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Polytechnic Education Institutions of Madhya Pradesh (India) -TQM Approach

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Abstract— *The quality of polytechnic education is the concern in current scenario. Different studies and reports given recommendations for its enhancement. Now it becomes essential to take necessary measures for the government and concern agencies for quality enhancement. It has been observed that purpose will only fulfill when institution and faculty will take initiatives and measures. The advantages of Total Quality Management (TQM) have been valued around the world. The institution has to achieve excellence and competitive lead by use the of TQM policy. Principles of TQM have been implemented in the field of education and training. This study highlights the real meaning of TQM and explains how polytechnic education institutions (PEIs) can improve the quality by implement TQM principles.*

Keywords:— *Polytechnic education institutions (PEIs), Total quality management (TQM).*

1. INTRODUCTION

The academic institutions offering polytechnic education broad and those offering professional in particular are undergoing a process of change to meet competition. The change is driven by the factors like industrial demands, mindset of the students, increased competition and the renewed chase among academic community. To ensure higher professional education, is able to deal with market and technological changes together with global necessities, it is important for institutions offering polytechnic education to use appropriate curricula, course materials and teaching methodologies. The growth of knowledge, instructional technologies, practices of premier institutions, accessibility to knowledge and globalization of education has been reported to educators and faculty members to evaluate and improve their effectiveness.

2. POLYTECHNIC EDUCATION

The system is mainly managed by the state agencies as per the state policies. Central intervention has been initiated, particularly for quality enhancement in PEIs. The PEIs are producing skilled and technical manpower for the economic development of organized, unorganized and service sectors shown in figure 1.

2.1. Importance of polytechnic education

- To create a trained skilled manpower.
- To translate the mission objective into action.
- New schemes orienting to skill development are to be launched.

- The existing capacity for training manpower is to be expanded many fold.
- This will include opening of new industrial training institutes (ITIs), PEIs vocational schools and skill development centers.

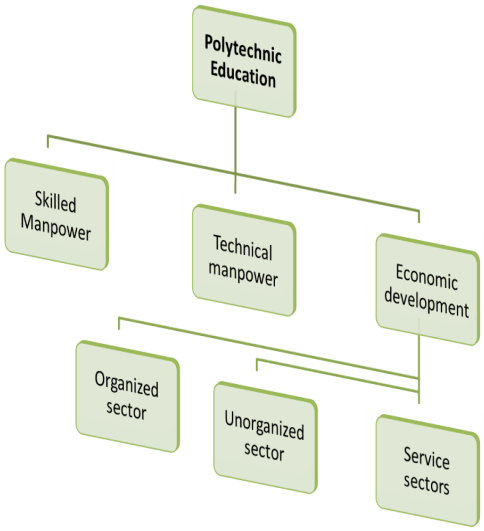

Figure 1: Organization Chart of Polytechnic Education

2.2. Setting up new polytechnics

It has to address several issues including:-

- Static curricula.
- Poor industry interface.
- Lack of flexibility to respond to needs.
- Obsolescence of equipment.
- Lack of trainers.
- Inadequate funding.

In order to stimulate the growth of polytechnics central government has decided to support the state government for starting polytechnics and the existing polytechnics seem to struggle for survival.

2.3. Present polytechnic education system

The system is mainly managed by the state agencies as per the state policies. Central intervention has been initiated, particularly for quality enhancement in PEIs.

2.4. Target population:

The entry qualifications prescribed for diploma programs in most of the states is 10+2. A few states have recently prescribed entry qualifications as 10 + 2. The majority of students seeking admission to the diploma courses come from comparatively poor socio-economic backgrounds, from both rural and urban areas.

2.5. Courses offerings in PEIs

- Civil engineering
- Electrical engineering
- Mechanical engineering
- Electronics and telecommunication engineering
- Computer science and engineering
- Information technology
- Printing technology
- Automobile engineering
- Industrial production
- Chemical engineering
- Mining engineering
- Cement technology etc.

2.6. Polytechnic education challenges of industrialization:-

- Capacity expansion.
- Diversification.
- Starting advanced and post-diploma courses.
- Starting courses in special technological areas.
- Providing increasing opportunities for women.

The PEIs are related to technical education and the vocational education is a part of technical education. Hence, it is also related to PEIs and is value oriented. Vocational education has similar type of courses as PEIs runs. The PEIs are equipped with physical facilities in the form of buildings, lecture halls, laboratories, workshops, hostels etc. and has been used as

knowledge and skill centers for rural community. PEIs have qualified and trained faculty who can scientifically formulate, implement and monitor community oriented programs and projects especially where the activity of adoption of appropriate technology is involved. PEIs have technicians and craftsmen whose services can be utilized to some extent for imparting training skills and adoption of appropriate technologies.

Table 1: Dimensions & Characteristics of Concern to Ensure Quality in Education

Dimensions	Characteristics
Attitude	Understanding students needs. Willingness to help. Availability for guidance and advice. Giving personal attention.
Competence	Sufficient staff (academic). Theoretical and practical knowledge, qualifications. Teaching experience, communication.
Content	Relevance of curriculum to the future jobs of the students. Communication skills and team work. Flexibility of knowledge, being cross-disciplinary. Containing primary knowledge/ skills.
Delivery	Effective presentation. Sequencing, timeliness. Consistency, fairness of examinations. Feedback from students.
Reliability	Trustworthiness. Giving valid award. Handling complaints, solving problems.
Tangibles	Sufficient equipment / facilities. Ease of access. Visually appealing environment. Support services (accommodation, sports…).

2.7. Polytechnic education as the production of qualified skill human resources:-

In polytechnic education students are counted as products absorbed in market. Thus, PEIs becomes input to the growth and development of market and industry. PEIs are producing qualified diploma engineers and skill manpower. Quality technical knowledge is main concern and believes that teaching is the core for PEIs. Thus, PEIs focuses on efficient supervision of teaching-learning provisions by improving the quality.

3. A CONCEPTUAL FRAMEWORK

Based on the review of literature on the different approaches to quality in higher education, Owlia and Aspinwall (1996) present a conceptual framework that covers six criterions to depict quality dimensions. These dimensions are indicative of the areas that should be of concern to ensure quality in education. Source: Owlia and Aspinwall (1996) (Table:-1).

4. OBJECTIVES

1. To discuss the importance of quality in PEIs.
2. To know the actions vital for execution of TQM principles.
3. To determine the achievement of TQM actions through different measures.

5. METHODOLOGY

The data is collected through primary and secondary sources. A sample of 242 respondents' faculty working in both government and private PEIs offering selected through random sampling and data is collected through structured questionnaire and subjective opinions of the respondents on quality indicators. Secondary data is collected through journals, published papers and websites.

6. TQM IN EDUCATION

The globalization of education, student's immigration from one nation to a new is cause for apprehension to educationists. The new teaching and learning methodologies, changing the patterns of education deliverance, course content, the idea of quality has become a vital component of the educational process for its success. Constant enhancement and self evaluation among stake holders such as top management, students and faculty is essential and encouragement of leadership among the stake holders in the organization should be an ongoing process and system. Synergistic relationship among faculty: students, Industry: Faculty and students: Industries to ensure the planned quality with different combinations are required.

TQM principles has been applied to design and delivery of the courses (5-point Likart scale has been used to ranked on a strongly disagree indicating 1 to strongly agree indicating 5).The five major actions has been responds in applying TQM principles to design and delivery of courses taught are teaching methodology, course content, teaching skills, handouts for lectures and expert lectures shown in (Table:-2).

7. CONCLUSION

The knowledge society has been contributed by economic, social, cultural and technological changes. The present economic growth has been significantly increases in knowledge sector. A TQM concept has been presented for excellence in PEIs leads to students satisfaction based on commitment of

Table 2: Handouts for Lectures and Expert Lectures

Sn.	Action taken	Mean score	Standard deviation	Rank on mean score
1	Teaching methodology	9.15	0.9783	I
2	Course content	8.825	1.00095	II
3	Teaching skills	8.45	1.32859	III
4	Handouts for lectures	8.4	1.09175	IV
5	Expert lectures	8.37	1.0116	V
6	Performance based assignment	8.3	1.10554	VI
7	Consultation hours	8.295	1.20415	VII
8	Standardized test procedure	8.22	1.33015	VIII
9	Feedback frequency	8.17	1.1981	IX
10	Students survey for course review	8.13	1.16042	X
11	Industry survey for course review	8.115	1.23471	XI
12	Parent teacher meeting	8	1.20605	XII
13	Course final exam	7.735	1.00115	XIII
14	Grade system	7.61	1.19675	XIV
15	Progress report	7.4	1.42134	XV
16	No failure policy	7.345	1.28844	XVI
17	Alumni survey	7.06	1.28566	XVII

top management, course delivery, campus facilities, courtesy, customer feedback and improvement. The polytechnic education system needs to be strengthened which will be competent of honing the system to attain all-round, versatile personality, to attain leadership qualities, to sharpen communication and interpersonal skills, to attain knowledge of the recent trend in technology, to have exposure to industrial ambiance and to achieve confidence to face changes in the particularly competitive and changing world.

REFERENCES:

[1] Barnet. R, (1992), Improving higher education: Total quality care, Buckingham, SRHE&OU

[2] Boaden. R.J., Dale B.G., (1992), Team work in Services: Quality circles by another name? International Journal of Service Industry Management, Vol.17 No.3, pp. 126-136

[3] Colling. C, Harvey. L., (1995), Quality control assurance and assessment in the link to continuous improvement, Quality Assurance in Education, Vol.3 No. 4, pp. 30-34

[4] Corrigan, J. (1995), The art of TQM Quality Progress Vol.28, pp. 61-64 6. Feigenbaum A.V, (1983), Total Quality Control, McGraw Hill, New York 7. Garvin D.A., (1987), Competing on eight dimensions of quality, Harvard Business Review, Vol. 65 No.6, pp. 101-109

[5] Feigenbaum A.V, (1983), Total Quality Control, McGraw Hill, New York

[6] Garvin D.A., (1987), Competing on eight dimensions of quality, Harvard Business Review, Vol. 65 No.6, pp. 101-109

[7] Gummesson E, (1990), Service Quality – a holistic view, Karlstad:CTF 9. Harvey. L, Green D. (1993), Defining, "Quality" assessment and evaluation in higher education, Vol. 18 No.1, pp. 19-34

[8] Harvey. L, Green D. (1993), Defining "Quality" assessment and evaluation in higher education, Vol. 18 No.1, pp. 19-34

[9] Khanna, P. (2012) 'Qualitative approach for improvement in technical education using total quality management (TQM) Concept', International journal of scientific engineering and technology, Vol.1, No.2, pp.175-178.

[10] Lachlan E.D Crawford and Paul Shutler, (1999) "Total Quality Management in education: problems and issues for classroom teacher", The International Journal of educational Management, Vol.1 pp.67-72

[11] Largosen S, Seyed Hashemi. R and Leitner. M (2004), Examination of dimensions of Quality in Higher Education, Quality Assurance in Education, vol.12 No.2, pp.61-69

[12] Lo V.H.Y.,and D.Sculli, (1996) "An application of TQM concepts in education", Training for Quality vol 4, No 3, Pp.16-22

[13] Majid Jaraiedi and David Ritz, (1994) "Total Quality Management Applied to Engineering Education", Quality Assurance in Education, Vol. 2, No. 1, pp.32-40

[14] Mohammed S. Owlia and Elaine M. Aspinwall, (1997) "TQM in Higher Education – a review" International Journal of Quality & Reliability Management, Vol 14, No.5, pp.32-40

[15] Owlia, M.S. and Aspinwall, E.M. (1998) 'A framework for measuring quality in engineering education' Total quality management,Vol.9, No.6, pp.501-518

[16] Ramona Kay Michael and Victor E. Sower, (1997) "A comprehensive model for implementing total quality management in higher education" Benchmarking for Quality Management & Technology, Vol. 4 No.2, pp. 104-120

[17] Sangeeta Sahney, D.K Banwet and S. karunes, (2004) "A SERVQUAL and QFD approach to total quality education: a student perspective" International Journal of Productivity and Performance Management, vol 53, No 2, pp. 143-145

[18] Sudha, T. (2013) 'Total quality management in higher education institutions', International Journal of Social Science & Interdisciplinary IJSSIR, Vol. 2 (6), pp.121-132.