Total Quality Management

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Total quality management in UK higher education institutions

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Abstract  Total quality management (TQM) is a management process that has made its way into higher education institutions (HEIs) in many developed countries. For example, in the US, HEIs have been influenced due to the success of many large corporations. They were influenced by the critical state of education in the 1980s in terms of student grades, funding, and complaints from employers and parents. Many institutions began to implement it in the early 1990s and have been successful. In UK higher education, the progress of TQM is rather slow, with examples represented by only a few new universities. However, these institutions have benefited from a TQM process similar to their counterparts in the US, such as improved student performance, better services, reduced costs and customer satisfaction. The paper reports on the results of a recent survey on TQM in UK HEIs. The authors examine how TQM principles and core concepts can be measured to provide a means of assessing the quality of institutions on various aspects of their internal processes. It is found that the measurements of TQM principles and core concepts, which are critical success factors, reflect performance of institutions. Any change in the performance of the critical success factors affects the institution’s business excellence. It also provides information to the institution’s top management on its performance over time and in comparison with other institutions. The measurement method could be used by the quality assurers in the UK to assess education quality of HEIs.

Total quality management in higher education

Total quality management (TQM) is a process that was applied successfully in industries in the US in the 1980s. By using the process, many firms, such as Texas Instruments, Xerox, IBM and Motorola, were able to improve their business positions by overcoming threats from global competition and other changes in the business environment (Lozier & Teeter, 1996). These companies were recipients of the coveted Malcolm Baldrige Quality Award, established by the US Department of Commerce to give recognition to organizations that exhibit high standards of product and process quality.

The success of the firms and others in using TQM to bring them out of crisis encouraged many US higher education institutions (HEIs) to adopt it. Lozier and Teeter say that US higher education faced its own crisis during the same decade. Reports by education authorities such as the National Institute of Education and Education Commission of the States indicate the unfavourable state of US education and a realization of the need for greater involvement in the quality management process.
in learning. The authorities also acknowledged the complaints received from various sectors of the economy, including business, industry and the government, over the decline in quality of baccalaureate graduates. Other writers, such as Burkhalter (1996), report the continuing public concern for accountability and responsibility of HEIs, spiralling tuition, and decline in student performance in standardized and professional licensing exams. Lozier and Teeter add that signals of the higher education dilemma are received from various facets of the environment within which HEIs operate, e.g. demographic, technological, economic, legal, the public, competing institutions and accrediting bodies.

Narasimhan (1997) says that the first application of TQM in US higher education was at Fox Valley Technical College (FVTC). As a result of TQM, FVTC has become more efficient in areas such as placement of graduates, employer satisfaction with contracted training programmes, acceptance of college credits at receiving institutions and improvement in its learning environment. Later, many other institutions began to implement TQM, including University of Wisconsin-Madison, North Dakota University System, Delaware Community College and Oregon State University (Seymour, 1992). Burkhalter (1996) reported that within the US there are 160 universities that are involved in applying quality improvement principles, and approximately 50% of the universities have established an organizational structure for quality. A recent report on the TQM in US HEIs can be found in Kanji and Malek (1999).

British standards of education are among the highest in the world. They have a tradition of excellence stretching back 600 years. The British government has formed several bodies responsible for some aspects of quality, e.g. quality assessment, quality assurance and audit. These include the Committee of Vice-Chancellors and Principals (CVCP), Her Majesty's Inspectorate (HMI), Council for National Academic and Accreditation (CNAA), Higher Education Funding Council (HEFC) and the Higher Education Quality Council (HEQC) (Harvey et al., 1992). The British Accreditation Body (BAC) was established in 1984 for the purpose of institutional accreditation (British Council, 1991). At present, the responsibility for quality assurance is carried out by the Quality Audit Agency (QAA), which replaced HEQC in 1997.

The British Department of Education is concerned about quality and accountability of universities that are all heavily funded by the government (Doherty, 1994). The White Paper 1992 triggered a new era in British higher education, signifying the end of the segregation between polytechnics and universities (Shakor, 1994). This posed a two-fold emphasis on quality for the management of ‘old’ and ‘new’ universities. First, they have to achieve high quality to be competitive in attracting more students. Second, they have to achieve high quality to be accountable for their performance. The government is not privatizing education (Harrison, 1994), but the incorporated nature of the universities means that their functioning is subjected to scrutiny from the government. The Department of Employment is concerned whether graduates can satisfy the needs of employers (Harvey et al., 1992). As mentioned earlier, there are numerous accounts of TQM applications reported in the US. Other applications include projects at Virginia Commonwealth University (Cowles & Gilbreath, 1993), Oregon State University (Coate, 1993), Pennsylvania State University, University of Pennsylvania and Kansas State University (Lozier & Teeter, 1996). There is a smaller number of TQM efforts in the UK—only around half a dozen institutions responded to the quality in higher education study of the University of Central England in 1992 (Holloway, 1994). Case studies in the UK are represented by the projects at South Bank University, University of Ulster, Aston University, and Wolverhampton University (Doherty, 1994). However, there are signs of rapid growth of interest in TQM and quality systems standards in higher education since 1993.
Harrison (1994) describes how the panopticon of quality in universities in the UK was three-tiered. First, there existed an internal quality assurance system. The system was evaluated by an external audit in the second stage. Third, together they were capped by a judgmental apparatus linked to the funding agency. The Quality Audit Agency has recently proposed to the HEFCE a new framework of assessing education quality (THES, 1998). This development is aimed at providing confidence to those who use and those who pay for higher education, i.e. in TQM terms they are the stakeholders. It will be based on an institution’s internal validation as well as reviews by academics. Their reviews will be based on programmes and subjects and are divided into programme outcomes as well as quality of learning opportunities. The programmes and subjects will be reported in a narrative style based on a number of criteria. Forty-two subject benchmark groups have been identified that will be used as national subject benchmark standards. The quality of learning opportunities would depend on the attainment of programme objectives based on aspects of teaching and learning, student support and guidance, learning and resources, and quality management and enhancement. It is apparent from these developments that UK HEIs are moving closer to adopting TQM by way of their increased customer focus, the need for quality management and enhancement, and using benchmarks.

The customers of higher education

The customers of HEIs are divided into different groups of actors that affect the education process, namely: existing and potential students; employees; employers; government; and industry. Owing to their different characteristics, they exert certain demands that affect the behaviour of the education system. Customers are either internal or external, depending on whether they are located within or outside the organization. Juran (1974) derived the concept of the internal customer, which relates to an organization with more than one person. These individuals tend to act out three roles—customer, processor and further supplier. According to Oakland (1989), this interaction of roles is called the internal customer chain. All these internal customers are working towards external customer satisfaction. From our perspective, the customers of higher education can be classified into primary and secondary groups on the basis of their locations, i.e. either internal or external, and the frequency of interactions the institution has with them. Figure 1 shows the dual-level customer groups of higher education where education is the product and the students are external customers as well as internal customers.

Some people disregard students as customers of education (Owlia & Aspinwal, 1996); however, we believe students may perform one or all roles of buyer, user and partners of

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**Figure 1. Customers for higher education.**
education. The QAA has proposed a new quality assurance framework plan that takes into account the needs of the various users and payers of higher education, including students, parents and employers, i.e. the stakeholders (THES, 1998). This would mean that HEIs would have to perform a crucial role that involves identifying the customers, focusing on their needs, coordinating all the education activities, and achieving organizational excellence by creating a long-term customer relationship based on customer value and satisfaction. Harvey et al. (1992) believe stakeholders view quality as a total student experience such that many different aspects of higher education need to be taken into account. These aspects include what the students experienced before enrolling for a course, the institutional ethos, institution-based resources and institution-based services apart from classroom experiences. According to Kanji (1998b), in order to achieve business excellence, many organizations have adopted the business scorecard approach for process improvement, which can also be adopted by HEIs. Kanji says that the stakeholder's value is the outcome of business excellence, which depends on several key areas, i.e. process excellence, organization learning and stakeholder's delight. Figure 2 shows a business scorecard that has the structure of a pyramid. The critical success factors serve as the foundation of the pyramid on which the other key areas of the organization are stacked at the top like building blocks, to form the middle section of the pyramid. When the organization's 'structure' is solid in terms of the critical success factors and key areas, then it can achieve business excellence and provide higher stakeholder value.

![Figure 2. Organization's scorecard.](image-url)
Quality in UK higher education

UK higher education has long been subjected to rigorous quality evaluations to ensure that it offers high standards of teaching and learning as well as research. Previously, there were two government bodies that carried out these assessments, employing different criteria and scales of measurement. They were the Higher Education Funding Councils for England, Scotland and Wales (HEFCE, SHEFC, HEFCW) and the HEQC. The HEFC used self-assessment and peer review assessment that covered the areas: curriculum design, content and organization; teaching learning and assessment; student progression and achievement; student support and guidance learning resources; and quality assurance and enhancement. A four-point scale was used whereby, provided that each aspect was graded 2 or better, the quality of the education was approved. The purposes of quality assessment were: to ensure that the public funding provided was supporting education of an acceptable quality, to provide public information on that education through the publication of reports; and to provide information and insights to encourage improvements in education.

In 1997, the responsibility for assessment of education quality was passed to the QAA. The agency has just completed designing a new framework of education quality assessment that will make use of self-assessment, external review and benchmarking. It works very closely with the funding councils in order to meet the criteria set by them. In the past, the HEQC had made use of an auditing process to assess various aspects of an institution’s education quality. The audit results were reported using a narrative style instead of quantitative ratings that had been used by funding councils. The report contained findings, conclusions and recommendations about the quality of teaching and learning based on the audit exercise. HEQC would request the institution to overcome any shortcomings of a course provision if it was found to be unsatisfactory. If the problem persisted the following year, then HEQC would recommend that the course be withdrawn. In the new framework, QAA would adopt the narrative style of the current audit reports. A new development in the audit process will be the introduction of academic reviewers in place of external examiners. The academic reviewers will review both the provision in each institution’s subject grouping and the institution’s overall capacity to assure the quality and standards of its awards. At present, the QAA is working on the requirements of HEFC to build on the current grading systems to establish rating methods that are simultaneously simple, informative, valid and fair. This is because the rating system has legal implications on the funding of higher education. The funding councils use formula and non-formula bases for funding of teaching, research, capital and other funding.

One of the main issues that needs deliberations is the QAA’s intention to reduce bureaucracy in quality assessment. It believes that it could achieve this by finding the right balance between emphasis on internal assessment and peer review. They are looking in the direction of imparting a lighter touch to assessment so as to protect the autonomy of the institutions. QAA has proposed a concentration of resources on institutions that they classify as high-risk institutions. The level of risk is determined by several factors, where a high-risk institution has: large budget; complicated franchise arrangements; many modular courses or a high volume of provision. All institutions, whether they have a proven track record or a high-risk one, will be subjected to a definitive quality assurance framework plan (Fig. 3). The essence of the framework plan will cover the following aspects:

(1) Equality of standards of qualifications with the same name.
(2) Spelling out universities’ expectations of what they expect students to achieve on their courses.
(3) Subject benchmark information and threshold standards.
Academic Reviews

- Engaged with each of the institution's own subject/departmental review process
- Report on outcomes achieved in each subject
- Report on quality of learning opportunities in each group of programmes
- Information about effect of institution-wide academic management
- Report on overall academic management of quality and standards of awards
- Information about academic management of collaboration provision
- Conduct periodic audits of overseas and other collaborative provision
- Report(s) on overseas partnership

Used By

- Prospective students; employers and professional bodies; funding bodies; agency, to produce overview report; subject groups, to update benchmarks; institution, to enhance quality
- Prospective students; employers and professional bodies; funding bodies; institution, to enhance quality
- Prospective students; employers and professional bodies; funding bodies; institution, to enhance quality
- Prospective students; employers and professional bodies; institution, to enhance quality; British Council, DTI and other bodies concerned with overseas promotion; overseas higher education agencies

Figure 3. Quality Audit Agency's new quality assurance framework plan 1998 (THES, 1998).
(4) Development of codes of practice to show best practice in overseas provision, student support, governance, etc.

(5) Introduction of academic reviewers.

The new approach for assessing the quality of higher education is based on the quality assurance method, hence its name—the quality assurance framework plan. In quality management perspective, the quality assurance method has the weakness of relying on inspection and corrective action. This results in inefficiency because of the tediousness and high costs of inspection activity. TQM, however, emphasizes prevention and continuous improvement. Therefore, costs will be minimized and the institutions will improve their effectiveness over time.

**TQM models in higher education**

TQM as a management philosophy has been proven to have convergent validity by way of consisting of a common set of assumptions and practices as it is being practised in various organizations (Hackman & Wagerman, 1995). Many TQM models, which are based on these assumptions and principles, exist in HEIs in many parts of the world. The models include those developed at Auburn University (Burkhalter, 1996), Aston University (Clayton, 1995), the LEARN model, Samford University (Baugher, 1991), FVTC (Spanbauer, 1989), HETQMEX, Leicester Business School (Ho & Wearn, 1996) and the Business Excellence model (Kanji, 1998b). As in other management models, TQM models are aimed at representing interrelationships between quality dimensions. The question arises whether a model being used in a certain situation would be transferable to another. Holloway (1994) says TQM models have a contextual application and at present many research works are being carried out on their applicability. Although some TQM scholars have acknowledged that the applications of TQM differ from one situation to another, nevertheless, most of them have advocated that TQM can be applied uniformly to all organizations (Juran, 1986, cited in Sitkin, 1994).

The authors believe that TQM can be used to achieve continuous improvement in educational institutions regardless of whether or not the institutions encounter specific problems. In addition, TQM implementation is influenced by certain TQM principles and core concepts that are critical for the organizations’ success. These principles and core concepts can be regarded as critical success factors as described by Daniel (1961). The purpose of this research is to develop a suitable TQM model for HEIs that incorporates various critical success factors. However, it is difficult to apply some models because they do not clearly isolate the principles and assumptions that make up TQM. Some models are developed by institutions to serve their particular needs and may not be suitable for use by other institutions. The models also may not incorporate the critical success factors that affect TQM outcomes. Another shortcoming of some models is that, although they are claimed to be successful, they have not been validated by suitable data. We believe the Kanji (1998b) Business Excellence model, which satisfies the above conditions, can be used to derive the critical success factors for the development of higher education and achieving business excellence (Fig. 4).

Kanji’s model is made of four principles: delight the customer; management by fact; people-based management; and continuous improvement. Each principle is divided into two core concepts, namely: customer satisfaction and internal customers are real; all work is process and measurement; teamwork and people make quality; continuous improvement cycle; and prevention (for details, see the Appendix). Leadership serves as a prime in this
model that must be transmitted through all the principles and core concepts in order to achieve business excellence. In this research, the prime, principles and core concepts are treated as critical success factors, i.e. factors that must go well to ensure success of institutions. Although Kanji has not used the term critical success factors, the author emphasized that the higher education system has to be guided through the TQM principles and core concepts by top management leadership in order to achieve business excellence. Kanji and Yui (1997) provide an accurate explanation of the relationship among TQM principles:

Kanji's (1996) pyramid model is based on the proposition that to achieve high customer satisfaction level (delight the customer), the organisation had to improve continuously all aspects of its operation (continuous improvement); this can be achieved through leadership by making decisions on objective evidence of what was actually happening (management by fact) and by involving all employees in quality improvement activities (people-based management), leading ultimately to business excellence.

Recently, there has been growing interest from individuals who see positive benefits of applying the ISO 9000 standard in HEIs. However, very little progress on the quality management approach has been reported (James, 1996). Some people, such as James Tannock (Times, July 1991), criticized this development by implicating it as a government ploy to impose bureaucratic standards derived from industry on academic departments. Buckingham (Times, November 1991) refers to ISO 9000 standards as a "straightjacket" because the translation of the standard when applied to educational institutions causes "confusion and consternation". Others have proceeded to apply the standards in the institutions and have succeeded, such as, the University of Wolverhampton and Leeds Metropolitan University. Tannock (Times, August 1991), on the other hand, preferred institutions to consider carefully the introduction of the philosophy and practices of TQM.

Oakland and Rooney are prominent accolades for the application of ISO 9000 to educational institutions. Oakland (Times, August 1991) says that he has not seen any case of failure of ISO 9000 in higher education and that there is no magic about education. Rooney (Times, August 1991) says that ISO 9000 does not impose a bureaucratic standard but it is the interpretation that creates the bureaucratization levels. Kanji (1998a) says that ISO 9000 could be integrated with TQM for the development of a TQM process. He proposed an
approach to improve quality by examining the organization’s processes in terms of process definition, process improvement and process design. Once the meanings of the three concepts are determined, then the steps for process innovation (ISO 9001) can begin. Kanji proposes the application of the European Quality Award (EQA) self-assessment model to the integrated self-assessment framework approach (Kanji, 1998a).

Kanji has provided an interesting insight on how to link the TQM process to a quality system. However, to date, there is little progress in this area. The issue of whether ISO 9000 is suitable for applying to educational establishments must be clarified first before any further progress is made. For the time being, the authors believe that TQM as a standalone process, has the potential of improving quality in educational institutions.

Critical success factors

Boynton and Zmud (1984) define critical success factors (CSFs) as those few things that must go well to ensure the success for a manager or/and organization. They represent those managerial areas that must be given special and continual attention to cause high performance. Daniel (1961) (cited in Leidecker and Bruno (1984)) was the first to discuss CSFs in an article in the early 1960s. The concept received little attention until a decade later, when Anthony et al. (1976) (cited in Leidecker and Bruno (1984)) utilized the concept in the design of management control system. Today, many studies have been done on determining CSFs in manufacturing, information management (Gowan & Mathieu, 1996), planning (Jenster, 1987), employee performance appraisal (Schneider et al., 1992), product development (Hughes & Chaffin, 1996) and research and development (Pinto & Slevin, 1989). Examples in education include studies at Indiana University, US (Burello & Zadnik, 1986), University of Virginia, US (Nelson, 1991), Aston University, UK (Clayton, 1995) and University of Paucaus, Greece (Dervisiotis, 1995).

Holloway (1994) quotes the findings of a number of researches that tend to point towards predictable CSFs of institutional quality: training, top management commitment, good information, and the like. Studies on industries have reported that CSFs may vary from industry to industry (Hofer and Schendel (1978), cited in Leidecker and Bruno (1984); Daniel (1961), cited in Rockart (1982); Sabherwal and Kirs (1994)). However, from his survey on nine companies, Rockart says that each industry has a generic set of CSFs. These findings form the premise of the present research that goes on to determine the HEI CSFs, develop means of measuring them, and use the measurements to provide profile of a HEI’s quality management and business excellence.

Quality assessment using Kanji’s Business Excellence model

TQM is a process of continuously satisfying customer requirements at the lowest possible cost by harnessing the capabilities of everyone (Kanji & Asher, 1993). The principles and core concepts of TQM can be used for quality improvements of organizations, including higher education. Kanji and Yui (1997) have suggested a universal total quality culture (TQC) model whereby an organization creates strategies about its market, product, technology and customers to be coherent with its environment in order to improve continuously its people and management processes.

Here, quality culture refers to the unified approach through which everybody in the organization thinks, acts and feels in a quality sense for most of the time (Kanji & Asher, 1993). Kanji and Yui’s (1997) TQC model describes the TQM process as a never-ending
improvement of all people and management systems. However, every organization has its own stories, myths, norms, values, ethics and beliefs that are shared among organizational members. The TQC model could be refined further to cater for the cultural differences among varied organizations. In this context, quality culture has been described by the authors, and can be easily customized for individual organizations. Thus, a TQM organization has a culture such that TQM principles and core concepts are embedded in it. Therefore, the assessment of higher education should relate to these principles and their constituent core concepts, as shown, in Fig. 5 for academic excellence. Regarding methodology for the measurement of business excellence in the manufacturing and service industries, Kanji (1998b) provides some brief descriptions. In this model, leadership is the prime that establishes an institution’s set of principles that are divided into two core concepts, each as shown in the diagram. If the organization sees the TQM process through its principles and core concepts, then it will achieve business excellence. Obviously, an organization’s bottom line is influenced by changes in its external environment in which the only constant is change. However, by resorting to TQM, it is possible for an institution to adjust to changes in the environment without sacrificing its quality. This model can be used to obtain the subject excellence index, programme excellence index, academic excellence index and collaborative excellence index. The customers of higher education, e.g. perspective students, employees, professional bodies, funding bodies and institutions, can make use of the indices to enhance quality.

Various measuring instruments have been developed in order to determine the quality of products or service. Examples are given in the works of Parasuraman et al. (1985) and Saraph et al. (1989). The model by Parasuraman et al. is limited to the measure of customers’ expectations and the perception of service quality, and therefore is oriented to the end-user of the service. The measurement instrument introduced by Saraph et al. contains some items that are not applicable to higher education, but are related to production processes. Hogan (1992) uses the Malcolm Baldridge criteria to evaluate service quality of administrators of HEIs. However, the items used do not cover the needs of various stakeholders of HEIs. Owlia (1996) introduced a model for measuring the quality of engineering programmes at universities in the UK. He performed a factor analysis on respondents’ ratings of each questionnaire item and derived a set of critical factors. Although the instrument could be applied to the whole institution, it does not indicate the degree of importance of each factor. Kanji’s Business Excellence model (Figs 4 and 5) shows arrows that link up TQM CSFs throughout the model’s structure. The direction of arrows shows the direction of causal connections. Each factor is indirectly measured by indicator variables based on a measuring instrument. Computation of ratings by respondents on each factor would generate indices for the factors and, finally, business excellence index (BEI). An important aspect of such a measurement is that it makes use of a scientific approach for measuring quality. A typical measurement of BEI is given in a later section.

The assessment of education quality by the then HEFC was based on the institution’s scores on performance indicators derived from audit data. The audit process is performed by quality assessors who come from wide backgrounds, namely academic, government personnel, commerce and industry. This was believed to provide a good mixture of people who were capable of providing reliable judgements about various aspects of institution’s quality. However, the QAA believes that the external review process should be lightened when the reliability of institution’s self-review process has improved. The QAA supports an assessment approach that has the right mixture of internal and external review processes. We believe in the reliability of results from self-assessment and that external review serves as a verification step to confirm the validity of measurements that have been made.
Figure 5. Measuring academic excellence index.
The present survey

A recent survey of the practice of TQM in UK HEIs is reported in the following. It was an exploratory survey that emphasized determining the CSFs that affect organizational performance and business excellence. In addition, the research investigated some cultural elements in UK higher education. The methodology involved selecting a sample of interest, from which data were obtained. Following this, data were collected via questionnaires that were sent by mail. The population was made up of universities and higher education colleges listed in the Quality Assurance and Network Directory for 1997–98. Altogether there are 163 institutions included in the list, which treats colleges of universities as individual universities. The HEIs are represented by their Quality Directors.

Data collection and analysis

The questionnaire was designed in such a way that it would be self-explanatory and respondents could complete it themselves. This feature made it possible to use a mail survey. A follow-up survey was conducted via e-mail to increase the response rate. The surveys were performed in August and September 1998. There were, altogether, 51 UK HEIs that participated in the study, giving a response rate of 31.3%. The breakdown of colleges, old universities and new universities was 20, 18 and 13, respectively.

Altogether, 45 tables were prepared on the study data. Data analysis was performed with Statistical Package for Social Science (SPSS), using techniques that include frequency distribution, cross-tabulation and correlation analysis. Non-responses were ignored by the computer. Some of our findings from the survey are listed in the following.

General findings

The general findings of the research are divided into four parts, namely:

1. Some general information of institutions and extent of TQM implementation.
2. Reasons for TQM.
3. Approach to CSFs.
4. TQM and institutional performance.

Some general information of institutions and extent of TQM implementation

- Most colleges are small (fewer than 5000 full-time students), i.e. 60.7%. Universities range from small (43.8%) to large (37.5%).
- The average number of years the institutions have been established is 74 years for colleges, 63 years for old universities and 6 years for new universities.
- There are only four institutions that implement TQM, i.e. one college, two old universities and one new university.
- HEIs that implement TQM range from 5 to 161 years old. Thus, the practice of TQM does not depend on age of institutions.
- The largest proportion of institutions (72.5%) defined quality as ‘fitness for purpose’, which is consistent with HEFC’s definition of quality. The proportion that defined quality as ‘meeting customers’ expectations’ is 25.5%. This group includes one TQM institution. Previous work on TQM organizations has shown that they tend to be more customer focused (Sinclair, 1994). Since there are only four institutions in the UK...
that are TQM oriented, this accounted for the low proportion of institutions that focused on their customers in their quality activities.

- Lack of customer awareness among the staff is a general drawback for many institutions. Only 5.9% of institutions indicate that they have full customer awareness by all their employees.
- There are 92.2% non-TQM institutions. Some of them claim that they have so-called quality management in place. There are some non-TQM institutions that have adopted some TQM processes.
- From the four institutions that implement TQM, two of them are small institutions and the other two are large.
- The research indicates that the role of leadership is the most important factor to promote TQM in institutions. However, our research indicates that TQM is introduced by leadership in only 53.8% of institutions. The rest are introduced by Quality Directors (11.1%) and individuals or groups.
- All four TQM institutions have implemented TQM in the academic area of the institutions only.
- The survey indicates that some of the barriers to TQM (e.g. lack of commitment, insufficient knowledge and fear of failure) originate from organizational members. Sometimes these barriers are more difficult to overcome than other barriers in the institutions. The most common barrier, however, is “staff were pressed with daily work”, i.e. 69.4%.
- The concept of quality culture is not understood among organizational members in various institutions which can be developed by engaging quality experts for training and education. None of the institutions has a high level of expertise to develop quality improvement processes. The survey indicates that only 14.7% of institutions actively work with quality consultants, while 25.5% consult them only occasionally.
- Only 31.3% of all institutions perform benchmarking, of which 53.8% are new universities. New universities need to adopt best practices in order to promote their image as institutions of high standards. Only four old universities benchmark their activities, which reflects their state of self-fulfilment and complacency.
- There is a lack of quality culture and other quality activities for transforming organizational culture among old universities, which shows their resistance towards current trends in the quality improvement process for organizational development. This coincides with the QAA’s report that some old universities oppose the quality assurance framework plans because they believe that it will increase bureaucracy.
- For quality motivation, institutions use various kinds of rewards such as job promotion, award, organizational support, recognition and others. However, TQM institutions only use psychological rewards, i.e. support and recognition, indicating a typical cultural difference between TQM and non-TQM institutions.

**Reasons for TQM**

Table 1 shows reasons for implementing quality management by colleges, old universities and new universities.

- There are 32 causal factors for quality management that can help respondents to improve quality.
- An examination of the 32 causal factors revealed that there is a set of unique causal factors for the three different institutions. These are factors that are present in an institution but are not factors for the other institutions.
<table>
<thead>
<tr>
<th>Reasons for quality management</th>
<th>Number of cases</th>
<th>Total cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>College</td>
<td>Old universities</td>
</tr>
<tr>
<td>1. To be competitive</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>2. Customer/student satisfaction</td>
<td>x</td>
<td>5</td>
</tr>
<tr>
<td>3. Government influence</td>
<td>x</td>
<td>8(1)</td>
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<tr>
<td>4. Image building</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>5. Increase efficiency and productivity (including processes and academic programmes)</td>
<td>x</td>
<td>2(1)</td>
</tr>
<tr>
<td>6. Continuous improvement</td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>7. Increase market share</td>
<td>x</td>
<td>(1)</td>
</tr>
<tr>
<td>8. Encourage teamwork</td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>9. Upgrade student performance</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>10. Create value-driven employees</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>11. For a high level of service to internal and external customers</td>
<td>x</td>
<td>6</td>
</tr>
<tr>
<td>12. To meet future plans</td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>13. Improve effectiveness (including processes)</td>
<td>x</td>
<td>2</td>
</tr>
<tr>
<td>14. Better utilization of resources</td>
<td>x</td>
<td>(1)</td>
</tr>
<tr>
<td>15. Keep abreast in field</td>
<td>x</td>
<td>(1)</td>
</tr>
<tr>
<td>16. Resolve current problems and overcome weaknesses</td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>17. Accountability to public</td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>18. Inculcating positive culture (e.g. corporatization and positive work ethics)</td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>19. To manage change (including processes)</td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>20. Prevention</td>
<td>x</td>
<td>2</td>
</tr>
<tr>
<td>21. Obtain feedback on actions to guide future decisions</td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>22. To develop and provide opportunities to entire institution’s community</td>
<td>x</td>
<td>3</td>
</tr>
<tr>
<td>23. To satisfy accreditation requirement</td>
<td>x</td>
<td>2</td>
</tr>
<tr>
<td>24. Team and individual empowerment</td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>25. Improving the organization and its processes</td>
<td>x</td>
<td>5</td>
</tr>
<tr>
<td>26. Core business of HEIs</td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>27. Academic standards</td>
<td>x</td>
<td>2</td>
</tr>
<tr>
<td>28. Quality and equality of students’ experience</td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>29. External pressures</td>
<td>x</td>
<td>1(1)</td>
</tr>
<tr>
<td>30. Equality and value for money</td>
<td>x</td>
<td>(1)</td>
</tr>
<tr>
<td>31. Raise teaching profile</td>
<td>x</td>
<td>1</td>
</tr>
<tr>
<td>32. Ability to demonstrate we provide service</td>
<td>x</td>
<td>1(1)</td>
</tr>
</tbody>
</table>

Note: Numbers in parentheses are for TQM institutions.
• There is one unique causal factor for college, i.e. resolve current problems and overcome weaknesses.

• The unique causal factors for universities are:

  (1) image building*;
  (2) increase market share;
  (3) encourage teamwork*;
  (4) upgrade student performance*;
  (5) create value-driven employees;
  (6) to meet future plans**;
  (7) improve effectiveness (includes processes)*;
  (8) better utilization of resources*;
  (9) keep abreast in the field*;
  (10) to manage change;
  (11) prevention*;
  (12) compete for funds;
  (13) obtain feedback on actions to guide future decisions;
  (14) to satisfy accreditation requirements;
  (15) core business of HEIs*;
  (16) quality and equality of students’ experience.

  The above factors are marked ‘**’ if they are unique for old universities only and ‘*’ if they are unique for new universities.

• The following conclusions are made about the differences in unique causal factors among the different kinds of institutions.

  (1) Colleges are unique by way of the specific niches they serve and are concerned with problems and weaknesses associated with them.
  (2) The presence of many unique causal factors that relate to quality improvement in universities indicates the wide scope of functions that they are responsible for.
  (3) Old universities make strategic plans.
  (4) In addition to its concern for a multitude of quality objectives, new universities are concerned with building their image as well.

• There were six institutions that did not complete the questionnaire and gave reasons for it. The quality activities in five institutions are not consistent with the approach described in the survey. The Quality Director of one institution said that the institution does not have a quality management process. Another said that there is no single form of quality management that can accurately describe the institution’s arrangement. Two institutions conduct quality assurance activities that are not believed to be related to the theme of the survey.

Approach to CSFs

• It is found that there are nine TQM CSFs that influence performance and business excellence of UK HEIs (Table 2). The rankings of CSFs are also given in the table. The rankings are derived from weightings of CSFs that reflect their relative degree of criticality.

• The role of leadership in promoting TQM to the institution is only 53.8% of cases, while in other cases, the introduction of TQM is initiated by the Quality Director, other individuals and certain groups. From the ranking of CSFs in institutions, it is
Table 2. Rankings of CSFs at planning stage and during implementation

<table>
<thead>
<tr>
<th>Critical success factor</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>2</td>
</tr>
<tr>
<td>Continuous improvement</td>
<td>1</td>
</tr>
<tr>
<td>Prevention</td>
<td>9</td>
</tr>
<tr>
<td>Measurement of resources</td>
<td>8</td>
</tr>
<tr>
<td>Process improvement</td>
<td>6</td>
</tr>
<tr>
<td>Internal customer satisfaction</td>
<td>7</td>
</tr>
<tr>
<td>External customer satisfaction</td>
<td>3</td>
</tr>
<tr>
<td>People management</td>
<td>4</td>
</tr>
<tr>
<td>Teamwork</td>
<td>5</td>
</tr>
</tbody>
</table>

found that leadership is not considered to be the most critical factor in quality management. This is strategically wrong because the most important factor in implementation of TQM is the full commitment of the leadership. Thus, the leaders need training and education in the TQM process.

- It has been found in our survey that in the UK, continuous improvement is the highest ranked TQM CSF. Leadership is rated second in degree of criticality. This supports our general findings on the institutions that the leaders help promote and make decisions on quality management activities in the institutions but do not provide the full commitment for the implementation of TQM.
- Continuous improvement remains the highest ranked CSF that shows that the institutions focus on the activity in planning and practice. However, in order to determine whether improvement activities have gained favourable results, data and hence measurements are required. However, the weightings on measurement are low both at the planning stage and during practice.
- A weak correlation between the level of criticality of CSFs and emphasis given to them during TQM implementation has been found (Spearman correlation = 0.4333).

TQM and institutional performance

- The institutions use various measures to assess their overall quality of education. These are: performance indicators; measures based on goal achievement; measures based on how well processes are moving; and others. They do not use financial measures. The latter is acceptable because quality performance may not show a definite relationship with financial performance (Sinclair, 1994). Previous research works have shown that, if there exists a relationship between quality and financial performance, the relationship can be inverse or reciprocal. Many factors can affect financial performance, such as: quality of service; operation overheads; demand for products or service; stage in product life cycle; productivity; and customer satisfaction. We have suggested a comprehensive measure of organizational performance that incorporates both quality and financial performance, i.e. business excellence index.
- Most institutions use financial measures as indicators of organizational performance (60.8%). Another widely used measure is institutional competitiveness (39.2%). The latter may explain why institutions embarked on new programmes to attract large numbers of students, such as modular programmes, distance learning, collaborations with other institutions either home or overseas, and a wide choice of courses and programmes.
Table 3. Quality and organizational performance of institutions

<table>
<thead>
<tr>
<th>Level of performance</th>
<th>Colleges (%)</th>
<th>Old university (%)</th>
<th>New university (%)</th>
<th>Colleges (%)</th>
<th>Old university (%)</th>
<th>New university (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>15</td>
<td>16.70</td>
<td>0</td>
<td>10</td>
<td>16.70</td>
<td>0</td>
</tr>
<tr>
<td>Very good</td>
<td>50</td>
<td>44.44</td>
<td>23.1</td>
<td>20</td>
<td>38.92</td>
<td>23.1</td>
</tr>
<tr>
<td>Good</td>
<td>30</td>
<td>22.26</td>
<td>61.5</td>
<td>65</td>
<td>22.24</td>
<td>46.2</td>
</tr>
<tr>
<td>Fair/poor</td>
<td>5</td>
<td>5.60</td>
<td>15.4</td>
<td>5</td>
<td>11.11</td>
<td>30.8</td>
</tr>
<tr>
<td>Non-response</td>
<td>0</td>
<td>11.11</td>
<td>0</td>
<td>0</td>
<td>11.11</td>
<td>0</td>
</tr>
</tbody>
</table>

- There is a larger proportion of colleges that uses financial measures, competitive measures and market share compared to other types of institutions. For example, the proportions of colleges that use financial measures and market share are 75 and 70%, respectively. The proportions for old universities are 57.9 and 42.1%, respectively.
- Most colleges and new universities have good organizational performance (65 and 46.2%, respectively) compared to old universities, which have more institutions with very good quality performance (38.9%) (see Table 3).
- Most colleges and old universities have very good quality performance (50 and 44.4%, respectively) compared to most new universities (23.1%). Nevertheless, most institutions from the three groups have quality and organizational performances ranging from good to excellent, i.e. 92.2 and 86.3%, respectively.
- There is a positive correlation between quality performance and organizational performance of all the institutions (Spearman correlation = 0.7609).
- Despite the lack of involvement in TQM in UK HEIs, only one institution surveyed has future plans to implement TQM. Two TQM institutions would expand TQM to cover wider areas of the organization. The bulk of institutions plan to use other methods to improve quality of education (college, 25%; old universities, 52.6%; and new universities, 75%).

**BEI for QAA framework**

As a methodology, the quality assurance framework can be fitted to the Business Excellence model approach. We believe that the model can be used to compare business excellence of organizations, which relate to their financial performance. The BEI can be easily calculated individually for all four areas of the framework (see Fig. 2), which can be homogenized to obtain overall institution’s index. Figures 6–8, show bar charts of indices for all HEIs, new universities and university ‘A’, respectively, based on hypothetical data. It can be seen in Fig. 6 that the BEI of new universities is higher than overall BEI of HEIs. The performance of university ‘A’ surpasses overall performance of HEIs and new universities. Figure 7 shows the BEI and indices of critical success factors of new universities. The indices of CSFs have weighted property and contribute to BEI according to the structure of the Business Excellence model. Figure 8 shows the BEI and indices of CSFs for university ‘A’. Similarly, the indices of CSFs of university ‘A’ are weighted and contribute to the BEI according to the structure of the Business Excellence model.

It is clear from Fig. 8 that the indices and BEI of university ‘A’ among new universities are higher than average in all areas of TQM. The university also has high index values for
C1, C8, C10 and C12, i.e. leadership, people-based management, people make quality and continuous improvement cycle, respectively. However, the university has real weaknesses in C6, C11 and C13, i.e. all work is process, continuous improvement and prevention, respectively. These results show that although the university's leadership has given adequate attention to the people aspect of management, it has been ineffective in dealing with implementing all the processes. This has reduced the effectiveness of the university's continuous improvement activities. Ideally, top management should give strong emphasis on both people and processes. Thus, the university should invest more resources in educating
people to develop better understanding of the role of continuous improvement and business process within the organization and their contribution towards business excellence. A more detailed examination can be performed on each CSF based on ratings on individual items in the measurement instrument.

From the preceding discussions, it can be seen that the Business Excellence model can be used to assess individual TQM CSFs, assess the institution’s progress over time, and compare its performance with other institutions. The latter could be used by quality award-giving organizations for selecting award winners. At present, there exist many widely known quality awards in different countries such as the Malcolm Baldrige award, EQA and Deming award, etc. The key difference between the approaches used in these awards and the Business Excellence model is that the former do not utilize suitable statistical methods to determine factor weights, factor scores and total evaluation score. They also do not show structural relationships among factors and how the factor scores contribute to business excellence. An example is given in the work of Dahlggaard et al. (1998) on factor scores of EQA participants in 1992. Their study results show that the average score of each quality criterion of companies has no relation with its degree of importance. They also say that, traditionally, all the factors associated with enablers and results are not analysed simultaneously. The factor weights are given arbitrarily and the value given to leadership is unrealistically low from a TQM point of view, i.e. 10%. This is because TQM views leadership as the most important agent of change and therefore is the prime factor in terms of criticality. In addition, the element of continuous improvement is missing in this model.

Conclusions

Several conclusions can be made about the profile of quality management in UK higher education. Based on the results, it is found that UK higher education has hardly been involved in TQM and lacks interest in adopting it in the future. It is more concerned with traditional approaches to promote excellence in education, such as degrees, professional experience, authorship, and research activities. Although these activities are vital in the
development of any institution, however, the environment within which the institution operates changes and gives impact to its performance. The institution’s external environment is made of actors and forces such as students, government, employers, public, other institutions, and parents. These impacts are in the form of: students’ need for better facilities in the institution, reduced government funding, decline in quality of graduates, decline in student performance, spiralling tuition, and increased competition for outstanding students and faculty. TQM can provide the means by which these demands could be met by making use of a structural approach that allows measurement of CSFs of education quality, gives indication of institution’s business excellence, and provides recommendations on how institutions can achieve continuous improvement.

It is found from the study that there are nine CSFs that affect performance of the institution. These factors are synonymous with the TQM principles and core concepts in Kanji’s Business Excellence model described previously. These factors have different levels of criticality, as shown in Table 2. The factor that has the highest degree of criticality is continuous improvement followed by, in descending order: leadership, external customer satisfaction, process improvement, teamwork, internal customer satisfaction, people management, measurement of resources, and prevention. Although, there is high regard for continuous improvement for quality enhancement, however, any improvement from the institution should result in a favourable experience by the users of education who are the stakeholders. It is a surprise that leadership is not regarded as the most critical by UK higher education institutions (only 30.6%), unlike in the US and in Malaysia, based on previous studies (Kanji & Malek, 1999; Kanji et al., 1999). Quality management is a central aspect of every established organization, including HEIs. Society views HEIs as excellent organizations made up of excellent people. Reports on successful quality management applications in higher education have shown that the leader plays influential role in leading, planning, organizing and controlling all organizational resources to achieve the desired quality goals (Burkhalter, 1996; Coate, 1993; DeCosmo et al., 1991; Doherty, 1993; Seymour, 1993; Spanbauer, 1989). Kanji’s Business Excellence model suggests that leadership is the prime factor that guides other quality management activities in order to achieve business excellence.

The QAA is concerned about stakeholders’ demands from the higher education sector. It has recently introduced a quality assurance framework plan to assess education quality. The framework will involve a mixture of internal reviews and external reviews of course programmes and subject group provisions of institutions. Among other things, the plan will produce subject benchmark information and threshold standards. The QAA believes that by using the framework, they could achieve several purposes: ensuring that public funding provided is supporting education of an acceptable quality; providing public information on that education through the publication of reports; and providing information and insights to encourage improvements in education. It is noticeable that these developments in QAA strategy are moving closer to the realms of TQM by way of focusing on: stakeholders’ needs and requirements; programme/subject group benchmarking; and quality improvement. TQM goes a step further to quality assurance, i.e. emphasis on prevention of mistakes and errors to minimize costs rather than being dependent on inspection activity and corrective actions. The Business Excellence model could be incorporated in the QAA quality assurance framework to review programme/subject group, overall academic management, and overseas and collaborative provision by using measurement instruments and statistical methods that will generate performance indices and overall BEI. These could then be used in reports and by the various users for purposes including quality enhancement and business excellence.

Previous research works have shown that the quality of an organization affects its performance (Kanji & Malek, 1999; Kanji et al., 1999; Kanji & Yui, 1997). The survey
findings have shown that the same is true for UK HEIs, whereby there is a moderate positive correlation between institutional quality and performance. Table 3 shows a summary of quality performance analysis of colleges, old universities and new universities. From the table it can be seen that colleges and old universities have a smaller proportion of fair/poor quality performance (5 and 5.6%, respectively) and therefore less fair/poor organizational performance (5 and 11.1%, respectively) compared to other types of institutions. For new universities, there is a larger proportion of fair/poor quality performance (15.4%) that corresponds to a larger proportion of institutions of fair/poor organizational performance (30.8%).

There are differences in quality culture among the three kinds of institutions surveyed. There are more causal factors for quality management reported by universities over those of colleges, reflecting the wider scope of functions that they are responsible for. Colleges are unique by way of the specific niches they serve and therefore are concerned with problems and weaknesses associated with them. Old universities make longer range plans compared to other kinds of institutions. New universities are concerned with building their image, which is consistent with their new status. There is very limited benchmarking activity conducted by all institutions, especially among old universities. It is possible that due to self-fulfilment and complacency, old universities have been doing very little investigation and examination on best practices of others. In addition, old universities have not committed to the quality culture in order to transform their organizational culture. This shows the lack of enthusiasm of their top management and leadership in adopting new ways of quality improvement and quality culture, which is a barrier to QAA’s proposed quality framework as well as TQM.

Academics have long been aggressive to external interference on the institution and the introduction of new management techniques. Experience has shown that their resistance has been successful where they persisted, surviving the actions of popes, states, political interference, performance indicators, management by objectives, social unrest and political correctness (Kells, 1995). The QAA has reported resistance to its new quality framework among what it described as “rebel institutions”, which in this case are some of the old universities. The reasons for their disagreements are the potential increase in bureaucracy and the development of a national curriculum for HEIs. Similarly, TQM has also been criticized for being associated with increasing bureaucracy and reducing autonomy of the faculty. The arguments against TQM are unfounded because its novelty is in its use as a process for assisting management by way of certain principles and concepts, to improve the organization and to achieve business excellence.

Kanji’s Business Excellence model offers users several advantages over other quality management models, whilst overcoming the shortcomings already discussed. These are, the Business Excellence model:

- covers all TQM factors that influence business excellence;
- statistically shows structural relationships among TQM factors;
- performs simultaneous computation of mathematical equations of factor relationships to obtain factor indices and BEI;
- gives estimates of strength of relationships among factors, between factors, and their respective indicator measurements;
- compensates for elements of bias in measurements by incorporating a measure of disturbance (error);
- provides goodness of fit of the model for the data;
- generates a robust estimate of parameters and provides a good measure of quality which has statistical validity;
- outputs can be easily interpreted.
We believe that the Business Excellence model is extremely useful as a scientific tool for assessing quality of HEIs. Some moderate modifications of the measurement instrument used in the model would make it applicable to other kinds of organizations as well (see Kanji, 1998b).

References


HOGAN, T.J. (1992) The application of the Malcolm Baldridge National Quality award criteria to the evaluation of quality in collegiate administration services, PhD Dissertation, Ohio University, Athens.


Shakor, M. (1994) Total quality management within the context of higher education: an evaluation of the extent to which the concept of TQM is applicable in higher education, MSc Thesis, Liverpool University.


Appendix: Glossary

Leadership: The development and implementation of quality strategies require fundamental changes in corporate culture and organizational behaviour and therefore can only be achieved through active leadership provided by top management. The role of leadership is to motivate people and complete all the necessary tasks, and is therefore a necessary management component in organizations.

Principles of TQM

Delight the customer: Delight means being best at what matters most to customers, and this changes over time. Being in touch with these changes and delighting the customer now and in the future is an integral part of TQM.

People-based management: Knowing what to do, how to do it, and getting feedback on performance is one way of encouraging people to take responsibility for the quality of their work. Involvement and commitment to customer satisfaction are ways to generate this.

Continuous improvement: Continuous improvement or incremental change, not major breakthroughs, is the aim of all who wish to move towards total quality.

Management by fact: Knowing the current performance levels of the products or services in the customers’ hands and of all employees is the first stage of being able to improve. Management must have the facts necessary to manage business at all levels. Giving that information to people so that decisions are based upon facts rather than ‘gut feelings’ is essential to continuous improvement.

Concepts of TQM

Customer satisfaction: Some companies go out to their customers to survey what is important to them, and to measure their own performance against customer targets. This allows the company to monitor customer satisfaction as measured by the customer.

Internal customers are real: The definition of quality (i.e. satisfying agreed customer requirements) relates to internal and external customers. Many writers refer to a customer/supplier chain and the need to get the internal relationships working in order to satisfy the external customer. Whether you are supplying information, products or a service, the people you supply internally depend on their internal suppliers for quality work.

All work is process: A process is a combination of methods, materials, manpower, machinery, etc. which, taken together, produce a product or service. All processes contain inherent variability and one approach to quality improvement is progressively to reduce variation: first, by removing variation due to special causes; second, by driving down common cause variation, bringing the process under control and then improving its capability.

Measurement: Having a measure of how the organization is doing is the first stage of being able to improve. Measures can focus internally, i.e. on internal customer satisfaction, or externally, i.e. on meeting external customer requirements.

Teamwork: When people are brought together in terms of a common goal, quality improvement becomes easier to communicate over departmental or functional walls. In this way, the slow breaking down of barriers acts as a platform for change.
People make quality: The role of managers within an organization is to ensure that everything necessary is in place to allow people to make quality products. This in turn begins to create the environment where people are willing to take responsibility for the quality of their own work.

The continuous improvement cycle: The continuous cycle of establishing customer requirements, meeting the requirements, measuring success and continuing to improve can be used internally to fuel the engine of external and continuous improvement. By continually checking customers’ requirements, a company can find areas in which improvements can be made.

Prevention: Prevention means causing problems not to happen. The continual process of driving possible failure out of the system can breed a culture of continuous improvement over time.

Business excellence index: The simultaneous measurement of customers’, employers’, and shareholders’ delights within an organization to provide overall business success.