IMPACT OF TQM IN HIGHER AND TECHNICAL EDUCATION IN INDIA: A STUDY OF SELECT COLLEGES OF UPTU

A SUMMARY
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Introduction

Education plays an important role for any nation. The secret of all developed countries is the educational system. Education creates awareness; it opens new ways to learn.

A literate person contributes more to the development of any nation. Over the past few decades, the quality gurus Crosby (1979)\(^1\), Deming (1986)\(^2\), Feigenbaum (1994)\(^3\), Juran (1986)\(^4\) and others have developed and advocated certain instructions in the area of quality management. Total Quality Management (TQM) application in teaching-learning process of higher & technical educational institutions like Universities and technical institution like Higher and technical Colleges is the need of the hour.

The most important thing in any organization is that TQM is about systemic change. Hellsten and Klefsjo (2000). They see TQM as a management system, which is consisting of three interdependent components : values, methodology and tools and the aim is to increase internal and external customers' satisfaction with a reduce amount of resources. Introducing a TQM approach in an organization or institution we prefer to classify it in two phases. The first phase can be defining of

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what TQM really is, and the second phase is about the implementation of this approach. In fact, without having a comprehensive understanding of the whole concept its implementation is not recommended, and it will cause failures.

There is no doubt about the point that quality plays an important role in today’s higher & technical education, Owlia and Aspinwall (1997)⁵. Feigenbaum (1993)⁶ believes that in “invisible” competition between countries the quality of education is the main and important factor.

Freeman believes that this competition is firstly because of the improvement of the global education market, and secondly is due to the reduction of the governmental funds that encourage organizations to look for some other financial sources, Freeman (1993)⁷. Therefore, identifying what does the quality mean in higher & technical education as the first phase of quality work seems to be essential. However, still there is no one unique definition about the quality of higher & technical education.

**Objective of the Study**

Including aforesaid prime focus area following are the objective of the study: To Review the Higher & Technical Education System of India,

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To Study the Concept, Process and Tools of Total Quality Management, To Study the Principles and Significance of Total Quality Management in Higher & Technical Education, To Study the Organizational Structure of Higher & Technical Education Institutions of UPTU in District Ghaziabad and Meerut, To Study the Managerial System of Higher & Technical Education Institutions of UPTU in District Ghaziabad and Meerut, To Study the Challenges & Issues Affecting TQM in Higher & Technical Education and To draw logical conclusion from the research study and suggest propose constructive suggestion after studying and comparing the TQM in select higher & technical education institutions of UPTU in District Ghaziabad and Meerut.

**Research Methodology**

This was a survey oriented work and on the basis of purposive sampling technique available 05 higher & technical colleges from Ghaziabad & Meerut District were selected for study. This questionnaire was administrated on 200 respondents consisting of Managers/Secretaries, Directors, Principals, Professors; Assistant Professors, Senior Lecturer, and Lecturer of select 05 higher & technical colleges. As discussed above, the questionnaire consists of 20 points pertaining to teaching mechanism, working culture, teaching facilities, etc. A five point Likert’s scale has been used on the questionnaire. Besides the questionnaire, the researcher also carried out informal discussion while visiting these colleges, with
various categories of employees. The final analysis has been done on the basis of response to the questionnaire coupled with the responses collected during personal discussion. Higher & Technical Colleges selected for the study were: Meerut Institute of Engineering & Technology (MIET), NH-58, Meerut(Code-068), Bharat Institute of Technology (BIT), Delhi Bye Pass Road, Meerut (Code-128), Krishna Institute of Engineering & Technology (KIET), Ghaziabad (Code-029), Raj Kumar Goel Institute of Technology (RKGIT), Ghaziabad (Code-033) and Babu Banarasi Das Institute of Technology (BBDIT), Ghaziabad (Code-035).

**Hypothesis of The Study**

The proposed research study is based on the following presumptions:- Quality plays a great role in the development and reputation of the Higher & Technical Institution, Higher & Technical Education system of India has got a wide infrastructure and great potential to provide quality education to the youths, The research study will be able to encourage the applications of the concept of Total Quality Management in the field of higher & technical education, Awareness about the concept of Total Quality Management is very scarce in aforesaid institutions., Application of the concept of Total Quality Management in the field of Higher & Technical Education is not popular in Ghaziabad & Meerut District, and Implementation of the study report would greatly enhance the quality of education in Higher & Technical colleges and thereby bring
considerable improvement in the quality of output in terms of goodwill, results and placement opportunities.

**Higher & Technical Education System of India**

The Indian subcontinent has a long history of organized education. The Gurukul system of education is one of the oldest on earth but before that the guru shishya system was extant. Gurukuls were traditional Hindu residential schools of learning; typically the teacher’s house or a monastery. At the Gurukuls, the teacher imparted knowledge of Religion, Scriptures, Philosophy, Literature, Warfare, Statecraft, Mathematics, Medicine, Astrology and “History” (“Itihaas”). Only students belonging to Brahmin and Kshatriya communities were taught in these Gurukuls. However, the advent of Buddhism and Jainism brought fundamental changes in access to education with their democratic character. British records show that indigenous education was widespread in the 18th century, with a school for every temple, mosque or village in most regions of the country.

The schools were attended by students representative of all classes of society. Printed books were introduced in India by 1579. Pre-British schools and colleges were maintained by grants of revenue-free land. The East India Company, with its policy of maximizing land revenue, stopped this and thus starved the Indian education system of its financial resources.

In 1857 during the administration of Lord Canning (1856–1862), the Governor General of India, Dr Fredrick John, the education secretary
to the then British government in India, first tendered a proposal to the British Government in London for the establishment of a university in Calcutta, along the lines of the University of London, but at that time the plan failed to obtain the necessary approval. However, a proposal to establish three universities, in the Presidency cities of Calcutta, Bombay, and Madras was later accepted in 1854 and the necessary authority was given.

All India Council for Technical Education (AICTE) was set-up in November 1945 as a national level Apex Advisory Body to conduct survey on the facilities on technical education and to promote development in the country in a coordinated and integrated manner. And to ensure the same, as stipulated in, the National Policy of Education (1986), AICTE be vested with statutory authority for planning, formulation and maintenance of norms and standards, quality assurance through accreditation, funding in priority areas, monitoring and evaluation, maintaining parity of certification and awards and ensuring coordinated and integrated development and management of technical education in the country.

University Grants Commission (UGC) has the unique distinction of being the only grant-giving agency in the country which has been vested with two responsibilities: that of providing funds and that of coordination, determination and maintenance of standards in institutions
of higher education. The Central Government is responsible for declaration of Educational Institutions as ‘Deemed to be University’ on the recommendation of the UGC. Presently there are eighteen (18) Central Universities in the country. State Governments are responsible for establishment of State Universities and colleges, and provide plan grants for their development and non-plan grants for their maintenance. The coordination and cooperation between the Union and the States is brought about in the field of education through the Central Advisory Board of Education (CABE).

Professional Education in Uttar Pradesh: Uttar Pradesh has made significant contributions in the field of Education and Social Welfare. Uttar Pradesh has 4 central universities, 20 state universities, 15 deemed universities, one institute of national importance and several polytechnics, engineering colleges and industrial training institutes.

Uttar Pradesh Technical University (UPTU) was established by the Government of Uttar Pradesh on 8th May 2000. The University is affiliating in nature and its jurisdiction spans the entire state of U.P. in affiliating B.Tech., M.B.A., M.C.A., B.Arch., B. Pharma., B.H.M.C.T., M.Tech. and Ph.D. programmes. Uttar Pradesh being the largest state of India with an area of around two lacs forty thousand square kilometers and population of more than 165 million people makes UPTU as one of the largest technical universities not only in India but perhaps in Asia.
The task of the UPTU at the moment includes conducting the State level Entrance Examination U.P.-S.E.E. for admission to various programs affiliated to UPTU. The University conducts central examinations each semester for all the affiliated colleges and other institutions and declares results quickly using technology-enabled systems. At present around 150,000 students are enrolled in its various programmes. Medium of instructions and examinations is English.

**TQM In Higher and Technical Education in India**

The quality philosophy and principles have become central to international educational reform efforts in nations such as Canada, Australia, Japan, the United States and the United Kingdom, Wiklund, Klefsjo, Wiklund and Edvardsson, (2003)\(^8\). The attraction of TQM philosophy is mainly because of its successful record in the world of business in producing quality products and services. In fact, TQM provides a structured and comprehensive delivery system which may lead improvements in education, Wiklund and Edvardsson (2003). TQM recognizes students as both customers and employees of the education system, Maria Fredriksson, (1992)\(^9\). TQM has been used primarily in

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the industry but there are some reasons that TQM should be applied in educational institutions. First, necessitate for change has not been accepted by the institution most of the time. Second, is the hazard to the faculty’s individual autonomy therefore in TQM we need to have customer involvement and teamwork, Fisher (1993). Fincher, C. (1994) have suggested five step model that they believe is applicable to every institution. This model has five phases: deciding, preparing, starting, expanding and evaluating.

In fact, one may claim that Deming cycle is for continuous improvement and proposed TQM model is for improving the quality. Therefore, combination of this model and cycle with some changes will offer model for continuous improvement of the quality, even though TQM is about continuous improvement for quality by itself. The proposed model here will be a four-step cycle, which its components are as follow:

Plan step in Deming cycle is divided by two parts, first part is called Studying. The next part in plan step of this cycle is named preparing. Do step in Deming cycle is about starting and in another word plan and implement solutions. In this step, there must be some training to all levels

about terms like Quality, TQM, Core Values, Methodologies and tools, and distribution of some customer surveys to both internal customers and external customers is desirable. Furthermore, Quality Council must be formulated and some quality improvement teams should be formed.

Finally, some measures must be established and the university board should perform a benchmarking in order to recognize and reward improvements. Check step in Deming cycle has been regarded as evaluation step. This step has to do with evaluation of the plan and do steps. Act step in Deming cycle is divided by two parts. In the first part, if there were found some problems according to checking step, changes must be applied to the system. Accordingly, those solutions and actions done well should be standardized. This will prevent from un-willingness changes within the defined systems.

**Education and Management System of Technical Colleges of UPTU**

Before we carry out the analysis of the organizational structure of the above institutions it will be prudent to state that all the above Engineering and Management institutions are co-located in the same campus thus, it is difficult to differentiate between the infrastructure of Engineering Institution and Management Institution of the same group. Keeping this in view combined infrastructure in a particular campus has been considered for the study.
All the colleges are affiliated to the UP Technical University which is the examination body but the colleges are administered by private management bodies. In most of the cases the chairman of the institution is also the owner of the institution and one or more family members and friends are part of the governing body. The combined area of both the institutions ranges between 5 to 10 acres of land and administrative blocks have 4 to 10 rooms. In fact in some of the case it is seen that the administrative blocks cater for the other institutions also like Pharmacy and MCA, being run in the same campus.

All the institutions have sufficient number of class rooms having student’s seating capacity between 60 to 70. The class rooms are well furnished but the quality varies between average to very good. The mandatory requirement of having library and computer labs is met by all the institutions but again their numbers and seating capacities varies from institution to institution. On administrative side, they all have canteens of varied types, play grounds of various sizes, sufficient ladies and gents toilets, drinking water facilities and standby power supply. Some of them have boys and girls hostel of their own in the campus while others have hired buildings at other places. Many institutions offer accommodation to their teaching staff in the campus and at few places the staff quarters are under construction. Almost in all cases the institutes have their counseling cells to guide and help students in finding jobs after completion of the
course. All institutions are self financed and do not get any type of grant or subsidy from the government or any other source.

All the institutions are privately managed under various educational societies and trusts who have their own management committees having members between 7 to 10. There is no laid down qualification for these members and generally the family members of the owners and their close associates are part of these committees. The head of the institution is called the Chairman/ Director General/ Director depending upon the size of the institution. The Chairman may or may not be a qualified person as per the UPTU norms but the Directors are qualified having requisite experience to run the institution.

All the institutions have appointed Heads of Departments to ensure smooth functioning of departments and they all have laid down qualification and experience. They have designations from assistant professors to the professors depending upon the size of the department and the institution. There is a requirement of having qualified faculty which is fairly difficult to fulfill because of large number of institutions having cum up in the area creating demand and supply imbalance. In some cases the institutions have employed faculties which are not qualified as per the laid down norms and also being paid very low salary.

In some cases the teachers receive lesser salary than the laid down scales but are made to sign on the higher amount as per scale. The
practice prevails in many colleges which leads to frustration and discontentment amongst the staff. The staff turnover is fairly high in many cases firstly because of unequal pay and secondly because of better avenues in the adjoining areas like Ghaziabad, Noida and Greater Noida. There are vague HR policies so far as performance appraisal and promotions are concerned. There are no set rules for granting annual increment, this is done purely on the personal whims of the management. There are no schemes for retention of staff like medical or insurance benefits. Except in few cases none of the institution has any gratuity scheme for the benefit of employees.

All the institutions have sufficient administrative staff like office superintendent, clerks, accountants, lab assistants, librarians, supervisors, peons and housekeeping personnel. However, there are no policies for their employment, promotions and retention. Low-paid employees are covered under EPF scheme of the government because it is mandatory, others have no such benefit.

Impact of TQM in Select Higher & Technical Colleges of UPTU: Comparative Analysis

The researcher made an attempt to carry out study of the impact of TQM in higher & technical education in India specially UPTU colleges. Thereafter, a comparison between the TQM of these five selected colleges has been carried out. The study has been carried out as under;
TQM in select higher & technical education colleges in NCR region especially in Ghaziabad & Meerut District.

Comparative study of TQM between selected higher & technical education colleges in NCR region especially in Ghaziabad & Meerut District.

As discussed above, the questionnaire consists of 20 items pertaining to teaching mechanism, working culture, teaching facilities, etc. A five point Likert’s scale has been used on the questionnaire. Besides the questionnaire, the researcher also carried out informal discussion while visiting these colleges, with various categories of employees. The final analysis has been done on the basis of response to the questionnaire coupled with the responses collected during personal discussion.

Mentioned data’s descriptions also support to the aforesaid hypothesis. Analyses based on questionnaire filled by different respondents of select colleges of UPTU in conclusion are;

KIET respondent are highly satisfied with 20% and BBDIT respondent are highly dissatisfied with 17.5% whereas 40% of respondents in BIT are moderately satisfied with the reputation of college regarding quality of knowledge.

KIET respondent are highly satisfied with 17.5% and BBDIT respondent are highly dissatisfied with 27.5% whereas 32.5%
respondents in BIT are moderately satisfied with reputation of college regarding quality and expertise of its staff.

KIET respondent are highly satisfied with 32.5% and BBDIT respondent are highly dissatisfied with 12.5% whereas 40% respondents of MIET are moderately satisfied with the quality of qualification offered to the students that are recognized by industry players.

KIET respondent are highly satisfied with 30% and BBDIT respondent are highly dissatisfied with 17.5% whereas 40% respondents of BIT are moderately satisfied with the use of the latest information technology in college.

KIET & MIET respondent are highly satisfied with 12.5% and BBDIT respondent are highly dissatisfied with 22.5% whereas 35% respondents of KIET are moderately satisfied also with the adequate tutorial and consultation offered by college to the students.

KIET respondent are highly satisfied with 20% and BBDIT respondent are highly dissatisfied with 22.5% whereas 37.5% respondents of MIET are moderately satisfied with the personal development and educational experience policies of college.

KIET respondent are highly satisfied with 30% and BBDIT respondent are highly dissatisfied with 10% whereas 40%
respondents of BIT are moderately satisfied with the reputation of college being responsive to student needs.

KIET respondent are highly satisfied with 20% and BBDIT respondent are highly dissatisfied with 17.5% whereas 32.5% respondents of MIET are moderately satisfied with the Teacher’s Punctuality in conducting classes & Planning and completion of the syllabus on time.

KIET respondent are highly satisfied with 25% and BBDIT respondent are highly dissatisfied with 12.5% whereas 32.5% respondents of MIET are moderately satisfied with the Methodologies used to impart the knowledge.

KIET respondent are highly satisfied with 20% and BBDIT respondent are highly dissatisfied with 12.5% whereas 27.5% respondents of MIET are moderately satisfied with the Active Learning Techniques used.

KIET respondent are highly satisfied with 25% and BBDIT respondent are highly dissatisfied with 20% whereas 27.5% respondents of BIT are moderately satisfied with the availability to teachers to the students outside class hours for clarification, counseling, career guidance, etc.

KIET respondent are highly satisfied with 32.5% and BBDIT respondent are highly dissatisfied with 22.5% whereas 32.5% respondents of BIT are moderately satisfied with service
conditions like pay, allowances, PF, Gratuity, promotions and terms of engagement of college.

KIET respondent are highly satisfied with 22.5% and BBDIT respondent are highly dissatisfied with 22.5% whereas 35% respondents of BIT are moderately satisfied with the Career Opportunities pointed out to juniors by senior in college.

KIET respondent are highly satisfied with 17.5% and BBDIT respondent are highly dissatisfied with 22.5% whereas 37.5% respondents of KIET are moderately satisfied with the Canteen, Leave, Working Chambers and other Teaching-Learning Facility of college.

KIET respondent are highly satisfied with 22.5% and BBDIT respondent are highly dissatisfied with 20% whereas 30% respondents of BIT are moderately satisfied with the Attitude and Co-Operation of Administrative Staff towards students / staff members.

KIET respondent are highly satisfied with 12.5% and BBDIT respondent are highly dissatisfied with 12.5% whereas 40% of respondents of BBDIT respondents are moderately satisfied with the Availability of Principal/Director in the college and response to students problems/ staff Problems.

KIET respondent are highly satisfied with 30% and BBDIT respondent are highly dissatisfied with 12.5% whereas 37.5%
respondents of BIT are moderately satisfied with the senior’s delegation of authority to juniors, the juniors use it as an opportunity for development.

KIET respondent are highly satisfied with 25% and BBDIT respondent are highly dissatisfied with 17.5% whereas 37.5% respondents of BBDIT are moderately satisfied with the Team Spirit in College.

KIET respondent are highly satisfied with 25% and BBDIT respondent are highly dissatisfied with 7.5% whereas 42.5% respondents of BBDIT are moderately satisfied with the sponsored for development programmes on the basis of genuine training needs of individual member.

KIET respondent are highly satisfied with 25% and BBDIT respondent are highly dissatisfied with 12.5% whereas 32.5% respondents of MIET are moderately satisfied with the organization efforts to identify and utilize the potential of the faculty members.

**Challenges & Issues Affecting TQM in Higher & Technical Education**

In recent years, higher & technical education has witnessed a mass expansion and growth with all attendant characteristics of a system for mass-consumption, e.g.: rapidly increasing number of institutions;
emergence of different kinds of institutions, e.g. engineering, medicine, business studies, polytechnics, etc.; substantial increase in percentage and absolute number of students; significant changes in the composition of the student body in terms of gender, class, age, participation, etc.;

The engineering education, for example, has expanded at a very fast rate since independence. This rate has been about 2000% since our independence, which is higher than any other field. The number of Engineering Colleges have increased from about 40 to more than 1400. With such large numbers, conscious effort to maintain quality is necessary and that has thrown challenges to the higher & technical education. The public is no longer willing to place total confidence in the ivory-tower image of tertiary institutions, but expects independent evidence that higher & technical education is providing good quality and value for their investment.

Quality Assurance is a response to this concern for accountability. In this entire implementation scheme for quality assurance, I consider the faculty as the most important component. The heart of any educational program is the faculty. All other matters are secondary to a competent, qualified and forward looking faculty that can give an overall academic atmosphere to the institution. The quality and competence of its faculty often determine the quality of an institution.

Accreditation of institutions and programmes is seen as a strategy for quality assurance in higher technical education. “Accreditation is a
process by which an institution or a specialized unit of higher & technical education periodically evaluates its educational activities and seeks an independent judgment by ‘peers that it achieves substantially its own educational objectives and meets the established standards of the body by which it seeks accreditation”. Also “accreditation is a status granted to an educational institution or a program that has been found to meet or exceed stated criteria of educational quality”.

Industry can play a significant role in developing the operational knowledge base of teaching faculty in the institutions for development of students in the required areas. Over the years, it has been observed that the teaching faculty has become isolated from the practical industrial scene in the Country. There are of course a few institutions which encourage consultancy arrangement with the industry, but it is more or less dependent on the individual personality and capability of the teaching staff. A few suggestions, which can improve the interaction, are suggested below :

The sabbatical concept of 1 year after every 6 years to be introduced in all institutions. The sabbatical year must be compulsarily spent in an industry. This should be made essential for promotion of staff to higher levels. The staff should be encouraged to write case studies on industries with technology or management focus based on their expertise.
A contact person concept should be evolved between one staff member and one industry with proper secrecy of documents for constant dialogue and development of interaction amongst academics and industry.

The teaching faculty from institutions should be encouraged for attending various gatherings organized by industry associations to understand the problems of industry. Industry associations should invite the relevant teaching faculty from local institutions.

An industry also has a lot to gain by improving its interaction with the teaching faculty. The knowledge base of fundamental principles exists in our Universities and the practical experience which the Engineers and Managers have in industries can be fruitfully combined with the theoretical knowledge base, ultimately giving benefits to both.

In a document called ‘Challenge Education’ produced in 1985 by the Ministry of Education, the government admitted that the ‘whole process of higher & technical education has become warped’. Indeed higher & technical education in India is faced with deteriorating conditions ‘resulting from expansion and worsened by affiliation system and shrinking resources’.
Also despite numerous committees having produced reports to this effect nothing significant seems to have come out of it. Educators opine that the Government should not abandon its responsibility of liberal funding of higher & technical education and creation of funds through donations and upward revision of fee structure is now a must. In fact, the actual percentage of fees to operating cost in India has declined due to increasing cost of education and reluctance of authorities to increase fees or even raise funds from other sources. This is a critical issue facing the Higher & Technical Education System in India and the politics of Education. Public expenditure on higher & technical education is barely 0.4 per cent of the GNP while it is 4 per cent for the entire Education Sector.

Regular University-Industry interaction, which is critical to raising funds from corporate sources as well as restructuring the curriculum in tandem with the changing needs of the industry is missing in India. Vocational higher & technical education in India is an area that merits further research. In this connection in 1994-95, UGC launched a scheme of Vocationalization of Education based on recommendations of T.N. Dhar Committee (1993). UGC has also taken the initiative to form the National Assessment & Accreditation council (NAAC) in September 1994 for purposes of grading institutions of higher & technical education and their programmes. This is a laudable step.
Findings

Some of the observations made during the study of higher & technical institutions are as follows :

- Private institutions though charge heavy fee are popular among middle and higher level of income groups of the society, but do not provide facilities to the students and teachers. Privately owned institutions generally have good infrastructure, spacious class rooms and other basic amenities. However in some cases the teaching- learning techniques are not so well equipped as desired for a professional institution.

- All self financed institutions are managed through a management body which is not so competent and professional to run the institution. The Motivational power of teacher is being down just because of their monetary part as their salary is something else as per the rules and they have been given much less as compared.

- It has been observed during the survey that the control of these institutions is gradually falling into the hands of business minded people who take full advantage of the situation and create problems such as exploitation of teachers, decrease moral values and commercialization of education.

- Conditions of service are not considered to be favorable in the self financed institutions because they are paid lesser
than their counter parts in the government run or aided institutions, and are also considered at par with the government employees for other service benefits.

The self financed institutions suffer with the shortage of teaching staff because of high turn over. The teaching staff tends to move from one institution to the other even on minor raise in salary. This happens because most of the institutions do not pay as per laid down scales and they are fail to provide opportunities for promotions.

Some of the institutions employ faculty on contractual basis which appears to be a very poor system as neither the faculty is motivated to teach nor the students respect such teachers. Institutions do not care much about the government/university rulings regarding running of the institution and are found to run these freely.

In some institutions it has been seen that because of cost cutting on the part of the college management emphasize other works on the teacher which result as work load on them.

It has been seen that in some colleges the director and teacher are shown on paper only but in actual related work are done by other disqualified persons.
Only few institutions employees are satisfied with the service conditions like Pay, Allowances, PF, Gratuity, Promotions and terms of engagement of their respective college.

Motivation level and commitment of teachers of private institutions remains low because of these two factors, yet performance wise they do better because they have no option. Their services are likely to be terminated in case they do not perform.

Institutions are not sponsoring for development programmes on the basis of genuine training needs of individual member which result in failing organization efforts to identify and utilize the potential of the faculty members.

Teacher’s Punctuality in conducting classes & Planning and completion of the syllabus on time in most of the colleges are satisfactory.

The clusters of the colleges are limited in particular region as the result of which other areas remain undeveloped.

Due to rapidly newly opening of colleges which has made up a sort of hub of education in the areas grants by university result the less control of university on colleges

Due to use of new techniques like e-governance even then all the work is done manually.
It has been seen that all the related payments of the university are done by window system.

Some of the institutions were found to be having internal dispute of the management, resulting in lack of coordination in certain activities.

Active learning techniques used like Group Discussions, Tutorials, Assignments and Seminars, field visit, quiz etc in most of the colleges of UPTU.

Suggestions

Most of the institutions have started to establish quality sector to improve the quality, standards of their higher education, and to make their educational system more effective. In fact, improving the quality of institution is towards their defined visions and goals. One comparison between a TQM approach defined by the researchers and quality work in these institutions shows that in implementation of this approach they have done some steps discussed in TQM model and they need to work on some other steps.

Training the key personnel and people involved the quality work and establishment of well-done activities are examples of what this college may work on.

The institutions should identify some guidelines, approaches and policies to improve its quality in different issues-the
concept of quality work at these institutions was named Quality effort.

College should try to improve their reputation for being responsive towards the students by facilitating more services to them such as a sound scholarship schemes to the needy students etc.

Recently the UPTU has been divided into two parts (GBTU & MMTU) even then the controlling of colleges is not proper. University should be decentralized for smooth functioning.

For proper development of education system in particular region the university should grant permission to the underdeveloped areas also.

Different boards of directors such as Center for Learning and Teaching Method, quality coordinator, quality council and its consisting committees and quality improvement teams should be appointed to work towards these policies and different quality issues.

Salary of faculty should be transferred to the accounts of related faculty by AICTE directly.

There should be a Faculty Development Programme (FDP) should be conduct mandatory for freshers for six months to one year.
Faculty Development Program (FDP) should be conducted once in a year for the minimum 2 to 3 weeks for experienced faculties.

Special classes by using new technology like satellite classes or E-classes should be conducted for better development.

Payment should be done online rather than window based.

They should try to evaluate and assess their work regularly and in all issues - they are working hard and good enough in the direction of their objectives they believe that things can be always better and in other words, they are seeking for continuous improvement.

To retain faculties, there is need to identify & upgrade more facilities to them so they can give their best efforts to teach their students.

Institution must emphasize on the concept of the effective training program to the faculty

Every organization is provided with resources like money, material, men, building, infrastructure and other fixed and liquid assets. There is a requirement of coordination and fruitful utilization of these resources.

All the activities, programs and efforts are initiated, supervised and coordinated by the people working in the organization.
The people at work, continue to be the most important resource out of all the resources.

People are not commodities; rather they are some total of knowledge, skills, attitudes, talents and aptitudes which constitute the back bone of the system. They are the input of the organization and if the input is poor, the output can never be of desired quality.

Money is a great motivator but career progression provides higher degree of satisfaction. A fair system of promotions needs to be developed.

Sponsored programs are a powerful tool with the management to upgrade the capabilities of its employees and at the same time it provides opportunity to an individual to get feedback on his performance.

The appraisal system needs to be objective and fair. If strengths and weaknesses are communicated objectively and at appropriate time, it will help teachers in improving upon their quality & weaknesses.

Evolve systems to make directors and the teaching staff accountable for maintaining standards.

There are local anomalies in standards of infrastructure and quality of classroom education which need to be
tackled. There should be no compromise on quality on any account.

Complete re-orientation of existing teachers training programmes to ensure it suits the present environment and current industry trends. There is a requirement of looking into service conditions of teachers. Quality of work life needs to be improved substantially.

Development of teachers should not be restricted to lip service only. A serious effort is required to be made towards development of teachers.

There is a need to encourage creativity and initiative undertaken by the teachers.

Initiative is to be taken at directorate/university levels to facilitate their staff to acquire skills necessary to support institutions under them to grow to the desired level.

Personnel policies are to be so designed as to encourage competent people to join educational field.

Teachers are the translators and main source of delivery system. Motivating teachers for effective and quality delivery is the most critical dimension.

There is requirement of identifying individual needs of teachers and create a climate of cooperation, trust, understanding, accountability, growth and commitment so as to inspire and motivate them to remain on
the peak of their performance. For that a sound lecture delivery system should be developed in the colleges.

There is a need to develop a climate in our education system which is able to attract best of the talents available. The system should ensure a conducive work environment, infrastructural needs, and protection against suppression, proactive leadership, and commitment to the task, accountability and psychological elevation of people to meet challenges in providing quality education in modern era of globalization.

In last, quality of teaching-learning process is entirely depends upon delivery process of lecture and effective & experienced efforts of the faculties, so a genuine efforts should be made by the higher & technical colleges of UPTU to provide better quality to their customers, which are students. All the aforesaid efforts will bring a revolution in higher & technical institution of India.

In conclusion, the authors have tried to address and highlight general principles of a TQM approach and different terms related to the concept of quality and most of them have been described in details.

The researchers hope that this document could provide a comprehensive understanding of the concept of quality in practice for these colleges. In addition, they wish that this institution could use this document as a self-training document to educate responsible people in the quality work.