

A revolutionary style at third level education towards TQM

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Abstract

Recently, the interest of applying the concept of TQM in third level institutions has increased rapidly. In tandem with this, there have been several mechanisms set in train for monitoring and regularly reviewing the standard and quality of all aspects of university education [Eng. Sci. Educ. J. 5 (3) (1996)]. This paper reviews the available quality initiatives in third-level educational systems and discusses the implication of a relevant model for the internal TQM. Also, this paper considers forming a quality framework based on the relation between the customers (i.e. students, second-level educational system, parents and employers/society) and various education activities in third-level institution.

The materials presented in this paper could be of crucial benefit to those with limited knowledge of applying the process of TQM in third-level education. © 2001 Elsevier Science B.V. All rights reserved.

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1. Introduction

In recent years, there has been a manufacturing quality revolution, which began with Taylor around 1920 and division of labour. Then Schewhart developed the control chart. They were the dominant manufacturing force in the world and concentrated on the “product out” rather than the “market in” situation. The Japanese then embraced their ideas and ironically with Deming and Juran (both Americans) and home grown talent (Ishikawa and Taguchi et al.) developed today’s quality concept which are based on total quality management (TQM), and “market-in”. Due to these concepts the manufacturing industry has gone from strength to strength.

TQM is a philosophy of never-ending improvement achievable only by people. This has grown from the view that quality cannot be “inspected in” to a product or service. The essential feature of TQM is the improvement of quality, which depends on the attitude of the workforce. In this context, the quality improvement in any organisation must be the responsibility of every member of the organisation. Thus, TQM is inseparable from general management practice.

Manufacturing process can be the act of providing something, which somebody wants. Therefore, the educational system is not different from a manufacturing process. However, this system is at present falling behind the manufacturing system with regard to quality within its industry.

Thus, in order to progress, it is felt that the educational system should adapt the concept of TQM, similar to that used by the manufacturing system, to respond to the new development and indeed to survive in the modern market place [1].

The old style education systems were evolved along three direct traditional lines: Humboltian, Napoleonic and Anglo-Saxon. These traditions are centuries old [2]. The difference between them lies in where the power resides. In the Humboltian tradition, found in most of Europe, the faculty is very strong, the central administration is weak and there is little government interference. In the Napoleonic tradition, found in France, Poland and Russia, the government has powerful influence and the institutions and faculties are subservient to it. In the Anglo-Saxon tradition, found in the UK and the former British Colonies, the University’s Central Administration has responsibility for the institution, it has control over the faculties and operates quite independently of the government. In the latter half of the 20th century, new institutions of higher education have been developed. These had a less scholarly focus and were directed towards the employment market. These institutions have developed within the academic tradition of the nation. Therefore, the power repository in these new institutions is similar to that of the old traditional universities.

The third-level educational system is subjected to many changes resulting from the technological, economical and political changes around the globe. Harvey [3], has commented on the different meaning of the word ‘quality’ which can convey high standards or fitness for purpose or value for money. He recommended quality needs to be viewed as

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‘transformative’ rather than a perfection process, i.e. essentially as a transformation of the life-experience of the students, by enhancing or empowering them. Harvey viewed the ultimate quality goal, which should be pursued by higher education as ‘the need to invest in continuous improvement of quality of student experience, through staff development, innovation in teaching and learning, research and scholarship’. He also argued that what was needed was a shift in emphasis from the external scrutiny of quality to the setting up of internal quality mechanisms within each educational institution. Tannock [4], pointed out that ‘engineering and other professional subject disciplines had external scrutiny of syllabus material and course accreditation process’. In USA higher education sector, Marchese [5] noted that ‘the number of individuals devoted to the topic TQM runs well up into the 100, the number of institution trying TQM in particular offices might be near 100, the number of those that have committed to TQM on an institution-wide basis stands at two dozen, of which the number with deeper experience constitutes a mere handful’. In the UK, using a study of total internal customer satisfaction, Chaston [6] has demonstrated that British universities are not yet ready to adopt TQM as a unifying managerial principle and institutional philosophy.

This paper discusses an internal quality mechanism as an attempt to implant TQM in third-level educational institutions.

2. Third-level education

Our society has many groups with legitimate interest in third-level education. Thus, the quality of third-level educational system has a considerable influence on the economic wellbeing of a society. Each group in a society sees the quality for third-level educational institutions from its own viewpoint. However, a hard view would see the role of third-level education as:

- Development of the individual for his own and for the society’s betterment.
- Production of highly qualified manpower for the economy.
- A training centre for research careers.
- A means of extending life chances.
- An efficient provision of well managed teaching.

Accordingly, the ability of a country to attract the industrial and commercial investment is dependent on many factors [2]; the availability of an educated workforce is among them. Therefore, the level of investment and the range of activities, which international organisations bring to a country, are very dependent on the number and quality of the country’s graduates. Countries with weak third-level educational systems attract labour-intensive, low-knowledge activities whereas those with strong third-level educational systems attract high-value, knowledge-based industries. So, the relationship between the third-level

educational system/institution and society can be defined based on the customer-satisfaction pattern. The customer in this pattern can be students, parent of the students, second-level educational system and the national/international industrial, commercial organisations/employers and society in general. These customers need third-level educational system/institutions to provide continuous quality improvement in educational standards in different disciplines to satisfy the market demands. This can be expressed as a closed loop as shown in Fig. 1, which suggests that the higher education system forecasts/evaluates the needs of the customer and accordingly provide what is required to fulfil them. This can be achieved through appropriate courses and methods of delivery with a long life learning process for lecturers/staff members and students. In this respect, the third-level educational system plays an effective role for knowledge transfer in a society.

3. Review of quality initiatives at third-level education

Recently, quality initiatives imposed by funding bodies have been established. These initiatives have given rise to much debate and publication in the third-level literature.

In the UK, as a result of the White Paper HE new framework in 1991 and the subsequent HE Act 1992, the higher education quality council (HEQC) has been established to formalise and operate a process of quality assessment in HE. Opinions were varied as to the overall success and a very good and balanced analysis is reported in Refs. [7–9]. One of these interesting approaches was adopted and implemented by the Department of Mechanical Engineering, University of Bristol [10]. This approach was modelled based on ISO 9000 system, common in manufacturing and service industries.

The Scottish Quality Management System, now widely used throughout Scotland, brings together the main quality systems and guidelines used in Scottish education and training [11]. The Dearing Report on HE [12] recognises that each institution is responsible for its own standards. However, it then recommends a national code of practice which all HE institutions should be required to adopt. By 1997 more European countries had institutionalised National Organisations addressing quality in HE (Vroeijnstiyn [13] and Birtwhistle [14] discussed the philosophy in Higher Education Review more than the performance). France has had, since 1985, an Independent Accreditation Body, reporting to the President’s Office of the Republic. This includes a focus on quality of teaching, learning, research, management, administration and social programs [15].

Netherlands and Denmark established a National Centre of Evaluation and Quality Assurance [16]. This focused on teaching, learning — including peer review and user surveys. In the USA, there can be found a number of approaches to quality assurance (QA), quality control (QC), quality

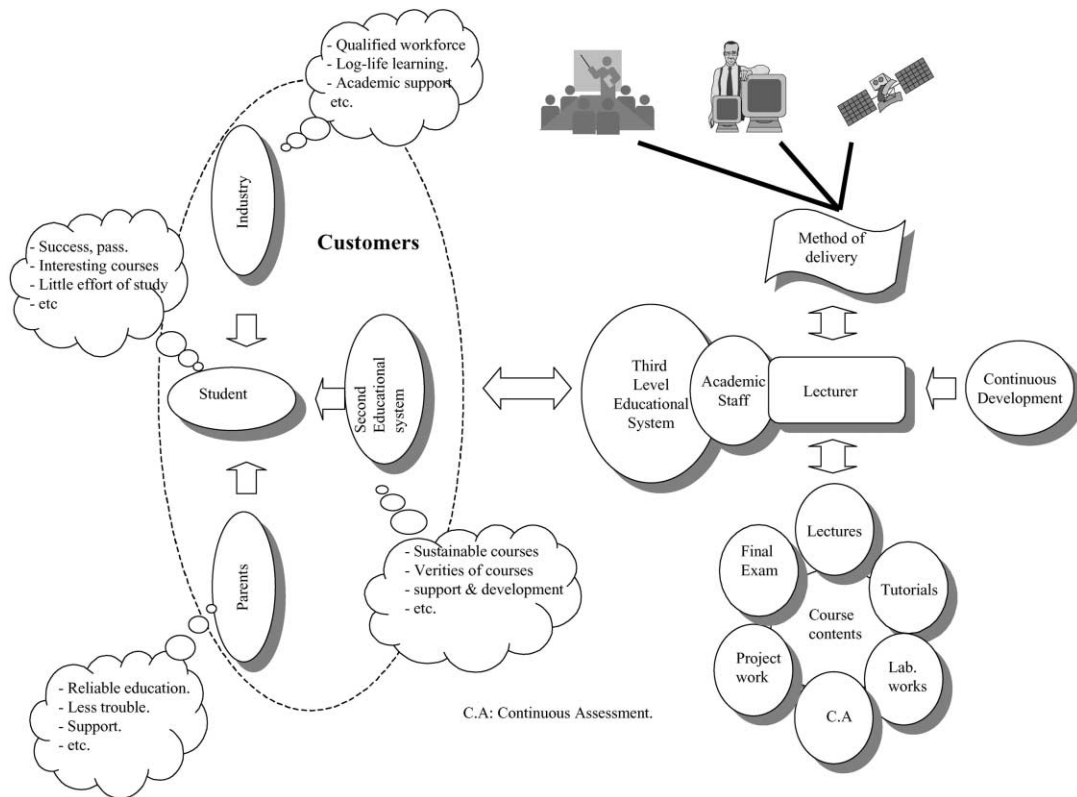


Fig. 1. Higher education quality loop.

improvement (QI) in HE institutions ranging from driven TQM systems with Malcolm Baldrige Assessment through well-balanced programs which embrace sensitive approaches to academic issues focusing on funding and social issues [17]. However, academic accreditation is still the main criteria for HE institution [18]. The system in Australia has most of the features of the UK system and was given impetus by the Ministry of Education. The system has a well-defined linkage between funding and performance [19].

In Ireland, education has been subjected to the Government Green Paper [20], National Education Convention [21] and Government White Paper [22]. The issue of quality in higher education was raised in each of these documents. It was proposed that the higher education authority (HEA) would setup monitoring and evaluation systems and would also develop a framework for reporting on results of evaluations, which would ensure that information is made available to the general public. Correspondingly, there has been considerable development in formalising the process of TQM in the National University of Ireland, Dublin (NUI, D) [23].

4. A model for quality in third-level education

The most invaluable tool in determining an approach to quality improvement/total quality management can be a

quality framework. This provides a series of headings under which possible improvement projects can be determined, classified and prioritised. The choice of framework should be determined by the higher educational institutions' overall strategy. The search for an external award can help the institution to maintain the quality improvement but it is important that the main features of the award are in line with the institution's priorities. Some of the known frameworks are currently adopted in higher education such as BS 5750 [24], the scottish quality management system (SQMS) [11] and investors in people (IIP) [25]. The features of quality framework reflected in a number of total quality awards such as: The Malcolm Baldrige Award in USA and the European Foundation for Quality Management (EFQM) and the NCEA in Ireland. These are acting as quality agencies, which might manage the external quality of higher education.

Fig. 2 shows a conceptual model for internal mechanism and process of quality improvement at third-level education. This model takes into consideration the TQM strategies in which the learning process is characterised as a long-term partnership between the customers (i.e. students, parents, second-level educational system and society/industries) and the management/staff of the institutions. In this partnership, the customers, society, management and staff of the institution jointly engage in the search for continuous improvement in educational standards. In this language, the institute will be taking business from the market to enable the

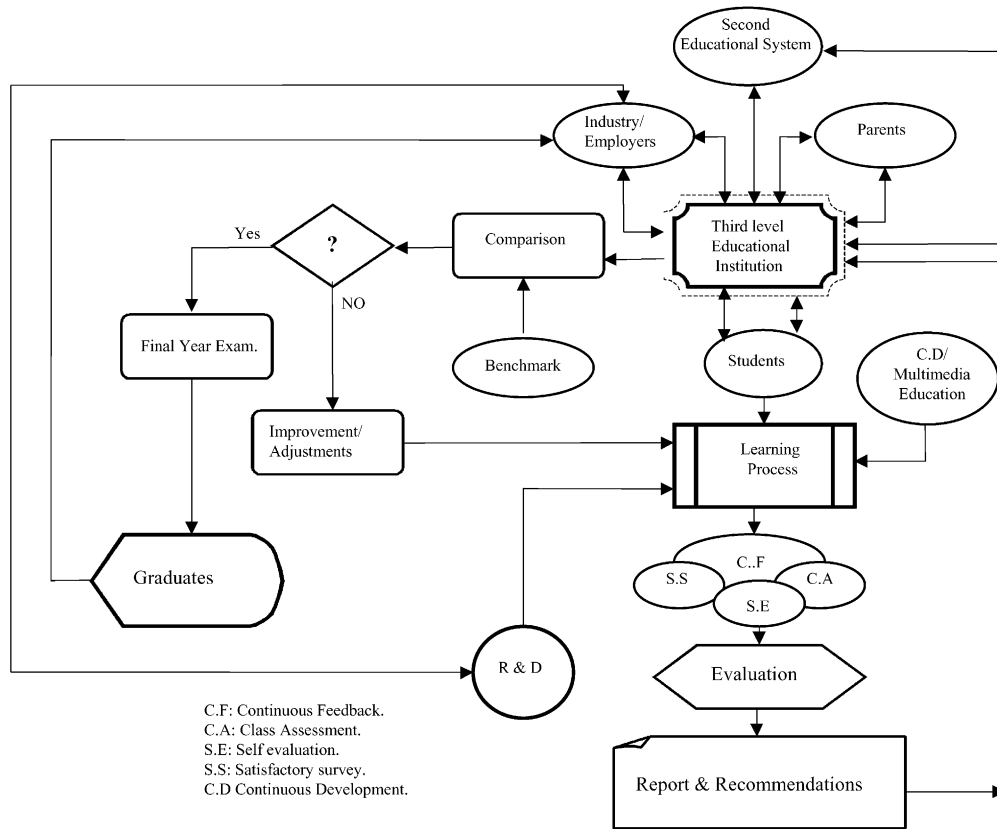


Fig. 2. Higher education continuous feedback.

institute to serve the community through educational programs subjected to rigorous quality criteria, at the same time remaining financially viable. This includes marketing research related to the educational aims of the institute. Correspondingly, the clear objectives of these programs should be addressed by the institutions and these objectives should be explained clearly to all staff (academic and non-academic). These programs should be based on the objectives of quality framework towards staff members and customers.

The educational process would be based on learning methodology rather than teaching-based programs. In this process, the classroom would be equipped with the latest information technologies based on learning and the lecturer would be acting as a guide for the team of students. This would enable the students to share knowledge and experience among each other and hence their learning output would improve. The learning process is evaluated by means of continuous feedback (CF). Consequently, a report is established by an appropriate committee for a particular course. This includes recommendations for quality improvement in education standards. The CF shown in Fig. 2 consists of continuous assessment (CA) and continuous satisfaction survey (CSS). The CA is a combination of written tests, practical and laboratory/project work. The philosophy of these tests should be set systematically based on standard format and based on the integration of student co-ops and intern experiences. Also, the students are encouraged

to do a self-evaluation by completing a “self-evaluation report” regularly, to be involved more actively in the learning process, to be critical and imaginative about their own learning.

The evaluation of the CF report is based on standard international benchmark. This involves comparing the performance in the report with the standard of a leader in the field. This comparison is used to determine how a similar standard level of performance can be achieved. As a result, the customers and the educational institute join force to improve/adjust the learning process. The results of this adjustment will be published and made available to the public. Ultimately, when the results of the comparison is up to the standard, the student’s progress will be reviewed and conclusions will be generated for the improvement work setting the standard for the following academic year. At the end, the institute produces graduates with required qualifications satisfying the needs of a society. Subsequently, feed back on the performance of the graduates from industry is obtained and evaluated for continuous quality improvement in learning process.

5. Discussion

The educational researchers have concluded that ‘students learn best when they can explore the effect of their decision’

[26]. This has led to an increase in the number of courses incorporating real problems and real data in conjunction with multimedia education. Accordingly, it is suggested that computers can be set in the classroom to ask series of questions that will lead the student to the whole answer. This is to increase the involvement of the students and hence develop their creativity and reasoning ability. In addition, a flexible life-long learning process is considered in this approach to lead the rapid technological, political and economical changes in a society. Therefore, partnership between industry/market and educational institutions is the corner stone for facilitating the transfer of technology and the spread of technical and management skills, and encourages industrial investment in training, research and development.

The students, in this process, should be provided with all information/services relevant to their learning process so that they can be able to plan their work clearly during the learning period. Therefore, the partnership between the educational institutions and the customers must ensure the satisfaction of the customer by providing services based on mutual benefit. However, this form of education requires a strong maturity on the students behalf to be effectively involved in such a process.

The role of the parents in the educational process is always important. However, this should not burden the shoulders of the parents. The social and economical factors facing the parents should be considered so that the parents can be involved effectively in the partnership educational process. This gives a new dimension to the educational institutions by monitoring the activities of the students outside the learning activities and bridging the gap between the parental and the national educational system.

The industrial and educational sectors are the major elements of the economical wellbeing in a society. Thus, it is imperative for them to collaborate strategically to achieve the goal of wealth creation for a nation. In this regard, industry makes use of the academic expertise in third-level education to improve the learning capabilities of their personnel continuously. On the other hand, the third-level educational institutions utilise the industrial talent and facilities to maximise the outcome of the learning process. Furthermore, the third-level educational system should tie in with the second-level educational system to tailor the subjects to improve quality learning by facilitating a smooth transition to third-level education.

In addition, it is important to employ statistical process control and the concepts of common and special causes in determining levels of accountability in this model. Thus, procedures relevant to this model should be setup for acquiring, recording, manipulating and analysing data/information for reviewing courses and for continuous quality learning standard at third-level education. It is important that whatever model is chosen it should be based on sound pedagogic foundations and not just on the availability of materials [27].

6. Conclusion

In this paper, it can be seen that the concept of TQM in third-level education has been highlighted. The currently available quality initiatives in third-level education in England, Scotland, USA, Australia, Netherlands, France and Ireland have been reviewed. A conceptual model of an internal mechanism of TQM for third-level educational institution has been discussed.

Overall, the pattern of TQM in education should include students, parents, second-level educational system and industry/employers as partners in the educational process. This is to create quality market research, which can lead to quality in teaching and learning, as the information gleaned, informs and broadens course development. In fact, the third-level educational system is undergoing reforms, which might lead to revolution. This revolution intends to create a new educational culture and will be of great benefit to those who are on the winning side.

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