67
	4	22.67	25.33	20.00	22.00	18.00	17.33	18.00
	3	17.33	18.67	28.00	24.00	28.67	26.67	22.00
	2	16.00	21.33	18.67	20.67	20.00	20.67	23.33
	1	21.33	17.33	15.33	16.00	18.67	23.33	18.00
Curriculum helps to become an entrepreneur or meet the demand of the industry	5	28.00	22.00	20.67	20.67	20.67	16.00	14.00
	4	20.67	24.00	22.67	24.67	23.33	24.00	22.67
	3	20.67	18.00	24.00	24.00	23.33	23.33	21.33
	2	18.67	22.00	21.33	17.33	16.67	19.33	24.00
	1	12.00	14.00	11.33	13.33	16.00	17.33	18.00
Institute is helping to go for summer training	5	31.33	25.33	18.67	11.33	10.67	15.33	16.00
	4	26.67	27.33	23.33	21.33	20.00	22.00	20.00
	3	16.67	18.00	25.33	28.67	22.00	18.67	21.33
	2	13.33	16.00	19.33	20.00	31.33	26.67	29.33
	1	12.00	13.33	13.33	18.67	16.00	17.33	13.33
Institute conducts guest lectures by experts from different fields of specialization	5	26.00	20.00	14.00	20.67	14.00	12.67	17.33
	4	23.33	27.33	26.00	28.00	16.67	13.33	18.00
	3	22.00	22.00	22.67	22.00	27.33	29.33	12.00
	2	15.33	17.33	21.33	10.00	25.33	24.00	35.33
	1	13.33	13.33	16.00	19.33	16.67	20.67	17.33
Institute provides opportunities to develop communication skills, personality development etc.,	5	27.33	23.33	11.33	14.67	12.00	11.33	10.67
	4	30.67	34.00	27.33	28.67	15.33	15.33	12.67
	3	15.33	15.33	36.67	27.33	30.67	24.67	14.67
	2	14.67	14.00	13.33	15.33	28.00	32.67	42.67
	1	12.00	13.33	11.33	14.00	14.00	16.00	19.33
	T	150	150	150	150	150	150	150

The survey has been taken among the students about the course work of the sample colleges on various aspects. On the statement 'theoretical knowledge supplemented with practical classes' 35 respondents with 23.33% in RVR, 34 respondents with 22.67% in RVR, 34 respondents with 22.67% in BEC, 23 respondents with 15.33% in NEC, 23 respondents with 15.33% in CRE and 20 respondents with 13.33% in Newton expressed strongly agree opinion. From the above analysis it can be seen that majority of the respondents are of the opinion that theoretical knowledge supplemented with practical classes. With regard to the statement 'quantity and quality of prescribed syllabi' is 26 respondents with 17.33% in RVR, 23 respondents with 15.33% in BEC, 32 respondents with

21.33% in NEC, 41 respondents with 27.33% in NIIT, 43 respondents with 28.67% in LITHM, 41 respondents with 27.33% in CRE and 34 respondents with 22.67% in Newton expressed moderate opinion. Further an attempt has been made on 'curriculum trains to become an entrepreneur or meet the demand of the industry'. On this statement, 31 respondents with 20.67% in RVR, 36 respondents with 24% in BEC, 34 respondents with 22.67% in NEC, 37 respondents with 24.6% in NIIT, 35 respondents with 23.33% in LITHM, 36 respondents with 24% in CRE and 34 respondents with 22.67% in Newton expressed agree opinion. From the above discussion, it can be concluded that in first category colleges of RVR & BEC majority of the respondents

are of the opinion that a prescribed syllabus is on par with syllabi of competitive exams like GATE/IES etc., institute conducts guest lectures by experts from different fields of specialization and institute provides opportunities to develop communication skills, personality development etc. In second category colleges of NEC and NIIT majority of the respondents are of the opinion that curriculum trains to

become an entrepreneur or meet the demand of the industry and institute is helping to go for summer training. In third category, colleges of LITHM, CRE and Newton majority of the respondents are of the opinion that theoretical knowledge supplemented with practical classes and the quantity and quality of prescribed syllabi is satisfactory.

Table 5: Perceptions of students about facilities
 Perceptions: (5) Strongly Agree, (4) Agree, (3) Can't Say, (2) Disagree, (1) Strongly Disagree.

Statement		First Category		Second Category		Third Category		
		RVR	BEC	NEC	NIIT	LITHM	CREC	NEWTON
Institute library is meeting the requirements of students regarding supplying of text books/ National / International Journals	5	28.00	28.67	11.33	14.67	11.33	14.67	19.33
	4	22.67	26.67	24.00	20.67	13.33	11.33	14.00
	3	18.67	18.00	32.00	23.33	37.33	30.00	20.00
	2	16.00	14.67	16.00	25.33	22.00	19.33	24.00
	1	14.67	12.00	16.67	16.00	16.00	24.67	22.67
Library provides servicing activities like Photostat, organizing books and journals	5	29.33	28.67	11.33	14.67	11.33	14.67	19.33
	4	20.67	26.67	24.00	20.67	13.33	11.33	14.00
	3	19.33	18.00	32.00	23.33	37.33	30.00	20.00
	2	16.67	14.67	16.00	25.33	22.00	19.33	24.00
	1	14.00	12.00	16.67	16.00	16.00	24.67	22.67
Laboratories of institute are equipped with to meet the requirements	5	32.00	23.33	12.00	14.67	15.33	12.67	18.67
	4	23.33	27.33	29.33	27.33	10.67	13.33	18.00
	3	14.67	18.67	33.33	28.00	26.67	26.67	23.33
	2	15.33	16.67	14.67	14.00	33.33	28.00	18.00
	1	14.67	14.00	10.67	16.00	14.00	19.33	22.00
Computing facilities provided by institute like internet access etc. are satisfactory.	5	35.33	21.33	12.00	14.67	15.33	12.67	14.67
	4	21.33	30.67	22.00	20.00	10.67	13.33	18.00
	3	16.00	19.33	33.33	26.00	26.67	24.67	23.33
	2	14.67	14.67	22.00	18.67	33.33	28.00	22.00
	1	12.67	14.00	10.67	20.67	14.00	21.33	22.00
Transportation facility provided by the institute is satisfactory.	5	31.33	21.33	23.33	16.00	18.67	15.33	16.00
	4	26.67	27.33	23.33	21.33	20.00	17.33	18.67
	3	16.67	22.00	24.67	24.00	22.00	23.33	22.67
	2	13.33	16.00	15.33	20.00	23.33	26.67	29.33
	1	12.00	13.33	13.33	18.67	16.00	17.33	13.33
Availability of medical facility provided by the institute is satisfactory	5	27.33	24.00	14.00	16.67	12.00	11.33	10.67
	4	30.67	28.00	27.33	26.67	15.33	15.33	12.67
	3	15.33	18.00	30.67	25.33	30.67	24.67	14.67
	2	14.67	16.00	16.67	17.33	26.00	32.67	42.67
	1	12.00	14.00	11.33	14.00	16.00	16.00	19.33
Canteen facility provided by the institute is good.	5	28.67	23.33	22.67	18.00	19.33	16.67	14.00
	4	27.33	25.33	26.00	28.00	27.33	20.67	20.00
	3	16.67	21.33	19.33	20.67	22.00	23.33	25.33
	2	14.67	18.67	17.33	20.00	17.33	22.67	24.00
	1	12.67	11.33	14.67	13.33	14.00	16.67	16.67
Institute is providing facilities for extracurricular activities (Sports etc.)	5	27.33	20.00	18.67	15.33	11.33	15.33	16.00
	4	32.00	29.33	23.33	21.33	20.00	22.00	20.00
	3	15.33	21.33	25.33	24.67	21.33	18.67	21.33
	2	14.67	16.00	19.33	20.00	27.33	26.67	29.33
	1	10.67	13.33	13.33	18.67	20.00	17.33	13.33
	T	150	150	150	150	150	150	150

The survey has been taken up among the students about the facilities of the sample colleges on various aspects. With regard to 'institute library is meeting the requirements of students regarding supplying of text books/national/international journals', 42 respondents with 28% in RVR, 43 respondents with 28.67% in BEC, 17 respondents with 11.33% in NEC, 22 respondents with 14.6% in NIIT, 17 respondents with 11.33% in LITHM, 22 respondents with 14.67% in CRE and 29 respondents with 19.33% in Newton expressed strongly agree opinion. For the

statement 'Library provides servicing activities like Photostat, organizing books and journals' 25 respondents with 16.67% in RVR, 22 respondents with 14.67% in BEC, 24 respondents with 16% in NEC, 38 respondents with 25.33% in NIIT, 33 respondents with 22% in LITHM, 29 respondents with 19.33% in CRE and 36 respondents with 24% in Newton expressed disagree opinion. For the statement 'laboratories of institute equipped to meet the requirements', analysis reveals that it can be seen that laboratories of institute equipped to meet the requirements.

From the above discussion it can be concluded that in first category colleges of RVR & BEC majority of the students are opined that institute library is meeting the requirements of students regarding supplying of text books / national / international journals, library providing servicing activities like Photostat, organizing books and journals, canteen facilities provided by the institute are good and institute is providing facilities for extra-curricular activities (sports etc.). In second category colleges of NEC and NIIT majority of the

respondents are opined that laboratories of institute equipped to meet the requirements, computing facilities provided by institute like internet access etc., are satisfactory and availability of medical facilities provided by the institute are satisfactory. In third category colleges of LITHM, CRE and Newton majority of the respondents are opined that transport facilities provided by the institute to reach the college are satisfactory.

Table 6: Means and Standard deviations on Teaching-Learning Process

Statement	Name of the College													
	RVR		BEC		NEC		NIIT		LITHM		CREC		NEWTON	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Teaching ability	3.6	1.3	3.5	1.3	3.2	1.2	3.1	1.2	2.9	1.2	3.0	1.3	2.9	1.3
Communication ability	3.6	1.3	3.5	1.3	3.2	1.2	3.0	1.3	2.8	1.2	2.9	1.3	2.9	1.2
Use of Examples	3.5	1.3	3.3	1.3	3.1	1.2	2.9	1.3	2.8	1.2	2.9	1.3	2.9	1.2
Clarity when doubt	3.4	1.3	3.3	1.3	3.2	1.3	3.2	1.3	3.2	1.3	3.0	1.2	2.9	1.2
Syllabus coverage	3.4	1.3	3.4	1.3	3.1	1.2	3.1	1.3	2.7	1.2	2.8	1.3	2.7	1.2
Practical classes	3.4	1.3	3.5	1.3	3.2	1.2	3.1	1.3	2.9	1.2	2.9	1.3	2.8	1.2
Helping attitude	3.4	1.3	3.3	1.3	3.1	1.3	2.8	1.2	2.7	1.2	2.9	1.3	2.9	1.2

The above table shows the item wise analysis of perceptions of Students on teaching and learning process in sample colleges. Regarding perceptions of students on student understand easily what teacher is teaching Mean values are calculated. It reveals that in RVR (3.61), in BEC (3.57), in NEC (3.25), in NIIT (3.15), in LITHM (2.95), in CRE (3.00) and in NEWTON (2.99). Perceptions on teacher communicates clearly reveals that in RVR (3.61), in BEC (3.51), in NEC (3.27), in NIIT (3.07), in LITHM (2.89), in CRE (2.99) and in NEWTON (2.95). Perceptions of students on teacher completes the syllabus on time during the semester reveals that in RVR (3.42), in BEC (3.44), in NEC (3.18), in

NIIT (3.13), in LITHM (2.77), in CRE (2.85) and in NEWTON (2.77). Perceptions on teacher completes the practical on time during the semester/year reveals that in RVR (3.45), in BEC (3.52), in NEC (3.25), in NIIT (3.18), in LITHM (2.93), in CRE (2.93) and in NEWTON (2.81). Perceptions of students on teacher is very helpful to weaker students/slow learners reveals that in RVR (3.42), in BEC (3.35), in NEC (3.15), in NIIT (2.87), in LITHM (2.78), in CRE (2.91) and in NEWTON (2.96). Thus the dimensions on teaching and learning process have got positive rating from the respondents in all aspects from sample colleges.

Table 7: Means and Standard deviations on about Involvement of Teacher to his Job

Statement	Name of the College													
	RVR		BEC		NEC		NIIT		LITHM		CREC		NEWTON	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Teacher Punctuality	3.5	1.3	3.4	1.3	3.3	1.3	3.3	1.2	3.1	1.2	2.9	1.3	2.8	1.2
Teacher enquiry	3.4	1.3	3.3	1.3	3.2	1.3	3.2	1.3	3.2	1.3	2.9	1.3	2.9	1.2
Fair treatment	3.2	1.3	3.3	1.3	3.2	1.3	3.2	1.3	3.2	1.3	2.9	1.3	2.9	1.2
Teacher Availability	3.6	1.3	3.6	1.2	3.2	1.3	3.2	1.3	2.9	1.2	3.0	1.3	2.6	1.2
Awareness on devt.	3.5	1.3	3.3	1.3	3.1	1.3	3.0	1.4	3.0	1.3	2.8	1.5	2.8	1.4
Holding attention	4.1	1.0	4.0	1.0	2.9	0.9	2.9	0.9	2.5	0.8	2.7	0.7	2.3	1.0
Teacher encouragement	4.4	1.0	4.5	0.8	3.0	0.9	3.0	0.9	3.1	0.7	2.5	1.0	2.3	1.1
Teacher Inspires	4.1	1.0	4.2	0.9	3.3	0.8	3.3	.8	3.1	.6	2.9	1.0	2.7	1.1

The above table shows the item wise analysis of perceptions of Students on involvement of teacher to his job in sample colleges. Mean values w.r.t. the perceptions of students on teacher is punctual to the class reveals that in RVR (3.50), in BEC (3.43), in NEC (3.33), in NIIT (3.30), in LITHM (3.15), in CRE (2.94) and in NEWTON (2.85). Perceptions of students on teacher creates awareness of recent developments in the subject reveals that in RVR (3.54), in BEC (3.33), in NEC (3.14), in NIIT (3.06), in LITHM (3.03), in CRE (2.89)

and in NEWTON (2.82). Perceptions of students on teacher encourages discussion in the class reveals that in RVR (4.49), in BEC (4.54), in NEC (3.02), in NIIT (3.02), in LITHM (3.13), in CRE (2.59) and in NEWTON (2.33). Perceptions of students on teacher inspires me reveals that in RVR (4.14), in BEC (4.20), in NEC (3.34), in NIIT (3.34), in LITHM (3.15), in CRE (2.95) and in NEWTON (2.78). Thus the dimensions on involvement of teacher to his job have got positive rating from the respondents in all aspects from sample colleges.

Table 8: Means and Standard deviations on Commitment of Teachers in Preparing Students for other related exams

Statement	Name of the College													
	RVR		BEC		NEC		NIIT		LITHM		CREC		NEWTON	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Teacher commitment	3.3	1.4	3.2	1.4	3.0	1.3	3.0	1.2	3.1	1.2	2.9	1.3	2.6	1.2
Motivating- other exams	3.4	1.3	3.3	1.3	3.1	1.2	3.1	1.3	2.8	1.2	2.8	1.3	2.6	1.2
Motivating- TOFEL	3.5	1.3	3.4	1.3	3.1	1.2	3.0	1.2	3.0	1.2	3.0	1.2	2.5	1.2
Motivating- workshops	3.4	1.3	3.4	1.3	3.0	1.3	3.2	1.3	2.9	1.2	3.0	1.3	2.6	1.2
Evaluation fairness	4.2	1.0	4.2	0.8	3.1	.8	3.1	.8	2.9	.7	3.1	.8	2.6	1.2

Mean values and Standard Deviation values are calculated for the perceptions of Students on commitment of teachers in preparing students for other related exams in sample colleges. Regarding perceptions of students on teaches with commitment for other related exams reveals that in RVR (3.30), in BEC (3.28), in NEC (3.08), in NIIT (3.01), in LITHM (3.15), in CRE (2.94) and in NEWTON (2.65).

Perceptions of students on evaluation process is fair reveals that in RVR (4.29), in BEC (4.27), in NEC (3.16), in NIIT (3.16), in LITHM (2.97), in CRE (3.16) and in NEWTON (2.69). Thus the dimensions on commitment of teachers in preparing students for other related exams has got positive rating from the respondents in all aspects from sample colleges.

Table 9: Means and Standard deviations of perceptions of students about Course Work

Statement	Name of the College													
	RVR		BEC		NEC		NIIT		LITHM		CREC		NEWTON	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Theory- Practical relationship	3.1	1.4	3.2	1.3	2.9	1.3	2.9	1.3	3.0	1.3	2.9	1.3	2.7	1.3
Syllabus quality	3.4	1.4	3.2	1.3	3.2	1.3	3.1	1.2	2.9	1.2	2.8	1.2	3.0	1.3
Suitability of content- other exams	3.0	1.4	3.0	1.3	3.0	1.3	3.0	1.3	2.9	1.3	2.7	1.3	2.9	1.3
Entrepreneurial skills	3.3	1.3	3.1	1.3	3.2	1.3	3.2	1.3	3.1	1.3	3.0	1.3	2.9	1.3
Helping for summer internship	3.5	1.3	3.3	1.3	3.1	1.3	2.8	1.2	2.7	1.2	2.9	1.3	2.9	1.2
Guest lectures	3.3	1.3	3.2	1.3	3.3	1.0	3.3	1.0	2.5	.8	2.2	1.0	2.3	1.1
Communication skills	3.4	1.3	3.4	1.3	3.1	1.1	3.1	1.2	2.8	1.2	2.7	1.2	2.5	1.2

The above table shows Mean values and Standard Deviation values for the perceptions of Students on course work in sample colleges. Regarding perceptions of students on theoretical knowledge supplemented with practical classes reveals that in RVR (3.19), in BEC (3.21), in NEC (2.95), in NIIT (2.99), in LITHM (3.09), in CRE (2.90) and in NEWTON (2.72). Perceptions on the quantity and quality of prescribed syllabi is satisfactory reveals that in RVR (3.42), in BEC (3.26), in NEC (3.21), in NIIT (3.17), in LITHM (2.95), in CRE (2.84) and in NEWTON (3.01). Perceptions of students on A prescribed syllabus is on par with syllabi of competitive exams like GATE, IES etc. reveals that in RVR

(3.09), in BEC (3.04), in NEC (3.07), in NIIT (3.04), in LITHM (2.90), in CRE (2.74) and in NEWTON (2.96). Perceptions of students on Institute is helping to go for summer training reveals that in RVR (3.52), in BEC (3.35), in NEC (3.15), in NIIT (2.87), in LITHM (2.78), in CRE (2.91) and in NEWTON (2.96). Perceptions on Institute conducts guest lectures by experts from different fields of specialization reveals that in RVR (3.33), in BEC (3.23), in NEC (3.35), in NIIT (3.35), in LITHM (2.55), in CRE (2.22) and in NEWTON (2.35). Thus the dimensions on course work have got positive rating from the respondents in all aspects from sample colleges.

Table 10: Means and Standard deviations on students about Facilities

Statement	Name of the College													
	RVR		BEC		NEC		NIIT		LITHM		CREC		NEWTON	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Library facilities	3.3	1.4	3.4	1.3	2.9	1.2	2.9	1.3	2.8	1.1	2.7	1.3	2.8	1.4
Other useful services	3.3	1.4	3.4	1.3	2.9	1.2	2.9	1.3	2.8	1.1	2.7	1.3	2.8	1.4
Lab facilities	3.4	1.4	3.2	1.3	3.1	1.1	3.1	1.2	2.8	1.2	2.7	1.2	2.9	1.4
Computers- internet	3.5	1.4	3.3	1.3	3.0	1.1	2.8	1.3	2.8	1.2	2.6	1.3	2.8	1.3
Transport facilities	3.5	1.3	3.2	1.3	3.2	1.3	2.9	1.3	3.0	1.3	2.8	1.3	2.9	1.2
Medical facilities	3.4	1.3	3.3	1.3	3.1	1.2	3.1	1.2	2.8	1.2	2.7	1.2	2.5	1.2
Canteen Facilities	3.4	1.3	3.3	1.3	3.2	1.3	3.1	1.3	3.2	1.3	2.9	1.3	2.9	1.2
Sports facilities	3.5	1.3	3.2	1.3	3.1	1.3	2.9	1.3	2.7	1.2	2.9	1.3	2.9	1.2

Table 10 shows Means and Standard Deviation values for the perceptions of Students on facilities in sample colleges. Regarding perceptions of students on institute library is meeting the requirements of students regarding supplying of text books/ National / International Journals reveals that in RVR (3.33), in BEC (3.45), in NEC (2.97), in NIIT (2.93), in LITHM (2.82), in CRE (2.72) and in NEWTON (2.83). Perceptions of students on laboratories of institute equipped to meet the requirements reveals that in RVR (3.43), in BEC (3.29), in NEC (3.17), in NIIT (3.11), in LITHM (2.80), in CRE (2.72) and in NEWTON (2.93). Perceptions on

Availability of medical facilities provided by the institute are satisfactory reveals that in RVR (3.47), in BEC (3.32), in NEC (3.16), in NIIT (3.15), in LITHM (2.81), in CRE (2.73) and in NEWTON (2.53) Perceptions of students on institute is providing facilities for extracurricular activities (Sports etc.) reveals that in RVR (3.51), in BEC (3.27), in NEC (3.15), in NIIT (2.95), in LITHM (2.75), in CRE (2.91) and in NEWTON (2.96). Thus the dimensions on facilities have got positive rating from the respondents in all aspects from sample colleges.

Table 11: ANOVA values of all (five) dimensions of Quality Mgt. Practices

S. No.	Dimensions	Details	Sum of Squares	df	Mean Square	F	Sig
1	Teaching-Learning process	Between Groups	2.563	6	.427	41.750	.000
		Within Groups	.430	42	.010		
		Total	2.993	48			
2	Involvement of Teacher towards his Job	Between Groups	7.616	6	1.269	14.860	.000
		Within Groups	4.186	49	.085		
		Total	11.802	55			
3.	Commitment of Teachers in preparing Students for other related Exams	Between Groups	3.464	6	.577	11.668	.000
		Within Groups	1.385	28	.049		
		Total	4.849	34			
4.	Course work	Between Groups	2.179	6	.363	10.104	.000
		Within Groups	1.510	42	.036		
		Total	3.689	48			
5.	Facilities available	Between Groups	3.066	6	.511	37.926	.000
		Within Groups	.660	49	.013		
		Total	3.726	55			

Table 11 presents the item wise ANOVA values. Small significant values (<0.05) indicates group differences. Here the significance category is less than 0.05 (0.000). Hence, the hypotheses are rejected. This gives us inference that there exists difference in the perceptions of students of seven engineering institutions on Teaching-Learning process, Involvement of Teacher to his Job, Commitment of Teachers in preparing Students for other related Exams, Course work, Facilities. The study reveals that there is difference in the category of student satisfaction of the selected seven engineering colleges in terms of teaching learning process, involvement of teacher to his job, commitment of teachers in preparing students for other related exams, coursework and facilities.

Suggestions

In a quality drive educational institution, teams and individuals continuously work for improving service to students. The concept of a service being good-enough is considered inadequate. In this context, the following suggestions are vital in improving the level of students' satisfaction in engineering colleges in general and select engineering colleges in particular.

- **Quality policy must be the integral part of Mission statement:** Quality initiative should be made a part of the institutional mission. As mission statement has a direct relationship with an organisation's purpose and performance, if quality policy is made integral part of it, the purpose and performance of an organisation can be optimised. A mission statement should answer to the basic questions like 'why do we exist?', 'what is our purpose?', and 'what do we want to achieve?'. It is suggested that

mission statement should provide a focussed guide for decision making and it should motivate the employees towards quality objectives.

- **Quality circles:** quality circles are to be established in the educational institutions. As all aware, this concept has given good results in manufacturing organisations. If it is established in the colleges, there is scope for continuous improvement. It is suggested that these quality circles are to be established under the guidance of experienced teachers who can give the clear direction to the students in all aspects.
- **Clarity in responsibilities:** Definite and clear cut responsibilities should be assigned to each staff member with adequate autonomy. Confusion, jurisdictional conflicts are the source for deterioration in quality. Quality institutions always give top priority for autonomy within. Hierarchy is to be replaced with teams. Cross departmental teams promote continuous improvement.
- **Drive out fear:** Encourage teachers to be innovative and assure them security. Celebrate equally the success or failure of innovative experiments. Recognize innovative attitude and unique nature of a staff member. Remove roadblocks and facilitate experimentation. Congenial environment is to be created which encourages people to speak up freely and take risks.
- **Incentive schemes:** Quality teachers are to be rewarded. It is very much necessary to introduce incentive schemes to motivate the staff to put in extra efforts, for developing better skills, doing things differently. Financial incentives should be given to the employees in the form of cash awards, medals who have made remarkable contribution. It is known fact that organisations cannot provide much

budget to motivate the employees. Hence it is suggested to motivate the employees by fulfilling their psychological, social and emotional needs. This becomes possible by issuing letter of appreciation, praising circulars, by displaying credit of the work done on the notice boards, entry of employee appreciation into the service register etc.

Some other specific suggestions include

- Instructional methods should be clear and focussed.
- Opt for the best available teachers and instructional resources Students are to be taught strategies for learning and for remembering and applying what they have learned.
- Aim for all-round development of the student i.e not only in terms of his/her academic performance, but also in terms of handling critical situations in life.
- Focus on the learning process, not on the rating. Eliminate work standards that prescribe numerical quotas.
- Develop an institutional mechanism whereby every staff member can chalk out his/her own development path for achieving his own goals along with the organisational goals.
- Eliminate rating of an employee through standardized achievement tests. Replace them with a continuous internal mechanism of quality assurance which encourages creativity and experimentation.

Conclusion

Education is the pre-requisite for eradicating poverty and inequality. Education is the powerful instrument for enhancing India's competitiveness in the dynamic global economy. Having access to quality engineering education for all, particularly for the poor is central which in turn leads to economic and social development. Quality in education is possible if the organization makes people aware about the importance of quality, makes quality as an integral part of the mission of the institution and manages effectively the resistance to change.

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