

## **Studies on Quality Assurance in Technical Education**

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Review of Literature is a very important part of research but in my topic, direct literature was hardly available and not much research has been done earlier. Quality is of great concern in Management education which is part of Technical Education in India. AICTE is the apex body of Technical Education including Management, Engineering, Pharmacy, Architecture etc. Quality Initiatives and Research, Accreditation in all fields are combined for management education and technical education. Concerns for the quality of technical education have been paramount in the minds of all those who have been genuinely concerned about the future of technical education. Expressions of such concerns in print media, academic and professional journals and other publications have been quite visible and pronounced. Broad and comprehensive reviews of literature have been done to understand and carry out the research work in the area of quality management initiatives in the field of technical education in the country.

Anandkrishnan, A. and others (March 2004) in their paper on "Implementation of GATS on Higher Education : A Focus on Engineering, Management, Architecture and Pharmacy institutions" have written about the widespread concern among the educational community and ramifications of education sector coming under the General Agreement on Trade and Services(GATS) in view of the Inter-Ministerial Meeting of World Trade Organization in Doha.

William A. Cook. (1996) in his paper on "Managing for Excellence in Higher Education in University of La Verne Texas" writes that higher education institutions

have been forced in recent years to publicly demonstrate how they achieve and maintain quality in their programmes.. Invariably, comparisons have been drawn between the procedures and the criteria used in industry and those used in academia

Rao, U.R. (2004) in his report on "Promoting Excellence in Technical Education" has stated the historical perspective, growth of technical education and has discussed the quality of Technical Education in respect of assessment of faculty requirement, strategies for generation, recruitment and retention of qualified faculty, industry-institute interaction, technical education in context of globalization etc.

Natrajan, Dr. R (2003) in his article on " A Range of Issues Relevant to Quality and Accreditation in Engineering Education" in *The Indian Journal of Technical Education* has raised a question as to how do we recognize quality. Quality considerations in terms of institutions, faculty and students have been discussed.

Jean Lamkin (1994) in the paper TQM in the Class Room converting a course to quality in TQM in Higher Education wrote that with a little creativity and planning it is easy to change a traditional course into a quality event. By adding modules of pre-assessment, student responsibility, and self-evaluation to the traditional program, the course was modified, so that what they learn in the class depends more on their performance, than on the teacher's ability and performance. The prior knowledge of the students, their expectations from the course and the priority of topics are factored into further

Gupta, B. L. (2003) in his article on "Quality Education in Technical Education Through Developing Teachers" in *The Indian Journal of Technical Education*, Vol.26, No.2, April-June, 2003 has observed that teachers are expected to run the business of technical education effectively and efficiently and satisfy the needs of the students, fulfill the expectations of the industries, parents, society and government through professional education. They are the main drivers of the business of professional education. The credit of success or blame of failure of technical education goes to them. They are expected to assure the quality of technical education. They are expected to assure the quality of technical education and satisfy the students and other stakeholders through assuring quality of services. The paper describes the gaps and shortcomings related to recruitment, induction, development and evaluation of teachers. Appropriate strategies to ensure the quality of teacher and technical education are listed.

Barbara Gross Davis (1995) in her book "Tools for Teaching" by Jossey-

Bass Publishers wrote that the most widely used method for evaluating teaching is the end-of-course questionnaire. The questionnaires arrive too late, however, to benefit the students doing the evaluation. Nor do the questionnaires usually encourage students to have understood the material or to spot weaknesses in classroom presentation, organization, pacing, and work load. Much more effective are fact feedback activities that take place during the semester.

Kay Storbacka, Tore Starandvil, and Christian Gronroos (1994) in their paper The Service Quality Model "Managing Customer Relationships for Profit" in International Journal of Service Industry Management, Vol 5, state that the customer satisfaction is first based on a recent experience of the product or service. This assessment depends on prior expectations of overall quality compared to the actual performance received.

Susan M. Grotevant (1998) in her article on "Business Engineering and Process Redesign in Higher Education - Art or Science?" published by The University of Minnesota wrote that whatever the methodology employed, enterprise engineering is about the simplification of work to achieve higher quality, better results for customers, and lower costs.

Vvera Joosten, Susan Scarlett and Lindsay Heywood (1999), have through their paper "ISO at RMIT : Not just a couple and acronyms" published by Royal Melbourne Institute of Technology, Australia, report on the development of quality Management system for the teaching and learning processes and related support processes of a large Australian university.

Tom Drummond (2002) in his paper on "A Brief Summary of the Best Practices in Teaching" observes that the teacher, as leader, brings a mature view of learner development, which will hopefully unfold over time, and brings a thoughtful perspective on the long-term aims of this educational endeavor. The teacher has experience in the evolution of knowledge, skills and dispositions that lay beyond the learner's awareness. The teacher also brings his or her evolving understanding of the relation of current student to what it means to be human.

P. B. Sakthivel, G. Rajendran and R. Raju (2005) in their paper, TQM Implementation and Students' Satisfaction of Academic Performance, published in the, The TQM Magazine developed the 5C TQM excellence model which empirically establishes relationship between TQM implementation and students' satisfaction of academic performance. A sample of students from ISO and non-ISO engineering institutions from South India has been taken for the study.

Chhipa, R.C. (2009) in his paper presentation entitled as "To Increase

Technical Manpower through Performance Appraisal in Indian Universities and Higher Education Institutions" for All India two-day conference as 19th Skoch Summit 2009 on the theme of "India : Challenges and Policy Response" has mentioned that to expand access to higher education in India as the largest technical manpower we must prepare our students, with high standards, accountability, innovativeness and independence and balance of autonomy.

Ranjan, Jayanthi and Khalil, Saani (2007) in their paper titled "Application of Knowledge Management in Management Education : A Conceptual Framework" published in *Journal of Theoretical and Applied Information Technology* have presented a conceptual framework in the context of Knowledge Management (KM) in Business Schools (B-schools) in India. If the framework is adopted in business schools, it will yield more benefits to increase the quality of knowledge sharing. There has been indeed a paradigm shift in management education in India.

Nagadevara, Vishnuprasad and Tara, S. Nayana (2007) in their paper on "Factors Influencing Quality of Technical Education in India : A Study of Technical Institutions in Karnataka" published in *International Journal of Business Research* March, 2007 Volume 7 Source Issue 2 have stated that one of the main triggers for growth in Indian economy is the explosion in the IT sector. In order to sustain the current growth rates in the new knowledge economy sectors, the pool of technical talent needs to continue to grow, which is attracting private players into the sector.

Chantarasombat, Chalard (2009) in his paper titled "Knowledge Management for Educational Quality Assurance in Faculty of Education, Mahasarakham" published in *European Journal of Social Sciences - Volume 11, Number 3* has aimed to make plans for knowledge management for educational quality assurance together with activity plans for work development of the department in the divisions of faculty of education, to examine conditional factors of success.

Becket, Nina in her Academic Paper on "Quality Management Practice in Higher Education - What Quality Are We Actually Enhancing" has stated that there is still no consensus on how best to measure and manage quality within higher education institutions (HEIs). Thus, a variety of approaches have been adopted. This paper presents a review of current quality management practices within HEIs. The review identifies a reliance on industrial models. These are applied with only partial success and identified limitations suggest a need for refinement, particularly in relation to the centrality of student learning within higher education.

## **LITERATURE SURVEY ON TECHNICAL EDUCATION**

I have gone through various reports, books, journals, internet and articles related to my field of research. Some of them are mentioned below.

### **1. Second World Summit on Accreditation ( WOSA 2014)**

The Second World Summit was organized by NBA on 8th to 12th March, 2014 in New Delhi. The focus of WOSA 2014 was International Recognition of Educational Qualifications - a theme that is of great significance globally in the context of trade and technical services worldwide. In this summit criteria and parameters of Accreditation was discussed and also concern and plans for assurance of quality education worldwide.

### **2. National Workshop on Quality Assurance and Accreditation**

National Workshop on Quality Assurance and Accreditation was jointly organized by MHRD, NBA, UKIERI on May 12 & 13, 2013 at Hotel Ashok, New Delhi. The Workshop was well-attended by delegates from the MHRD, UK High Commission, UGC, NACC, AICTE and representatives of state governments, Vice Chancellors and Heads of Institutions, NBA and UKIERI. The delegates deliberated on various National and international aspects of quality assurance and accreditation in higher education.

### **3. First World Summit on Accreditation (WOSA 2012)**

The First World Summit on Accreditation was organized by the NBA from March 25-28, 2012 at Hotel Ashok, New Delhi wherein 21 eminent international scholars and speakers presented their papers/views including the President of Washington Accord, Deputy Chairman of the International Engineering Alliance : President CTI, Secretary General, MUDEK, Vice President, AACSB President, ACBSP and CEO, AMBA amongst others. The theme of Summit was "Achieving Excellence through Accreditation".

### **4. Revitalizing Technical Education – Report of the Review Committee on AICTE, September 2003 published by Ministry of Human Resource Development, Government of India**

This much-publicized report under the chairmanship of U. R. Rao has taken a detailed perspective of Technical Education in India and has stressed upon quality management in technical education in the context of globalization. It has also reported performance review of AICTE functioning and its activities

**5. Promoting Excellence in Technical Education – A Report of the Board on Faculty Development published by All India Council of Technical Education in March 2004.**

This report has stressed on the need for qualitative growth in terms of strategies for generation, recruitment, and retention of qualified faculty in the ever increasing number of technical institutions in India.

**6. A Range of Issues Relevant to Quality and accreditation in Engineering Education by Dr. R Natrajan** deals with a range of issues relevant to need of quality and accreditation of engineering education. It also states basic features of quality as how to recognise it, quality indicators and the barriers to quality, with particular reference to this country.

**4. Shortage of Qualified Teaches and Remedies for Quality Assurance in Technical Education System by Dr. J. P. Srivastava**

This article looks at the quality assurance in technical education as a function related with students, teachers, infrastructure, management and policies laid down by controlling authorities and emphasizes that teachers play a vital roles.

**5. Higher Education Scenario in India and the Need for Total Quality Management by Dr. Sangeeta Sawhney**

This article talks about the effects of consequences of socio-economic transformation on technical education system in India. The system now faces pressure from variety of stakeholders for greater responsiveness and accountability and thus stresses the need for quality.

**6. Quality in Technical Education : A Critical Analysis of the Governing Factors by Dr. M. C. Chandra Mouly.**

This article takes a critical view of the astonishing increase in the number of private engineering colleges where students have to spend more fees and the degrees from such colleges are accompanied by a stigma.

**7. Towards Total Quality in Engineering Education – A Study by Dr D. N. Shivappa**

This paper highlights some aspects related to both teaching and learning-focused education. Quality in technical education process is a must to meet the challenges posed by globalization; benefits of continuous quality improvement methods for educational process are briefly discussed in this paper.

**8. Innovative Practices in Technical Education Aystem – A Report by All India Council for Technical Education, New Delhi.**

This report was prepared after a survey of innovative practices being used

by the technical education institutions. The responses to the questionnaire sent to all institutions were analyzed and the practices have been grouped in three categories viz. best practices, progressive practices and other practices.

#### **9. Quality Assurance in Technical Education : Recent Trends and Challenges Ahead by Prof. PremVrat, Director, IIT, Roorkee.**

This report emphasizes on the accountability aspect of technical education. Technical education must be judged in terms of outputs and the contributions it makes to national development. To ensure useful output, there is a need to raise the qualitative standards of technical education.

#### **10. Technical Education Programs and Quality Assurance Process by Dr. R. S. Sirohi, Director, IIT, Delhi.**

This report talks about the deterioration in standards of technical education in the country due to mushroom growth of technical education institutions, many of them without adequate facilities, proper faculty and infrastructure. Hence, the quality assurance process should address specific academic issues including faculty development and faculty collaboration, strengthening of research programs, curriculum development, etc. Further, it says that in this connection networking of institutions and the accreditation policy may play a vital role in the quality assurance process.

#### **11. Quality Education In The Classroom**

Converting A Course To Quality [by] Jean Lamkin May 1994 edition of TQM in Higher Education, pages 6-8. The old lectures are the backbone of my new, quality course. I add pre-assessment, student responsibility, and self-evaluation to the traditional program. More importantly, I've taken myself out of the center of the course and placed the focus on the students. What they learn in the class depends more on their performance, than on mine.

"A little creativity and planning and it didn't take me long to change a traditional course into a quality event."

#### **12. Rethinking Management Education**

A TQM Perspective Magazine: Journal of Management Education, February, 1995 Business, labour, and government leaders have acknowledged that improving the quality of products and services is key to competitiveness in both the global and the domestic marketplaces. Quality improvement has been implemented successfully in the entire spectrum of organizations, manufacturing and service

firms; small, medium, and large entities; union and non-union environments (Berger, 1991).

The Total Quality Management (TQM) movement has been the primary vehicle for change in organizational thinking about quality processes. Although many colleges and universities offer courses in TQM or attempt to apply TQM in their business operations, few use this model as a framework to examine the basic processes of education. There is a need to share experiences and stimulate ideas about improvement of our primary service.

**13. Tools for Teaching by Barbara Gross Davis; Jossey-Bass Publishers: San Francisco, 1995.**

The most widely used method for evaluating teaching is the end-of-course questionnaire. The questionnaires arrive too late, however, to benefit the students doing the evaluation. Nor do the questionnaires usually encourage students to give the specific comments an instructor might need either to identify how well students have been understanding the material or to spot weaknesses in classroom presentation, organization, pacing, and work load.

**14. Quality Education Transforms The Classroom September 1995 Magazine: Management Review**

When asked to name the greatest problem facing America today, most business executives respond that our young people are not receiving the training necessary to be the "knowledge workers" who will keep our businesses and our nation globally competitive in the 21st century.

**15. Managing For Excellence in Higher Education William A. Cook, University of La Verne Texas 1996**

Higher education institutions have been forced, in recent years, to publicly demonstrate how they achieve and maintain quality in their programs. Invariably, comparisons have been drawn between the procedures and criteria used in industry and those used in academia. However, while certain comparisons can be drawn, the uniqueness of the services provided in academia warrant a different approach to advising and monitoring from that used in industry.

**16. 1997 Author : Andrews, Hans A. from ERIC Clearinghouse for Community Colleges Los Angeles CA**

Total Quality Management (TQM), a form of management that emphasizes continuous quality improvement process in institutional operations, represents a



major shift in academic administrative circles from hierarchical to collegial management. Under a variety of names such as Continuous Quality Management, or Responsibility Center Management, TQM type principles have been successfully implemented at a number of community colleges, particularly in areas such as financial aid, admissions and registration, and clerical and staff performance (Spanbauer, 1992).

#### **17. TQM and Collaborative Learning : A Perfect Match**

Linda Null Department of Computer Science Penn State Harrisburg 1997  
Total Quality Management has long been considered a philosophy of management and leadership in industry. Because educators are becoming increasingly concerned with various methods of teaching, TQM principles are also finding their way into the classroom

#### **18. Business Engineering and Process Redesign in Higher Education : Art or Science? The University of Minnesota CAUSE 1998**

Whatever the methodology employed, Enterprise Engineering is about the simplification of work to achieve higher quality, better results for customers, and lower costs. It is about replacing manual processes with automation, eliminating unnecessary bureaucracy, streamlining and minimizing handoffs across departments, providing the right information at the right time to the right people, eliminating unnecessary work, reducing unnecessary controls, empowering every employee, and getting it right the first time.

#### **19. Some Experiences of Implementing TQM in Higher Education 1998 Jens Jorn Dahlgaard & Ole Norgaard Madsen The Aarhus School of Business Research Group on Quality Management.**

The aim is to discuss some of the problems that may crop up with a high probability when higher educational institutions try to implement TQM principles.

#### **20. A Brief Summary of the Best Practices in Teaching ..... by Tom Drummond North Seattle Community College, 2002**

The teacher, as leader, brings a mature view of learner development, which will hopefully unfold over time, and brings a thoughtful perspective on the long-term aims of this educational endeavor. The teacher has experience in the evolution of knowledge, skills and dispositions that lay beyond the learner's awareness. The teacher also brings his or her evolving understanding of the relation of the current study to what it means to be human

## 21. Technical Education Quality Improvement Program (TEQIP) MHRD India 2004

World Bank's financial assistance is utilized to improve quality of education, to modernize the laboratory facilities and to make institutions, a Center of Excellence. Under this scheme, a large scale initiative has already been initiated for providing a congenial ambience for learning.

## 22. TQM Implementation and Students' Satisfaction of Academic Performance

P.B. Sakthivel, G. Rajendran, R. Raju, Anna University, Chennai, India. The TQM, the study is to develop a TQM model of academic excellence and empirically establish a relationship between TQM implementation and students' satisfaction of academic performance.

The above review indicates that there is a gap in the field of technical education and quality assurance.