Students Perspective of TQM in Professional Education Institutions in Hisar City

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ABSTRACT

Total Quality Management (TQM) refers to meet the requirement of customer consistently by continuous improvement in the quality of work of all employees. The Basic components of TQM are Customer Orientation, Continuous Improvement and Employees Involvement: Total Quality Management can succeed only if it has the support of total quality people.(TQP) Total Quality Management without TQP does not work as processes do not work unless people work. Thus, the essence of Total Quality Management is the creation of an organizational system that foster cooperation between manager and workers and facilitates learning to implement' total quality'. The purpose of this paper is to explain how the quality principles work in the context of higher education. The quality principles are essential compatible with the values of higher education, but often the culture must change to support the principles. The aim of this paper is to identify the techniques of TQM in professional education in Hisar city and check the gap between the demand of students and facilities provided by management.

Key Words: Customer Orientation, Improvement, Organizational system, TQM, TQP

INTRODUCTION

Quality means the totality of features and characteristics of a product or service that bear on its ability to satisfy stets or implied needs. Quality is a dynamic concept and so on is its management. Total quality management has been accepted throughout the world these days. It calls for continuous improvement of quality with the cooperation of workers through innovation in the product and technology so as to meet the changing requirement of the customer. The launching of ISO: 9000 series standard by the International standards organization is an attempt to improve their quality and productivity and to serve their customer efficiently.

Concept of Total Quality Management (TQM). Total Quality Management is a philosophy which believes in a company-wide responsibility toward quality .The main aim of TQM is to actively involve the production personnel in the pursuit of quality and to infuse in them the spirit of continuous improvement.

According to Sashkin and Kiser, "Total quality management may be defined as creating an organizational culture committed to the continuous improvement skills, team work, processes, and product and service quality and customer satisfaction."This definition is anchored to organization culture because successful TQM is deeply embedded in every aspects of organizational life and calls for the delight of customers Thus, total quality management is a continuous customer-centered employee driven improvement.

Total Quality Management (TQM) refers to meet the requirement of customer consistently by continuous improvement in the quality of work of all employees. For achieving total quality, three things are essential:

- **(A)** Meeting Customer Requirement
- **(B)** Continuous improvement through management processes
- **(C)** Involvement of all employees

    Total quality management is dynamic concept a s the quality standard do not remain same forever. They are to be modified or changed to meet the requirement of the customers and to use the new technology .Even the ISO:9000 series standards have a provision of revision , modification or detection of quality standards after every five years. Total Quality Management also calls for involvement of employees in this program me. Without the active involvement of employees, high quality standards can't be achieved. Further, the whole concept of TQM is directed towards meeting the requirement of customers.

Objectives of TQM Philosophy. Primary Objective and the key to organizational survival and growth .Customer is never regarded as people to whom the company presents its product in a take. 'Take it or leave it' spirit. Relationship with customer is considered as a supreme act of faith. It is believed that customer are satisfied, they will continue to patronize the company which, in turn, will make it survive and growth.

The Secondary Objective of TQM is the continuous improvement of quality .The management should stimulate the employees in becoming increasingly competent and creative. They should keep doing better. As long as things are not perfect, there is room for improvement: new products can get to market faster, new adjustments in processes can cut down on time and cost, and the environment for work can be made more satisfying.

Thirdly, TQM aims at developing the relationship of openness and trust among the employees at all levels in the organization.

Components of Total Quality Management

1. **Customer Orientation**: Total Quality Management aims at satisfying the customer's requirements which never remain constant, but keep on changing with the time, environment, circumstances, needs, fashion etc.hus, meeting the changed requirement of the customer is a continuous goal of the producer..

2. **Continuous Improvement:**The change in customer requirement may be termed of desire for better quality and products/services, bigger size,
   Reduced cost, etc. So to a producer has to cope up with the new requirements. A new processes has thus to be attuned and accelerated to meet these changing requirements.

3 **Employees Involvement**:-The enhancement of skills of the employees will not only improve quality, but also bring down the cost of products

Through Efficient use of machines and materials and reduction of wastages.

Need and significance of Total Quality Management. Total Quality Management can succeed only if it has the support of total quality people.(TQP) Total Quality Management without TQP does not work as processes do not work unless people work. Thus, the essence of Total Quality Management is the creation of an organizational system that foster cooperation between manager and workers and facilitates learning to implement' total quality'. This, in turn. Would lead to continuous improvements of processes, product and service and to employees fulfillment.. Total Quality is the need of the organization is the need of all the modern organizations. This realization first came in the JAPAN where it was felt that quality cannot be ensured by inspection and test alone; every department and the individual had a role to play in the achievement of quality. Thus quality control which was basically restricted to testing and inspection of the end product gave way to quality assurance also involved the inspection of the production processes and equipment. Total Quality Management goes a step further as its aim to actively involve in all the employees in the pursuit of quality and infuses in them the spirit of continuous improvement to satisfy the ever changing needs of the customer. It intends to achieve desired quite rather than control and prevent defects in the goods produced. Total Quality Management is the sum total of the quality of various aspects of the business system namely product design, development, production, purchasing, marketing, financing etc. It also involves all the technical and administrative system and procedures which can ensure the desired quality on a consistent basis. This is why; organizational all over world have become conscious of the needs of Total Quality Management.

Benefits of Total Quality Management. Total Quality Management brings quality consciousness in the enterprise which encourages production   of quality products.

1. Total Quality Management helps in providing greater satisfaction to the customer by meeting their requirements.
2. It creates a good public image of the enterprise by helping it to provide goods services of higher to the society
3. There is better utilization of material, machines, capital, and human resources.etc.
4. Wastages are reduced to the minimum .as a result, cost of production is reduced and profitability is increased. Even the customer
   Could be provided goods at lower prices. The competitive position of the firm in the market is improved.
   5The employees are committed to higher quality and feel motivated. Their morale is also higher because of the public image of the firm and its goodwill in the market..

Implementation of Total Quality Management. W. E. Deming, an international renowned quality expert, known as father of Total Quality Management has suggested Plan-Do-Check-Act cycle for the implementation of Total Quality Management in nay organization. The steps suggested in PDCA are:

1. Lay down policies and objectives of Total Quality Management. Determine what the customer is supposed to receive and what they are actually receiving.
2. Chalk out the methods to achieve Total Quality Management objectives.
3. Educate and train workers and managers to understand and meet the requirements of TQM.
4. Start the operation of Total Quality Management by introducing new product, machine, procedures etc.
5. Observe results of operation and find out the causes of non-conformance to quality standards.
6. Analyze results and determine the consequences of non –conformance and place the report before the top management.
7. Prevent undesired effects in the quality **improvement. Establish** personal relationship with employees sa that they can voice their concern and ideas.
8. Suggest measures for improvement of methods and design in future.

What is meant by Quality Principles?

The quality principles is a management approach for making higher education institutions more effective, in addition to creating an improved place to obtain a degree and a more enjoyable workplace. The principles were conceptualized and documented by authorities such as W. Edwards Deming ,Joseph M.. Juran, and Philip Crosby and they have been widely implemented in corporate America under the name of total quality Management (TQM). The literature is abundant with articles indicating that the quality principles are proven ways of improving the effectiveness and efficiency of organization. Numerous companies across a variety of industries have benefitted from implementing the quality principles.

What are the quality principles?

In reviewing the quality improvements literature, eight quality principles emerged and each is discussed at the length in this report. Leadership is needed early in the quality journey to support the quality improvement efforts. Because leadership in such a critical principles, it is listed twice when the principles are identified, but discussed only as the eight principles. The principles are:-

- Vision, Mission and outcomes driven
- System dependent
- Leadership :creating a quality culture
- Systematic individual development
- Decision based on fact
- Delegation of decision making
- Collaboration
- Planning for Change
- Leadership: supporting a quality culture

For this purpose of this paper "The quality principles are a personal philosophy and an organizational culture that utilize scientific outcomes measurements, systematic management techniques and collaboration to achieve the mission of the institution". Essentially the quality principles change the culture of higher education institutions.

How Can the quality principles work in higher education institutions?

The purpose of this paper is to explain how the quality principles work in the context of higher education. The quality principles are essential compatible with the values of higher education, but often the culture must change to support the principles. Most institutions have mission, but most are not accustomed to measuring the outcomes of their processes. Traditionally, constituencies within higher education institutions act independently rather than interdependently. Leaders are usually not trained in the tools and techniques used to improve system and processes. Developing management skills and knowledge is not the norm in higher education; professional development is more often discipline and person specific instead of developing members who can collectively improve institutional processes. Although data is collected for a variety of purposes in directing higher educational institutions, the quality principles emphasis systematically collecting data before making academic and administrative decisions. Committees in academic are common, but actually collaborating and work as team is not. For the culture change, members need to shift their thinking about how work is done. When the paradigm

shifts, members again to ask different questions in search of new answer to the same old problems. They embrace change as a positive value in the culture since continuous improvement is based on continuous changes. People are trained to feel comfortable with change and not fear becoming involved in improvement efforts. Planning for change is an attitude to be cultivated by the leaders in the institutions. Leaders are essential in creating a quality culture and they play a significant role in assuring that the necessary resources are available to support quality initiatives. When quality principles are implemented holistically, a culture for academic excellence is created.

LITERATURE REVIEW

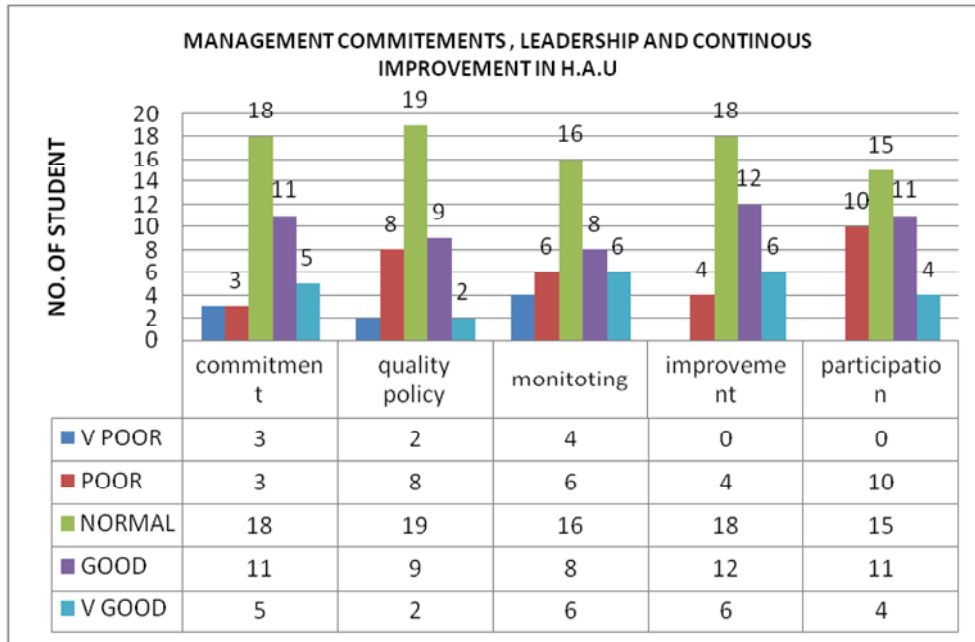| Author	Views
Jaraiedi and Ritz(1994)	Applied QFD to two processes, 'advising' and 'teaching', in an engineering department. Here, they considered students as the main customers. Student's requirements were studied and compared with some 'design' requirements developed for each process. On the basis of calculated importance ratings and target values for the design requirements, conclusions were made on the ways that quality could be improved
Pitman et al. (1995)	Applied QFD in evaluating a MBA programme at university. The requirements of three groups, i.e. students, employers and academic staff, were taken into account. Their results, though not detailed, revealed the strengths of their present programme as well as areas that required more attention.
Ermer (1995)	In his study of mechanical engineering department, requirements of customers students, academic staff and industry-were analyzed separately. In the case of students, their requirements regarding curriculum and teaching processes were compared with measurable specifications of the programme. The QFD matrix for staff, however, was quite different, since their own requirements were correlated with the responsibilities of the department management.
Lam and Zhao(1998)	Paper addresses the issue of improving quality of teaching with the use of QFD and AHP.
Owlia and Apinwall (1998)	Applied QFD for the improvement of quality in an engineering department.
Fiorenzo Franceschini and Marco Terzago(1998)	Applied QFD to industrial training courses and identified the two major differences between the application of QFD for product development and for education.
Bouchereau and Rowlands (2000)	Article explores the integrated use of techniques like fuzzy logic, artificial neural networks, and the Taguchi method with QFD to resolve some of its drawbacks, and proposes a synergy between QFD and these three techniques.
Hwarng and Teo (2001)	In this paper they demonstrated how an institution in higher education can apply the three-phased, service-based quality function deployment (QFD) methodology to translate the voices of customers (VsOC) in stages into operations requirements. The emphasis is at the operational level.
Chan and Ming-Lu (2002)	It is a review paper highlighting the historical development of QFD, methodological development of technique, applications under the classification of different industries, working of some QFD organizations, and key readings – publications on QFD
Sahney et al. (2003)	Paper reports a study on educational institutions-industry interaction in Indian perspective using QFD model.
Sahney et al. (2004b)	An integrated approach of SERVQUAL and QFD model is applied to identify the gaps existing in quality education and customer requirements in today's modern education system.
Thakkar and Deshmukh (2006)	The paper presents use of quality function deployment (QFD) which prioritizes technical requirements and correlates them with various customers'/students' requirements for the present Indian context. Provides information about the severity of various technical requirements of competitive education.

Objectives of the study
   1. To identify the techniques of TQM in professional education in Hisar city.
   2. To check the gap between the demand of students and facilities provided by management.

Research Methodology
   Research Design-   Descriptive
   Source of Data-   Primary and Secondary
   Primary Source-   Questionnaire
   Secondary Source-   Books, magazines, journals, Internet
   Scaling-   Likert Type (Five Point)
   Sampling Design-   Non Probability
   Sampling Technique-   Convenient
   Sample Size-   100 Students
   Statistical Tool Used- Percentage method

DATA ANALYSIS AND INTERPRETATION

	commitment	quality policy	monitoting	improvement	participation
■ V POOR	3	2	4	0	0
■ POOR	3	8	6	4	10
■ NORMAL	18	19	16	18	15
■ GOOD	11	9	8	12	11
■ V GOOD	5	2	6	6	4

Interpretation-Among the 30 respondent (students of HAU) said that management commitment, leadership and continuous improvement in H.A.U.is good

MANAGEMENT COMMITEMENT ,LEADERSHIP AND CONTINUOUS IMPROVEMENT IN G.J.U

	commitment	quality policy	monitoting	improvement	participation
V POOR	3	2	4	0	0
POOR	3	8	6	4	10
NORMAL	18	19	16	18	15
GOOD	11	9	8	12	11
V GOOD	5	2	6	6	4

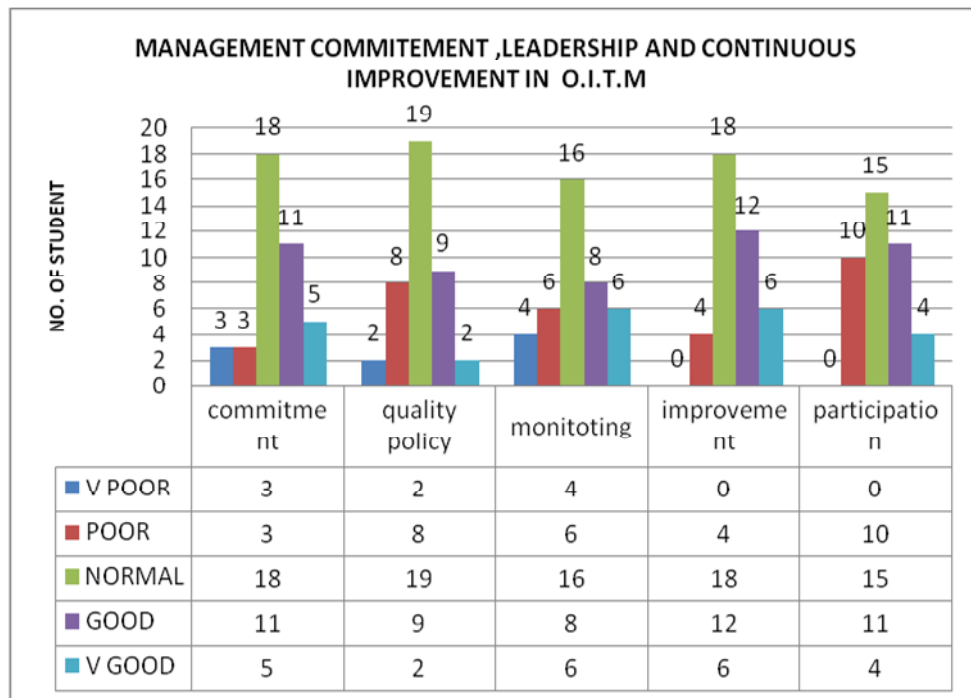Interpretation-The majority of respondents of GJU believe that management's attitude towards commitments, leadership and continuous improvement is good in the university.

MANAGEMENT COMMITEMENT ,LEADERSHIP AND CONTINUOUS IMPROVEMENT IN O.I.T.M

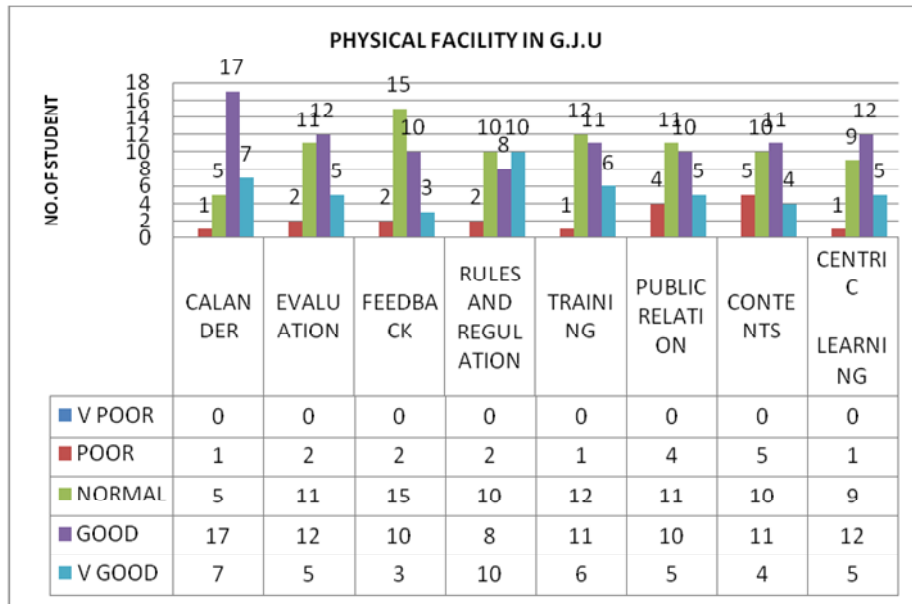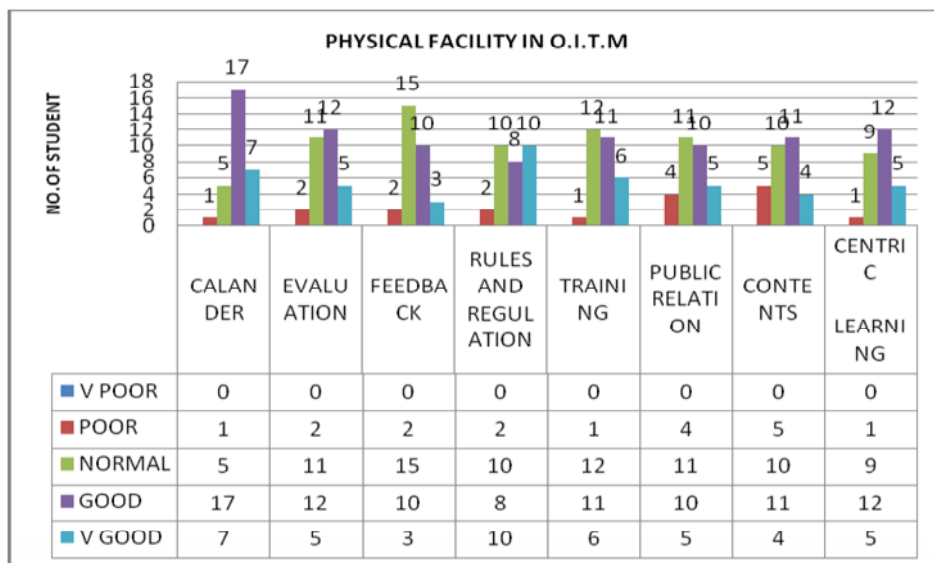|	commitment	quality policy	monitoting	improvement	participation
V POOR	3	2	4	0	0
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NORMAL	18	19	16	18	15
GOOD	11	9	8	12	11
V GOOD	5	2	6	6	4

Interpretation-The majority of respondents of OITM believe that management's attitude towards commitments, leadership and continuous improvement is normal in the institute.

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PHYSICAL FACILITY IN H.A.U

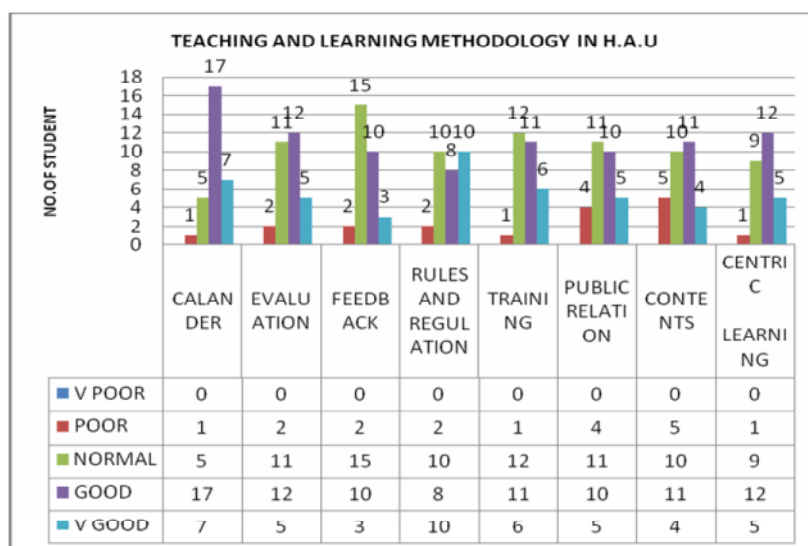|	CALAN DER	EVALU ATION	FEEDBA CK	RULES AND REGUL ATION	TRAINI NG	PUBLIC RELATI ON	CONTE NTS	CENTRI C LEARNI NG
V POOR	0	0	0	0	0	0	0	0
POOR	1	2	2	2	1	4	5	1
NORMAL	5	11	15	10	12	11	10	9
GOOD	17	12	10	8	11	10	11	12
V GOOD	7	5	3	10	6	5	4	5

Interpretation-For physical facilities most of the respondents oh HAU believes that hostels are good , most of them think that power back up, banking & post office, shopping complex, medical, canteen, internet and transport facilities are very good.

PHYSICAL FACILITY IN G.J.U

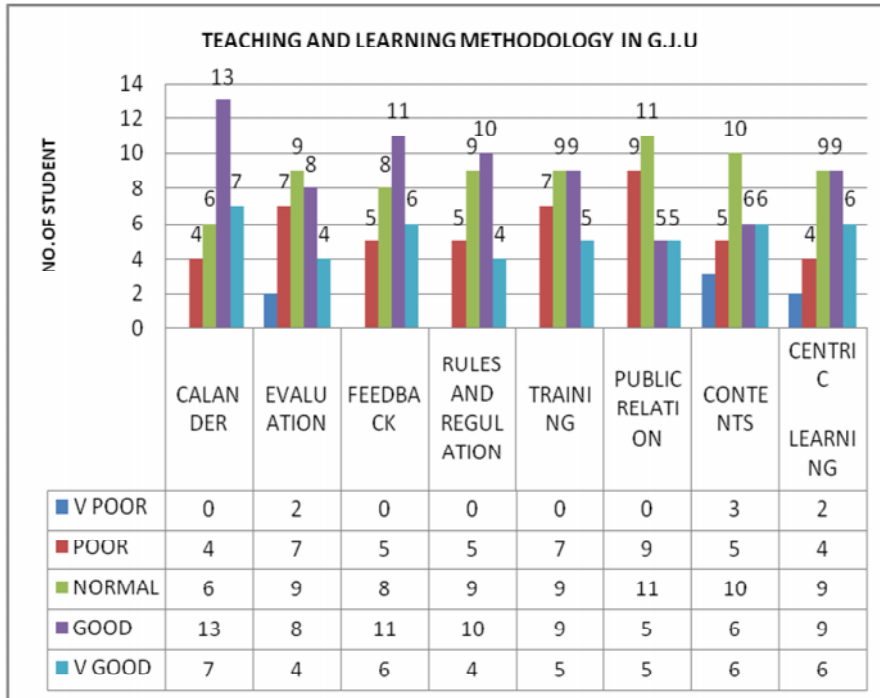|	CALAN DER	EVALU ATION	FEEDBA CK	RULES AND REGUL ATION	TRAINI NG	PUBLIC RELATI ON	CONTE NTS	CENTRI C LEARNI NG
V POOR	0	0	0	0	0	0	0	0
POOR	1	2	2	2	1	4	5	1
NORMAL	5	11	15	10	12	11	10	9
GOOD	17	12	10	8	11	10	11	12
V GOOD	7	5	3	10	6	5	4	5

Interpretation-For physical facilities most of the respondents oh GJU believes that hostels and power back up is very good, most of them think that banking & post office, shopping complex, medical, canteen, internet and transport facilities are very good.

PHYSICAL FACILITY IN O.I.T.M

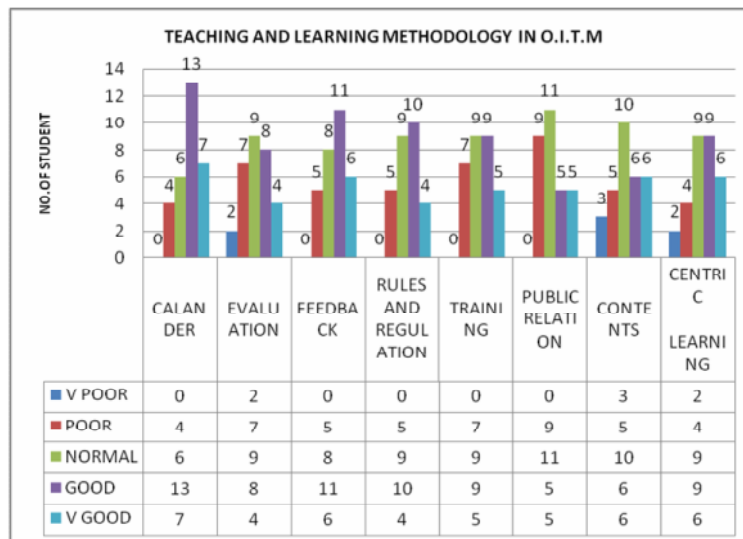|	CALAN DER	EVALU ATION	FEEDBA CK	RULES AND REGUL ATION	TRAINI NG	PUBLIC RELATI ON	CONTE NTS	CENTRI C LEARNI NG
■ V POOR	0	0	0	0	0	0	0	0
■ POOR	1	2	2	2	1	4	5	1
■ NORMAL	5	11	15	10	12	11	10	9
■ GOOD	17	12	10	8	11	10	11	12
■ V GOOD	7	5	3	10	6	5	4	5

Interpretation-For physical facilities most of the respondents oh OITM believes that power back up is very good, most of them think that hostels, banking & post office, shopping complex, medical, canteen, internet and transport facilities are normal. There is no shopping complex.

TEACHING AND LEARNING METHODOLOGY IN H.A.U

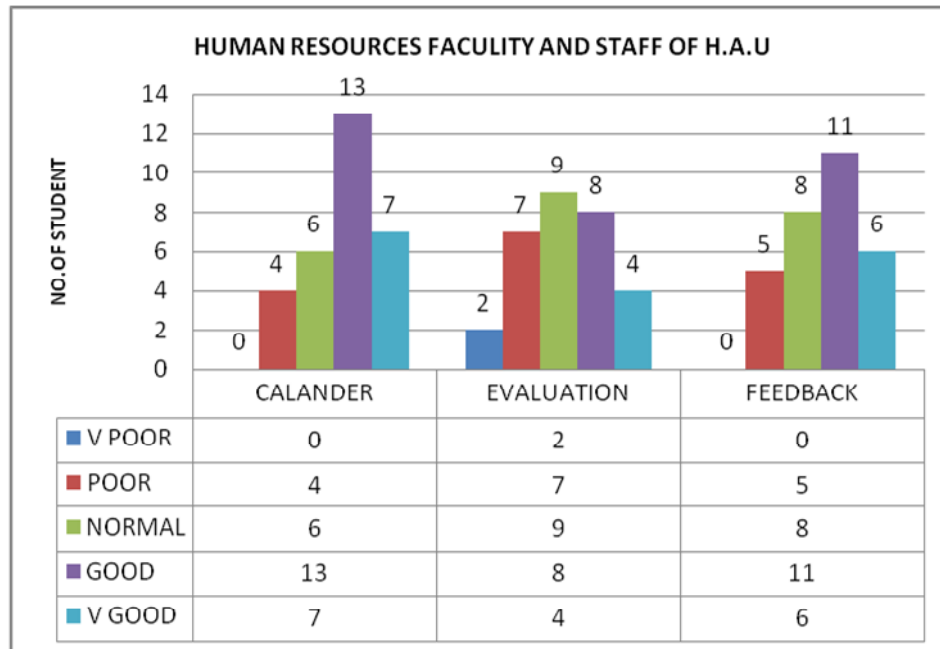|	CALAN DER	EVALU ATION	FEEDB ACK	RULES AND REGUL ATION	TRAINI NG	PUBLIC RELATI ON	CONTE NTS	CENTRI C LEARNI NG
■ V POOR	0	0	0	0	0	0	0	0
■ POOR	1	2	2	2	1	4	5	1
■ NORMAL	5	11	15	10	12	11	10	9
■ GOOD	17	12	10	8	11	10	11	12
■ V GOOD	7	5	3	10	6	5	4	5

Interpretation-For teaching and learning methodology most of the respondents of HAU believe that feedback on performance is normal and academic calendar, continuous evaluation procedure, training & personality development, student's publications, covering of contents beyond the syllabus, students centric learning is good and rules & regulations are very good in the university.

TEACHING AND LEARNING METHODOLOGY IN G.J.U

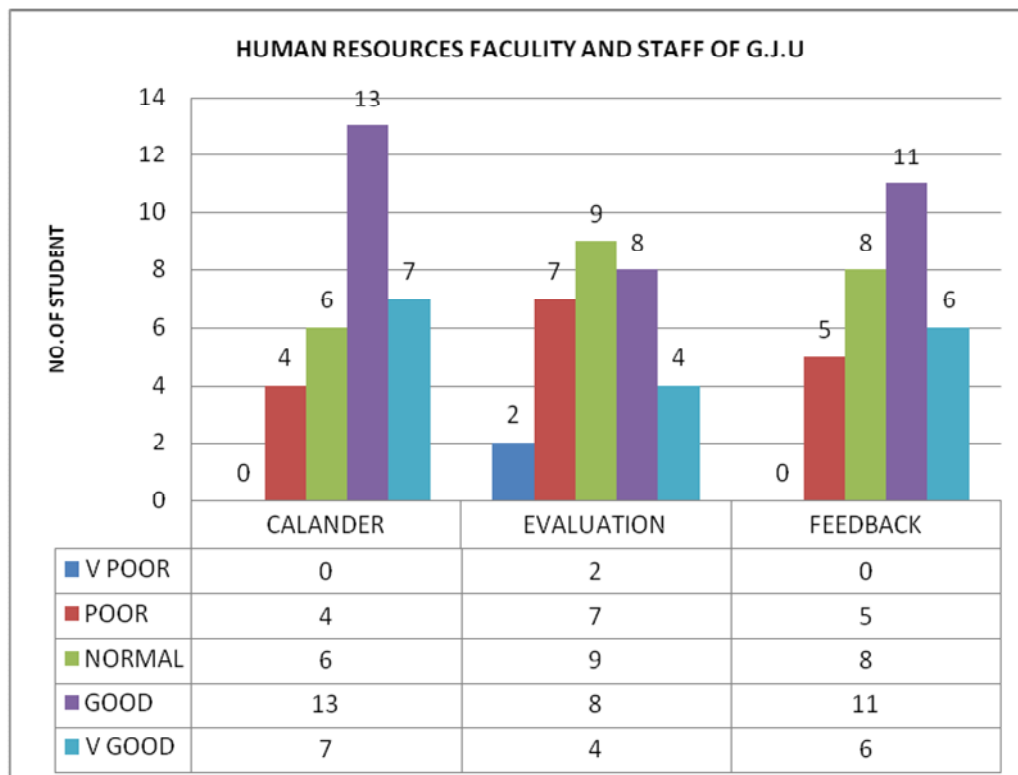|	CALANDER	EVALUATION	FEEDBACK	RULES AND REGULATION	TRAINING	PUBLIC RELATION	CONTENTS	CENTRIC LEARNING
V POOR	0	2	0	0	0	0	3	2
POOR	4	7	5	5	7	9	5	4
NORMAL	6	9	8	9	9	11	10	9
GOOD	13	8	11	10	9	5	6	9
V GOOD	7	4	6	4	5	5	6	6

Interpretation-For teaching and learning methodology most of the respondents of GJU believe that feedback on performance, academic calendar, continuous evaluation procedure, training & personality development, student's publications, covering of contents beyond the syllabus, students centric is good and rules & regulations are very good in the university.

TEACHING AND LEARNING METHODOLOGY IN O.I.T.M

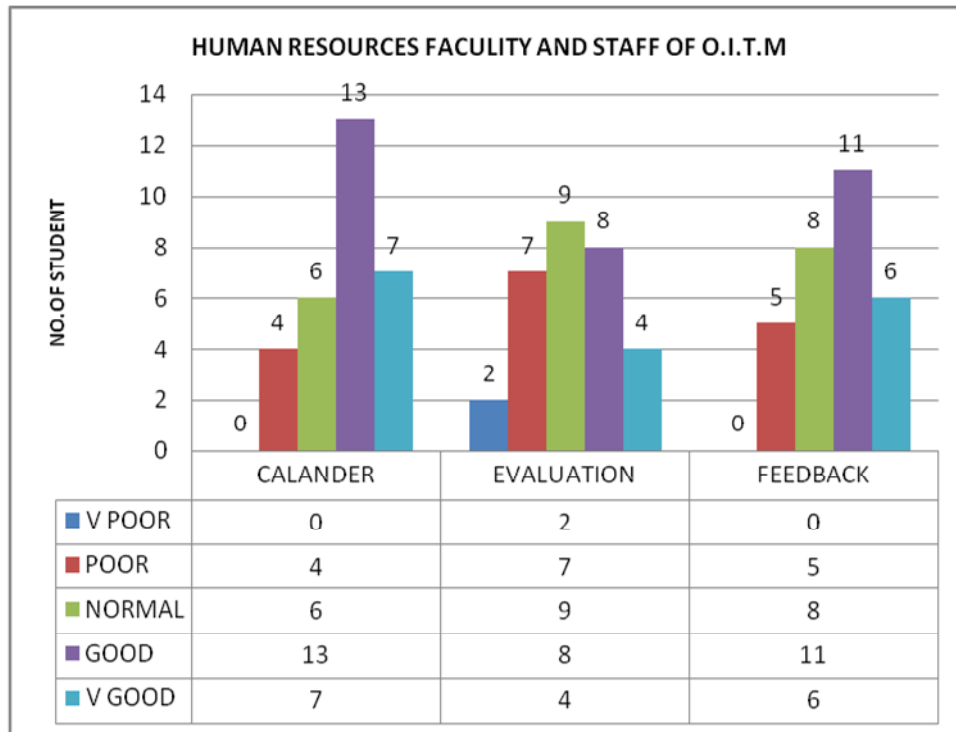|	CALANDER	EVALUATION	FEEDBACK	RULES AND REGULATION	TRAINING	PUBLIC RELATION	CONTENTS	CENTRIC LEARNING
V POOR	0	2	0	0	0	0	3	2
POOR	4	7	5	5	7	9	5	4
NORMAL	6	9	8	9	9	11	10	9
GOOD	13	8	11	10	9	5	6	9
V GOOD	7	4	6	4	5	5	6	6

Interpretation-For teaching and learning methodology most of the respondents of OITM believe that feedback on performance continuous evaluation procedure, training & personality development, student's publications students centric learning is normal covering of contents beyond the syllabus, academic calendar is good and rules & regulations are very good in the institute

HUMAN RESOURCES FACULITY AND STAFF OF H.A.U

	CALANDER	EVALUATION	FEEDBACK
V POOR	0	2	0
POOR	4	7	5
NORMAL	6	9	8
GOOD	13	8	11
V GOOD	7	4	6

Interpretation-For human resources (faculty and staff) most of the response is good for expert and experienced faculty, teamwork and due respect is given to all in the H.A.U.

HUMAN RESOURCES FACULITY AND STAFF OF G.J.U

	CALANDER	EVALUATION	FEEDBACK
V POOR	0	2	0
POOR	4	7	5
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HUMAN RESOURCES FACULITY AND STAFF OF O.I.T.M

	CALANDER	EVALUATION	FEEDBACK
V POOR	0	2	0
POOR	4	7	5
NORMAL	6	9	8
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V GOOD	7	4	6

Interpretation-For human resources (faculty and staff) most of the response is good for expert and experienced faculty , teamwork and due respect is given to all in the O.I.T.M.

FINDINGS AND CONCLUSION

1. Majority of respondents from HAU believes that management commitments, leadership and continuous improvement is good in the university.
2. The majority of respondents of GJU believe that management's attitude towards commitments, leadership and continuous improvement is good in the university.
3. The majority of respondents of OITM believe that management's attitude towards commitments, leadership and continuous improvement is normal in the institute.
4. For physical facilities most of the respondents oh HAU believes that hostels are good , most of them think that power back up, banking & post office, shopping complex, medical, canteen, internet and transport facilities are very good.
5. For physical facilities most of the respondents oh GJU believes that hostels and power back up is very good, most of them think that banking & post office, shopping complex, medical, canteen, internet and transport facilities are very good.
6. For physical facilities most of the respondents oh OITM believes that power back up is very good, most of them think that hostels, banking & post office, shopping complex, medical, canteen, internet and transport facilities are normal. There is no shopping complex.
7. For teaching and learning methodology most of the respondents of HAU believe that feedback on performance is normal and academic calendar, continuous evaluation procedure, training & personality development, student's publications, covering of contents beyond the syllabus, student's centric learning is good and rules & regulations are very good in the university.
8. For teaching and learning methodology most of the respondents of GJU believe that feedback on performance, academic calendar, continuous evaluation procedure, training & personality development, student's publications, covering of contents beyond the syllabus, students centric is good and rules & regulations are very good in the university.
9. For teaching and learning methodology most of the respondents of OITM believe that feedback on performance continuous evaluation procedure, training & personality development, student's publications students centric

learning is normal covering of contents beyond the syllabus, academic calendar is good and rules & regulations are very good in the institute.
10. For human resources (faculty and staff) most of the response is good for expert and experienced faculty, teamwork and due respect is given to all in the H.A.U.
11. For human resources (faculty and staff) most of the response is good for expert and experienced faculty, teamwork and due respect is given to all in the G.J.U.
12. For human resources (faculty and staff) most of the response is good for expert and experienced faculty, teamwork and due respect is given to all in the O.I.T.M.

Conclusion

1. As compare to government professional institute students, private institute's students think that management attitude is normal towards TQM in the institute.
2. Most of the physical facilities are good in the government sector as compare to private.
3. The teaching and learning is good in professional institution in Hisar city.
4. Research and Development are good in public sector but not in private, Participation of industries is normal in both sectors.
5. Faculty and staff is good in professional institution in Hiasr city.
6. Supplementary processes are god in public sector as compare to private sector..

Limitations

1. The sample size chosen is covered very small portion of the population of professional students in Hisar city.
2. The study is confined to limited period.
3. Accuracy of the students based on the information as given by the respondents.
4. Data collected cannot be asserted to the free from errors as the sample size restricted to the students.

REFERENCES

1. Bennett DC (2001) 'Assessing quality in higher education', *Liberal Education*. 87(2): 40-46.
2. J.H. and George, W.R. (Ed.), Marketing Services, American Marketing Association, Chicago, IL: 172-177.
3. Bouchereau V, Rowlands H (2000) 'Methods and techniques to help quality function deployment (QFD)', *Benchmarking: An International Journal.* 7(1): 8-19.
4. Chan L, Ming-Lu W (2002) 'Quality function deployment: a literature review', *Eur. J. Operational Res..* 143: 463-497.
5. Coate LE (1990)"TQM at Oregon State University*", J. Quality and Participation*, 1990a(12): 90-101.
6. Ermer DS (1995) 'Using QFD becomes an educational experience for students and faculty', *Quality Progress,* 131-136.
7. Fiorenzo F, Marco T (1998) 'An application of quality function deployment to industrial training courses', *Int. J. Quality & Reliability Manage..* 15(7): 753-768.
8. George WR (1977) 'The retailing of services: a challenging future', *J. Retailing*. 53(fall): 85-98.
9. Grant DM (2002) 'Measuring the dimensions of quality in higher education, *Total Quality Management*. 13(1): 123-132.
10. Gronroos C (1978) 'A service-oriented approach to marketing of services', *Eur. J. Marketing*. 12(8): 588-601.
11. Harris JW, Baggett JM (1992) (Eds) 'Quality Quest in the Academic Process', Samford University, Birmingham, AL, and GOAL/QPC,
12. Methuen, MA. Harvey L, Burrows A (1992) 'Empowering students', *New Academic*. 1(3): 2–3.
13. Hwarng HB, Teo C (2001) 'Translating customers' voices into operations requirements - A QFD application in higher education', *Int. J. Quality and Reliability Manage..* 18(2):195-225.
14. Hubbard DL (1994a) 'Can higher education learn from factories?' *Quality Progress*. 27(5): 93-97.
15. Hubbard DL (1994) 'Higher education: continuous quality improvement: making the transition to education', *J. Academic Librarianship*. 19(6): 401.
16. Jaraiedi M, Ritz D (1994), 'Total quality management applied to engg education', Quality Assurance in Education, 32-40.
17. Thakkar J, Deshmukh SG (2006), 'Total quality management (TQM) in self-financed technical institutions A quality function deployment (QFD) and force field analysis approach' *Quality Assurance in Education*. 14(1): 54-74.

18. Judd RC (1968) 'Similarities or differences in products and service retailing, *J. Retailing*. 43(Winter): 1-9.
19. Kells HR (1995) 'Creating a culture of evaluation and self-regulation in higher education organisations', *Total Quality Management*. 6(5/6): 457- 67.
20. Lam K, Zhao X (1998) 'An application of quality function deployment to improve the quality of teaching', *Int. J. Quality and Reliability Manage*. 15(4): 389-413.
21. Logothetis N (1997) 'Managing for total quality from Deming to Taguchi and SPC', PHI Pvt. Ltd, New Delhi.
22. Marshall SJ (1998) 'Professional development and quality in higher education institutions of the 21stcentury', *Australian J. Educ*. 42(3):321- 334.
23. Mete BS (2004) 'Critical issues for TQM implementation in higher education', *The TQM Magazine*, 16 (6): 382-386.
24. Owlia MS, Aspinwall EM (1996) 'Quality in higher education: a survey', *Total Quality Management*. 7(2):161-72.
25. Pitman G, Motwani J, Cheng CH (1995) 'QFD application in an education setting: a pilot field study', Int. *J. Quality and Reliability Manage.,* 63-72.
26. Rathmell JM (1966) 'What is meant by services?', *J. Marketing,* 30 Oct: 32-36.
27. Reynolds PA (1990) 'Is an external examiner system an adequate guarantee of academic standards?' in LODER, C.P.J. (Ed.), Quality Assurance and Accountability in Higher Education, London, Kogan Page.
28. Sasser WE (1976) 'Match supply and demand in service industries', *Harvard Business Review*, 54(11-12): 133-140.
29. Shuell TJ, Lee CZ (1976) Learning and Instruction, Brooks-Cole Publishing,
30. Monterey, CA. Singleton J (1974) 'Implications of education as a cultural transmission', in Spindler, G.D. (Ed.), Education and Cultural Process: Toward an Anthropology of Education, Holt, Rinehart and Winston, New York, NY, 26-38.
31. Sahney S, Banwet DK, Karunes S (2004b) 'A SERVQUAL and QFD approach to total quality education: a student perspective', *Int. J. Productivity and Performance Manage.*. 53(2):143-166.
32. Sahney S, Banwet D, Karunes S (2003) 'Enhancing quality in education: application of quality function deployment – an industry perspective', *Work Study*. 52(6): 297-309.
33. Spanbauer SJ (1987) 'Quality First in Education ... Why Not?', Fox Valley Technical College Foundation, Appleton, WI.
34. Tranter P (2001) 'Measuring quality in higher education: a competency approach', *Quality in Higher Education*. 7(3): 191-199.
35. Vonderembse MA, Raghunathan TS (1997) 'Quality function deployment's impact on product development', *Int. J. Quality Sci.*. 2(4): 253-271.
36. Zairi M, Youssef MA (1995) 'Quality function deployment: a main pillar for successful total quality management and product development', *Int. J. Quality & Reliability Manage.*. 12(6) 9-23.