Quality Culture Environment in Engineering Education: IEQMS Model as Moderator

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Abstract: Educational institutions around the world are facing the problem of relevance in terms of quality education in the 21st century. The international economy is evolving towards a global network organized around the intellectual capacity of techno human resource. Engineering Educational Institutions (EEIs) are playing a vital role to meet out the changing societal needs by producing intellectual manpower resources which results in the development of the nation as whole. As quality education is the need of the hour which could be achieved by practicing innovative model like Integrated Educational Quality Management System (IEQMS) through visionary leadership approach. In this study, the researchers have discussed the quality culture in EEIs by implementing ten criterions of IEQMS Model and suggested that the IEQMS Model would steer up the academic quality in all aspects resulting excellent performance of the EEIs.

Key words: Engineering education, IEQMS, visionary leadership, quality culture environment, India

INTRODUCTION

Education is a confluence of research, experiment and experience. Engineering education provides impetus to improve innovativeness in the technical and executive workers of a country. The ultimate aim of any institution is to assure the quality in education and reliability of the student. Now-a-days, it is hard to satisfy the expectations of faculty members, students and other stakeholders regarding delivery of quality in education, since most of the engineering educational institutions failed to adapt structured framework. In educational institutions, visionary leader plays a central role in managing the resources of the organization. The leader directs and creates good academic culture and congenial environment for providing quality education to the student community. Hence, the success of an institution depends largely on the quality of his leadership. Therefore, it is imperative to have a good visionary leader to lead the team for enhancing and updating the knowledge of the faculty, as well as skills of students in all aspects.

For the inclusive and better performance of the EEIs, the IEQMS Model may prove to be a catalyst to inculcate the students adorns the required employability skills shown in Fig. 1. The IEQMS Model is nothing but a bundle of global management concepts, namely; ISO 9001:2008 QMS, ISO 14001:2004 EMS, Occupational Health and Safety Management Systems (OHSAS 18001:2007), 6-sigma (DMAIC), TQM, knowledge management and lean thinking. The ten critical success factors or criterions which broadly represent the IEQMS Model for better institutional performance, are Top Management Commitment (TMC), Systematic Approach to Management (SAM), Customer Satisfaction (CS), Employee Involvement (EI), Training (TRG), Team Work (TW), Continuous Improvement (CI), Corporate Social Responsibility (CSR), Academic Culture (AC) and Knowledge Audit (KA). The institutional performance with respect to stakeholders expectation is listed in Table 1. The study covers review of literature, objectives,

Table 1: Expectation of stakeholders regarding EEIs performance

Stakeholders	Expected quality
Government	Policy of the government improving education quality. Total pass percentage of students in examination. Increasing student enrolment ratio especially from rural areas and from non literate parents
Industry	Generic skills (soft and hard skills). Provision for improving overall personality
Management (institutional owners)	Goodwill reorganization and brand image. Memorandum of understandings with international rated academic and research and development institutions. Increasing wealth of the organisation through higher student enrolment ratio. Social responsibility work towards upliftment of the society
Parents	Immediate employment for graduates. Minimum total expenditure. Congenial environment. Sincere and quality faculty. Good

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Table 1: Continue

Stakeholders	Expected quality
	infrastructure. Provision for improving overall personality
Student	Employment opportunities. Facilities, student associations, clubs and extra and co-curricular activities. Good academic culture. Green environment
Faculty	Job security. Congenial teaching and research environment. Higher pay and incentives

Apart from the earlier mentioned expectations, there are as many other parameters that may likely come up due to global situational changes
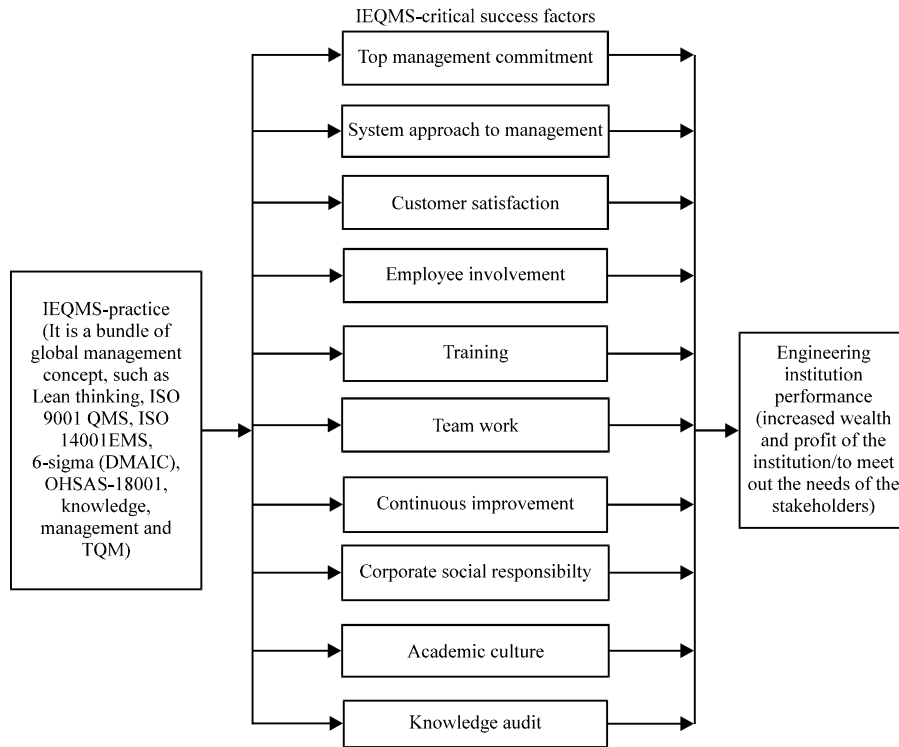
IEQMS-critical success factors

Fig. 1: IEQMS Model for engineering educational institutions (Pandi *et al.*, 2013)

proposed suggestions and conclusions which entitle the enhancement of the engineering institutions using the IEQMS Model as a moderator. The researchers felt the important role of visionary leader in effective implementation of the IEQMS Model which in turn would bring the desired quality culture in the performance of engineering education because of its compatibility nature and universal adaptability.

REVIEW OF LITERATURE

Industries and educational institutions, especially EEIs are facing many challenges today. The real need of the hour is vision to quality education. This requires new kind of leadership having far vision to achieve in the millennium. The entire corporate and educational institutions globally need effective leaders who have multiple traits like dynamic energy, enthusiasm, warmth, integrity, intelligence, persistence, innovation, team spirit and perseverance. The visionary leader can be defined, as

one who direct attention, filter out distractions and free of preconceptions. These qualities make a visionary leader a role model and good administrator to take the institutions to attain its goal.

The American researcher Rick pointed the role of the leader, as a visionary thinker. Martinez (2001) argued that leadership in American higher education needs to take a new direction towards ethics, collaboration, accountability, international and distance education, volunteerism and multiculturalism.

Schein (2004) pointed out that formal leader are the determiners of the culture. Culture is the result of complex group learning process that is only partially influenced by visionary leader traits. Currently, most of the academic institutions around the world practice quality systems by adopting visionary leadership concept.

Goleman (2013) has highlighted the need of focused leader for the development of the organisation. Paul Meehan and Darrell Rigby have quoted that culture is shaped by organizational structure, decision rights, talent

management systems and measures and incentives. The success of any cultural initiative hinges on identifying how culture turns into everyday action.

A quality research study is an integral part of any academic institution. In the academic arena, India has only 119 researchers per million in comparison to 708 in China, 5000 in Japan and 4600 in United States of America, respectively. It is a surprise and a lesson to India that countries like China and Korea which were well behind India a few decades ago in terms of technologists and scientists numbers are well ahead of India now. The earlier research studies in engineering education that emphasised the quality practice in institutions have significant impact on the performance of the institutions, as stated below.

Viswanadhan (2009a, b) has identified some indicators of quality and prioritized the importance of quality indicators in assessing the performance of an under graduate engineering programme in technical institutions in Kerala, India.

Sayeda *et al.* (2010) have highlighted five critical factors, i.e., institution reputation and image, infrastructure quality, faculty excellence, research and industry exposure and stakeholders satisfaction and concluded that there is a significant relationship between TQM dimensions and engineering institutional performance.

Pandi *et al.* (2013) have studied the practice of the Integrated Total Quality Management (ITQM) concept in technical institutions in India by comparing the perception of students, faculty and stakeholders and concluded that ITQM is hardly practiced despite its significant impact on the quality performance of the institutions.

OBJECTIVES

Globally, various researchers have focused on different quality improvement concepts individually in service industry including educational institutions but not on the integrated manner. In developing country like India, in spite of having large number of institutions and second in world population is far behind in the research manpower comparing to other countries. This may be due to lack of visionary leaders to steer and failing to adopt comprehensive quality management models in engineering education.

The challenges ahead are the imminent presence of visionary leaders in engineering institutions to lead the people to acquire knowledge and undertake innovative research activities. For which the researchers felt the presence of visionary leaders to achieve the far-reaching goals and advocate the Integrated Educational Quality

Management System (IEQMS) to be implemented successfully through them to improve the quality culture in engineering educational institutions.

PROPOSED SUGGESTIONS

The dual challenges of competition in the world market and rapid technological advancement have necessitated the workplace into an innovative academic work environment like in University of Massachusetts, Harvard University, Oxford University, University of Michigan and a few in India, namely; Indian Institute of Technology and Indian Institute of Sciences which perform high in intellectual development. They have visionary leaders to solve academic related problems to mend academic with industries and create ways to nurture the budding talents, provide congenial environment for innovative learning and to form effective teams. Especially, self-financed engineering educational institutions in India are not meeting the expectations of the stakeholders due to the lack of visionary leaders.

Visionary leader need to be educational visionaries, instructional and curriculum leaders, experts in assessment, disciplinarians, community builders, experts in public relations, budget analysts, facility managers, special programs administrators, policy emendators and initiators. Visionary leader may possess the following dimensional characteristics.

Focused: A visionary leaders needs to focus on him, others and the wider world. Focusing on oneself and on others will help the visionary leader to inculcate emotional intelligence. Focusing on the wider world will improve on his ability to devise strategy, innovate and manage organisations.

Setting right directions for the institution: Developing shared goals, monitoring organizational performance and promoting effective communication.

People development sense: Enabling teachers and other staff members to do their jobs effectively, offering intellectual support (i.e., knowledge management practice in their respective work) and stimulate them for continuous improvement.

Redesigning capacity: Creating a high quality academic work culture by adopting integrated Educational Quality Management System (IEQMS) Model in the institution.

CONCLUSION

The educational institutions are vested with tremendous responsibility to transform a youth into a

high intellectual person in their respective fields by imparting quality based education which makes the student employability. There seems to be a wide gap between teaching learning process and educational climate in EEIs. The engineering educational institutions in India are now realizing the growing disparity between what they impart to the students and their employment. However, it seems most of the self-financing engineering institutions are finding it difficult to survive without visionary leaders and lack of practice in quality models. The researchers conclude with a suggestion that to implement the IEQMS Model to steer up the academic quality culture in all aspects resulting excellent performance of the EEIs for which the visionary leader must be invested with the responsibilities. Since, the IEQMS Model is a comprehensive one to measure the quality of performance and hence, advocate the global implementation of IEQMS Model to achieve the desired expectations of stakeholders due to its comprehensiveness enfolding internationally accepted quality factors. Therefore, a visionary leader must be emboldened with virtual strategic knowledge which would be the right choice in the system.

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