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ACADEMIC PAPER

Quality Management Practice in Higher Education – What Quality Are We Actually Enhancing?

Nina Becket (njbecket@brookes.ac.uk)

The Higher Education Academy, Hospitality, Leisure, Sport and Tourism Network,
Oxford Brookes University, Wheatley Campus, Oxford OX33 1HX, UK

Maureen Brookes (meabrookes@brookes.ac.uk)

Department of Hospitality, Leisure and Tourism, Oxford Brookes University,
Gipsy Lane Campus, Oxford OX3 0BP, UK

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Abstract

There is still no consensus on how best to measure and manage quality within higher education institutions (HEIs). Thus a variety of approaches have been adopted. This paper presents a review of current quality management practices within HEIs. The review identifies a reliance on industrial models. These are applied with only partial success and identified limitations suggest a need for refinement, particularly in relation to the centrality of student learning within HE.

Keywords: Quality; Management; Quality management models; HE

Introduction

In many countries and many cultures the issue of quality management has been firmly on the agenda of higher education institutions (HEIs) for quite some time. Higher education (HE) for the masses and a growing climate of increased accountability are frequently cited as rationales for a greater emphasis on quality (Eriksen, 1995; Oldfield and Baron, 1998; Becket and Brookes, 2006). Other environmental forces include the greater expectations and diversity of students as consumers, their demand for increased flexibility in provision, and increasing levels of competition within and across national borders (Brookes and Becket, 2007). The role of HE in stimulating national economic growth and the value of international students to national economies exacerbates the need to ensure quality within HE. These forces demand that quality assurance processes are both rigorous and transparent, and that quality enhancement initiatives are firmly embedded in any quality management programme.

Despite the relevance of these forces to hospitality, leisure, sport and tourism HE, there has been limited research conducted specifically on quality management within these fields of

Nina Becket is the assistant director of the Higher Education Academy HLST Network based at Oxford Brookes University. She was previously employed in the Department of Hospitality, Leisure and Tourism at the University. Her research interests include the interface between accounting and marketing, and quality management and internationalisation in higher education.

Maureen Brookes is a senior lecturer in marketing at Oxford Brookes University. She is also the hospitality liaison officer for the Higher Education Academy's HLST network and an executive committee member of the Council for Hospitality Management Education (CHME). Her research interests include the management of affiliated international hotel chains and quality management, and internationalisation within higher education.

study. This paper therefore draws on quality management research undertaken within higher education more generally and on quality models developed within generic management or business schools. The paper draws on well-recognised contributions from all corners of the globe (see, for example: Martens and Prosser, 1998: Australia; Harvey, 2005: UK; Popli, 2005: India; Temponi, 2005: USA; Mizikaci, 2006: Romania; Tam, 2006: Hong Kong).

Previous research reveals that quality in HE can be (and is) interpreted and measured in a number of different ways (Cheng and Tam, 1997; Pounder, 1999). As such, there is still no universal consensus on how best to manage quality within HE and a variety of quality management models have been implemented in different HEIs (Martens and Prosser, 1998). This paper provides an analytical review of the different approaches to quality management adopted or tested. It begins with a discussion of the nature of quality in HE and the implication of this for quality management. It then presents the findings of a review of papers published over a ten-year period between 1996 and 2006, predominantly in educational journals. The review reveals a reliance on industry quality management models, despite the fact that these have been applied with only partial success. It reports on efforts made to develop quality management models specifically for HE and concludes by considering the implications of current practice generally and within hospitality, leisure, sport and tourism management programmes in particular.

Measuring and managing quality in HE

Managing quality in HE has proved to be a challenging task. The literature suggests that there are two main reasons for this. First, 'quality' has different meanings for different stakeholders. Within HE there are both internal and external stakeholders who are likely to have disparate or even contradictory definitions of quality. Cheng and Tam (1997:23) suggest therefore that 'education quality is a rather vague and controversial concept'. Similarly, Pounder (1999:156) argues that quality is a 'notoriously ambiguous term' given that it has different meanings to different stakeholders. As a result of the difficulty in defining quality, its measurement and management has unsurprisingly proved to be contentious.

Traditionally, external stakeholders have been concerned with quality assurance procedures. Quality assurance refers to the 'planned and systematic actions [deemed] necessary to provide adequate confidence that a product or service will satisfy given requirements for quality' (Borahan and Ziarati, 2002:914). At an international level, HE has expanded substantially over recent decades and has moved up government agendas as a result of a number of factors. These include drivers to increase the knowledge and skills-based economies, participation in HE and social cohesion (OECD, 2006). The focus on quality for external stakeholders is driven by these agendas and focuses predominantly on the measurement of procedures and the extent to which they result in appropriate levels of quality (Jackson, 1996). This requires HEIs to demonstrate responsible actions in their professional practices and accountability in the results they achieve with the resources used (Jackson, 1998:46). Elton (1992) refers to these as the quality 'As' – accountability, audit and assessment – and suggests that they are concerned with the control of quality and the people who control quality. Particular mechanisms for assurance, such as accreditation and quality audits, are usually imposed by government and other external bodies (McKay and Kember, 1999). Harvey (2005:264) suggests that accountability underpins these processes but under the banner of 'efficiency and effectiveness'.

Many countries have national organisations with responsibility for the management of quality within HEIs. For example, within the UK, the role of the Quality Assurance Agency (QAA) is to inspect, audit and report on the quality procedures within institutions (www.qaa.ac.uk). Similarly, the Australian Universities Quality Agency (AUQA) has been established to monitor, audit and report on quality assurance in HE (www.auqa.edu.au). These are external stakeholders whose role is predominantly concerned with the measurement and evaluation of institutional quality assurance procedures. Such bodies are concerned broadly with the effectiveness and reliability of the quality assurance systems and processes adopted by institutions in managing quality and academic standards, rather than with identifying changes in practice that might lead to enhancement.

In the UK the QAA reports that, while enhancement has always been present in national audit methods, it has not been a prominent aspect of its audit procedure. Furthermore, it notes that there is considerable diversity in what 'enhancement' means within an HE context. A HEFCE consultation (HEFCE 2005/35) identified the need to consider enhancement processes in addition to those of assurance within external quality audit processes. The QAA subsequently defined enhancement as 'the process of taking deliberate steps at institutional level to improve the quality of learning opportunities' (QAA, 2006:16). Nonetheless, it states that the focus of audit 'must remain on the effectiveness of the institution's own processes for exploring such matters, putting them into operation and evaluating them', (18) rather than the enhancement of achieved outcomes. Harvey (2005:272) advises that current audit processes focus on compliance and thus fail 'to serve an improvement function at the student-lecturer interface'.

In addition, Avdjieva and Wilson (2002) suggest that HEIs are now also required to become learning organisations, where internal stakeholders also interpret and assess the quality of HE provision. The emphasis for internal stakeholders is not only on quality assurance, but also on quality enhancement which aims for an overall increase in the actual quality of teaching and learning, often through more innovative practices (McKay and Kember, 1999). Elton (1992) suggests that quality enhancement focuses on quality 'Es': empowerment, enthusiasm, expertise and excellence. Quality enhancement initiatives tend to be less clearly defined and are often more diverse than quality assurance initiatives (McKay and Kember, 1999). In HE, mechanisms adopted by internal stakeholders are likely to include self-evaluation practices and student feedback. As students are viewed as an integral part of the learning process (Wiklund *et al.*, 2003), this type of evaluation tends to be more formative in nature and therefore more likely to lead to continual quality improvement efforts. Furthermore, the involvement of internal stakeholders often results in a culture of quality management being embedded within programmes.

The second reason why quality is difficult to manage in HE is due to the complicated nature of the educational product. Education has been viewed as a system or 'a network of interdependent components that work together to try to accomplish the aim of the system' (Deming, 1993:98). The system consists of inputs, transformation processes and outputs. Sahney *et al.* (2004) advise that in education there are human, physical and financial resource inputs that undergo processes including teaching, learning, research, administration and knowledge transformation. The quality of teaching and learning therefore becomes central in a systems perspective. Ramsden (1992) advises that high quality teaching is fundamentally about high quality learning, which is context-related, uncertain and continuously improvable. Martens and Prosser (1998) add that high quality learning must focus on the development of meaning as characterised by deep learning approaches, rather than on reproduction. However, Yorke (1999) cautions that high quality teaching does not always result in high quality learning or vice versa.

The outputs of the education system can be tangible, intangible or value addition through, for example, examination results, employment, earnings and satisfaction. Harvey (1995) argues, however, that there is no discernible end product of HE as the transformative process continues to make an impact after the completion of HE. Hewitt and Clayton (1999:852) suggest that if the desired output of HE is viewed as 'increased capabilities and knowledge as embodied within the transformed student, including an enhanced capability for further learning' then the system model is appropriate provided there is recognition of the role of the student within all three system components.

Despite their support for viewing education as a system, Sahney *et al.* (2004) suggest that this creates further difficulty in conceptualising quality because the different component parts of the system have different requirements. The literature suggests that there have been a number of different attempts to articulate the dimensions of quality in HE as Garvin (1987) did for services. One of the most clearly defined sets of dimensions of quality for HE has been identified by Harvey and Knight (1996), who argue that quality can be broken down into five different but related dimensions:

- quality as exceptional (for example, high standards)
- quality as consistency (for example, zero defects)
- quality as fitness for purpose (fitting customer specifications)
- quality as value for money (as efficiency and effectiveness)
- quality as transformative (an ongoing process that includes empowerment to take action and enhancement of customer satisfaction).

Harvey and Knight (1996) advise that *quality as transformative* can incorporate the other dimensions to some extent, and the first four dimensions are not necessarily end products themselves. Owlia and Aspinwall (1996) argue that different stakeholders are likely to value the importance of these different dimensions of quality according to their particular motivations and interest and interpret them differently. For example, *quality as value for money* is likely to be judged differently even by various internal stakeholders. Students may judge value for money according to tuition fees paid versus contact time supplied, whereas a department manager is likely to be more concerned with the effective use of resources in relation to student numbers.

The preceding discussion illustrates that quality in HE is a multi-dimensional construct which is interpreted in different ways by diverse stakeholders. This, in turn, creates complexity in its measurement and management. Accordingly, Cullen *et al.* (2003) argue that the challenge is to produce a quality management framework that permits the equal expression of legitimate voices, even though they may conflict or compete in some ways. As a result of this complexity, there has been a wide range of approaches adopted to managing quality in HEIs. To date, however, efforts to undertake a consolidated review of current practice have been relatively limited. This paper therefore seeks to address this gap in the literature.

The paper draws on a review conducted by the authors to investigate current environmental forces and their impact on HE and quality management practices in different national contexts (Brookes and Becket, 2007). The review comprised 95 articles published in 19 journals over a ten-year period between 1996 and 2006. The majority of the articles were published in educational journals, with *Quality Assurance in Education* and the *International Journal of Educational Management* being the main sources. In order to be as thorough as possible, searches were also conducted on industry journals that focused on service quality such as *Total Quality Management* and the *International Journal of Quality & Reliability Management*. Drawing from 45 articles included in the review, this paper identifies current approaches to quality management in HE. It should be noted that the authors were limited to articles published in English. As a result, this review is far from comprehensive, but appears to be the most extensive review of HE quality management practice undertaken to date.

An analysis of current international quality management practice

The review indicates that a range of quality management models developed for industry have been adopted or tested within HE institutions on a global basis. Internationally, the tool most frequently drawn upon (see, for example: Cruickshank, 2003; Motwani and Kumar, 1997; Eriksen, 1995) is total quality management (TQM), defined as:

... a management approach of an organisation, centred on quality, based on the participation of all its members and aiming at long run success through customer satisfaction and benefits to all members of the organisation and to society (ISO 8402, in Wiklund *et al.*, 2003:99).

As the definition implies, TQM has the potential to encompass the quality perspectives of both external and internal stakeholders in an integrated manner. It thereby enables a comprehensive approach to quality management that will assure quality as well as facilitate change and innovation. Other models tested emulate TQM and concentrate on developing systematic business processes that are required to achieve measurable quality outputs. For example, the balanced scorecard requires the identification of appropriate performance

indicators, and the European framework for quality management (EFQM), performance enablers and results. The one exception is SERVQUAL, a model that focuses on the assessment of quality solely from the consumer perspective. Table 1 identifies and defines the different models that have been applied internationally in HEIs. The application of these models within HEIs is summarised in the Appendix which also presents an overview of the original authors' analysis of their suitability to HE.

Model	Definition
TQM	A comprehensive management approach which requires contribution from all participants in the organisation to work towards long-term benefits for those involved and society as a whole.
EFQM excellence model	Non-prescriptive framework that establishes nine criteria (divided between enablers and results), suitable for any organisation to use to assess progress towards excellence.
Balanced scorecard	Performance/strategic management system which utilises four measurement perspectives: financial; customer; internal process; and learning and growth.
Malcolm Baldrige award	Based on a framework of performance excellence which can be used by organisations to improve performance. Seven categories of criteria: leadership; strategic planning; customer and market focus; measurement, analysis, and knowledge management; human resource focus; process management; and results.
ISO 9000 series	International standard for generic quality assurance systems. Concerned with continuous improvement through preventative action. Elements are customer quality and regulatory requirements, and efforts made to enhance customer satisfaction and achieve continuous improvement.
Business process re-engineering	System to enable redesign of business processes, systems and structures to achieve improved performance. It is concerned with change in five components: strategy; processes; technology; organisation; and culture.
SERVQUAL	Instrument designed to measure consumer perceptions and expectations regarding quality of service in five dimensions: reliability; tangibles; responsiveness; assurance and empathy; and to identify where gaps exist.

Table 1: Quality management models

As identified in the Appendix, the application of these models has yielded a number of benefits for HEIs. However, the authors also identify a number of core requirements for their successful implementation and a number of limitations of the models themselves.

The benefits identified are both tangible and intangible. In the first instance, the models are deemed to be relevant within the current competitive HE environment as they incorporate the perspective of students as customers. They also take into account the perspectives of both internal and external stakeholders (Navarro *et al.*, 2005). As such, they reflect both quality 'As' and quality 'Es' (Elton, 1992) and thus quality assurance and enhancement are addressed. Improvements have been reported in areas such as customer service, administrative processes, staff and faculty morale, and strategic and budget planning (see, for example: Aly and Akpovi, 2001; Sohail *et al.*, 2006). There is general consensus among the authors listed in the Appendix that a key benefit of using these models is the requirement for HEIs to adopt a strategic approach to quality measurement and management, and to engage in self-assessment against predetermined criteria (see, for example: Cullen *et al.*, 2003; Roberts and Tennant, 2003).

In order to achieve these benefits, a number of critical requirements must be met in the implementation of these models. Top-level commitment, a focus on customer delivery and medium or long term strategic objectives are required. Successful implementation also depends on effective leadership and sufficient levels of financial and human resources (Roffe, 1998; Osseo-Asare Jr and Longbottom, 2002; Cruickshank, 2003; Mizikaci, 2006). Where these requirements are not met, a number of limitations are associated with the application of these models in HE. For example, challenges related to managerial and

leadership skills have been identified with both EFQM and TQM models. Furthermore, the bureaucratic structures of HEIs are reported to undermine the application of the models (Srikanthan and Dalrymple, 2002). The effectiveness of the models also relies predominantly on a team-based approach that is proving contentious to the traditional autonomous role of academics (Srikanthan and Dalrymple, 2004). In some models, such as SERVQUAL, there is concern that the priority of quality attributes will vary across culturally diverse student bodies. In addition, there is a continued debate on the role of the student as customer or co-producer in the HE system and the impact this has on the measurement and management of quality (Motwani and Kumar, 1997; Shutler and Crawford, 1998; Lawrence and McCullough, 2001; Tam, 2002). Finally, there is an inherent difficulty in quantifying the outputs of HE for self-assessment purposes. When assessing the outputs, the models are reported to have far greater applicability in measuring administrative functions within HEIs rather than the quality of research or teaching and learning (Aly and Akpovi, 2001; Cruickshank, 2003; Srikanthan and Dalrymple, 2004). As the learning of students is a fundamental product of HE (Shutler and Crawford, 1998), this would appear to be a major shortcoming.

While some academics have firmly argued that TQM is unsuitable in HE, the summary provided in the Appendix clearly indicates that it does have value. Srikanthan and Dalrymple (2002) specifically note the value of TQM models to the service function within HEIs. However, they advise that these models are inappropriate for what they term “academic functions” (2002:215). The authors also highlight that the student is a customer when it comes to using administrative services but a participant within the teaching and learning process, and TQM models do not recognise this distinction. Srikanthan and Dalrymple (2003) therefore advise that HEIs should move on from these industrial approaches and develop a more holistic model that would serve to manage academic functions better. These models are considered necessary as current approaches are deteriorating into ‘managerialism’ as a result of a lack of development between quality management techniques and educational processes (Srikanthan and Dalrymple, 2003; 2004).

In response to these concerns, increasing efforts have been made to develop quality management models specifically for HE that reflect the unique characteristics of HE and the importance of the student learning experience. Table 2 (in the Appendix) provides an overview of the models developed and their key characteristics.

The main benefit of the models summarised in Table 2 developed specifically for HE is their recognition of the centrality of the student learning experience in quality management initiatives. As they have been developed specifically for HE, it is purported that they are more compatible with the primary role of education than the industry models listed in the Appendix. However, a number of these newer models used the models listed in the Appendix as a starting point. For example, Owlia and Aspinwall (1996) develop quality characteristics based on manufacturing/software and service methods, and Borahan and Ziarati (2002) draw upon TQM, Malcolm Baldrige and ISO 9000 principles. In comparison to the industrial models, those listed in Table 2 tend to focus on particular components of HE provision such as rewards to academics (Badri and Abdulla, 2004), programme evaluation (Mizikaci, 2006) and the quality of the student experience (Tam, 2002; 2006). These models therefore tend not to be as comprehensive in their approach to quality management as the industry models.

The one exception is Srikanthan and Dalrymple’s (2004) model for quality management in education (QME). This particular model is developed from educational rather than managerial literature and four models proposed for the management of HE quality including the transformative model (Harvey and Knight, 1996), the engagement model (Haworth and Conrad, 1997), the university of learning model (Bowden and Marton, 1998) and a model for a responsive university (Tierney, 1998). Srikanthan and Dalrymple (2002) identify that all four models emphasise the quality of the student learning experience and collaboration at the education delivery level. Drawing on these four models, the authors propose a generic QME model. Key features are the centrality of the student learning experience to quality management and that students are viewed as participants in the learning process. Further requirements of this model include senior management commitment, the development of a

continuous improvement culture, and teamwork or team interaction. The three core elements of the QME model include:

- A focus on the transformation of learners, enhancing them through adding value to their capability and empowering them
- Synergistic collaboration at the learning interface
- Senior management that encourages and ensures a collegial culture.

The authors also recommend a move away from the ritual of teaching to a focus on “student learning, academic productivity and organisational performance” (Srikanthan and Dalrymple, 2004:272). As such, the QME model reflects a focused approach to quality management that addresses the fundamental products of HE.

Implications of current practice

This review reveals that many HEIs appear to rely heavily on industrial quality models, either adopted directly or adapted for use within HEIs. While these models have proved beneficial in addressing both quality assurance and enhancement initiatives in HE, the benefits gained have been predominantly in administrative and service functions (see, for example, Aly and Akpovi, 2001). Furthermore, there have been questions raised about the current level of management and leadership skills in HEIs (Osseo-Asare Jr and Longbottom, 2002), which are fundamental for the effective application of the industrial models.

There is also growing concern at the lack of focus on the student learning experience in current international HE quality management approaches. Srikanthan and Dalrymple (2002, 16) advise ‘attempting to implement quality management models as practised in industry across all the operations of a university is flawed in view of their tenuous fit with the core operation: education’. The authors also contend that this approach is leading to the corporatisation of HEIs which are being infiltrated with managerialist cultures (Srikanthan and Dalrymple, 2004). Mok (2005:299) also reports on this practice and argues that quality management has been ‘shaped and managed in line with managerialism and economic rationalism’. This view is shared by other academics such as Jackson (1997), Milliken and Colohan (2004) and Dollery *et al.* (2006). Justification for current quality management practice within HE appears to lie in the need for economic efficiency given resource constraints and massification within the HE sector. Academics are encouraged to ‘do more with less’ and be more accountable for scarce resources. Within management schools, including those that house hospitality, leisure, sport and tourism management, this encourages the use of business models that have been proven effective in industry in a way that reflects a ‘practise what you preach’ approach.

However, current approaches that adopt industrial models fail to address the learning experience of an increasingly diverse student body. Some authors explicitly argue that the quality of teaching and learning is actually decreasing as a result (Srikanthan and Dalrymple, 2004; Harvey, 2005; Dollery *et al.*, 2006). Others point to a lack of innovation and the restraint of creativity through this approach (Wiklund *et al.*, 2003).

However, this review has also identified that there are clear benefits of TQM approaches within HE for both administrative and service functions. As the expectations of students as consumers of HE products grow in line with increased levels of competition within and across national borders, it would be dangerous to ignore the quality of these functions. The massification of HE also serves to drive the need for efficiency and effectiveness of provision and corporatisation is likely to remain a fact of life in academia. Nonetheless, on their own, they cannot sufficiently take into account the dynamic nature of student learning or the multiple role of the student as a customer and as a participant. As Yorke (1999) purports, students are customers of provided services and partners in the process of learning. Within the subjects of hospitality, leisure, sport and tourism, students have long been recognised as having a central role in the learning process. Many programmes of study, particularly within the UK, have a reputation for promoting and delivering student-centred learning. There is however a requirement for further development of quality management practices within HE.

Rather than throw the baby out with the bathwater, this review suggests that there is a need to better integrate these two approaches in order to assess and enhance the quality of teaching and learning as well as the quality of administrative and service functions within HE.

Conclusion

This paper has served to provide a review of the current international debate surrounding quality management practice within HE. It has identified the difficulty in defining quality within HE and the complexity this creates in its measurement and management. Despite this complexity, quality management is taken seriously in HEIs and extensive efforts are being undertaken to improve quality management practices.

These efforts appear to be divided, however, with earlier approaches adapted from industrial models focusing on the quality of administrative and service functions. In contrast, critics of industrial models have undertaken efforts to focus on the quality of the core products of HE, teaching and learning. Given current environmental trends, the priority now must be to achieve greater harmonisation between the two approaches in HE quality management practices. Rather than disregard the benefits of TQM, there appears to be a need to find another approach that puts teaching and learning at the core but does not neglect the efficiency and effectiveness of administrative and service functions.

This paper identifies that the findings from this review are of relevance to the fields of hospitality, leisure, sport and tourism management. However, as the review has relied upon current research and publications that are outside these fields, there is clearly a need for further research within our subjects. Further research should identify whether, within our fields, there is a tendency to adopt industrial models like other management schools, or whether the approaches to quality management more closely reflect the centrality of the student in line with a student-centred approach to learning. If the latter, there is a need for these practices to be made more widely known across the academic community.

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Appendix

Model Adopted	Author, year	Analysis
Modified (SERVQUAL)	Ford <i>et al.</i> , 1999; Markovic, 2006; Kwan and Ng, 1999; Abdullah, 2006	<ul style="list-style-type: none"> • Intense competition in HE requires assessment of customer views and attention to management processes. • Customer satisfaction affected by perceived quality. • Priority of important attributes may not transfer across cultures; therefore further research needed. • Performance indicators (PIs) tend to measure activity, not education quality, and therefore need to address the student experience.
EFQM	McAdam and Welsh, 2000; Osseo-Asare Jr and Longbottom, 2002; Hides <i>et al.</i> , 2004; Tari, 2006; Calvo-Mora <i>et al.</i> , 2006	<ul style="list-style-type: none"> • Integrated map of management issues valued and useful to secure confidence of different stakeholders. • Useful as a basis of self-assessment. • Tests the relationship between enablers and results. • Implementation requires top-level commitment, focus on customer delivery and commitment to medium and long-term programmes. • Policy must be the reference point for organisation of resources. • Dilemma of applying business principles/language to HEIs. • Three to five years before benefits may be evidenced. • Challenge regarding managerial skills in HE. • Greater benefit if EFQM and national HE control mechanisms were integrated.
Balanced scorecard	Cullen <i>et al.</i> , 2003, Chen <i>et al.</i> , 2006	<ul style="list-style-type: none"> • Focus on performance management and evaluation. • PIs linked to strategy and management; otherwise can be dysfunctional. • Scorecard can be used to manage rather than simply monitor performance.
Malcolm Baldrige award	Arif and Smiley, 2004	<ul style="list-style-type: none"> • Advantages in operational elements: strategic and budget planning; careers; outreach; and information services. • Benefits may be immediate and long standing.
ISO 9000	Shutler and Crawford, 1998	<ul style="list-style-type: none"> • Defines product of HE as learning of students (British Standards Institute (BSI)). • Continuous improvement achievable through preventative action. • Less scientific control in educational products than in manufacturing.
Business process re-engineering	Welsh and Dey, 2002; Sohail <i>et al.</i> , 2006	<ul style="list-style-type: none"> • Strategy for assessment of both internal and external stakeholders. • Uses technology to underpin quality assurance and enhancement. • Devolves some responsibility for assessment to the course level. • Enables HEI to become improvement-driven through refocusing core processes. • Improvements identified in productivity, service levels and efficiency. • Cost-effective method for accountability and improvement purposes.

TQM-related	Quality management framework (Widrick <i>et al.</i> , 2002); five-step programming model (Motwani and Kumar, 1997); TQM (Aly and Akpovi, 2001); service guarantees (Lawrence and McCollough, 2001); Hoshin Kanri model (Roberts and Tennant, 2003); continuous quality improvement (Roffe, 1998); self-rating scales (Pounder, 1999); TQM in HE (Srikanthan and Dalrymple, 2002); QFD (Thakkar <i>et al.</i> , 2006; Hwang and Teo, 2001)	<ul style="list-style-type: none"> • Encourages disciplined thinking about tangible and intangible aspects of academic activities and operational aspects required in design and delivery of courses. • Improvements identified in customer service, university processes, staff and faculty morale, course quality and personnel hiring. • Involvement of students, faculty and funding/statutory bodies recommended. • Much implementation of TQM in HEIs in the USA has been in finance/administration services. Extension beyond these to teaching is a major challenge. • TQM appropriate for service aspects, but a different approach required for teaching and research. • Challenges lie in resistance to change and in lack of resources, leadership and campus-wide strategic planning. • Difficulty in defining role of students as co-producers, consumers or customers. • Other limitations relate to: difficulty in defining outputs; challenges related to leadership skills; TQM requirement for teamwork/customer involvement is not congruent with autonomy of academic staff; people rather than process orientation; level of acceptance of TQM principles; bureaucratic structures; and complexity of application to HE
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Table 2: Quality management models applied in HEIs

Model	Author	Model overview
Model for quality management in higher education	Srikanthan and Dalrymple (2002, 2003, 2004), Australia	<ul style="list-style-type: none"> • Approach is based on evidence from educational literature. • Four methodologies: transformative; engagement theory of programme quality; methods to develop a university of learning; strategies for achieving a responsive university. • In teaching and research, students are participants and the focus is on their learning. • Implementation of 2002 model focusing on philosophies and approaches to student learning and methods of engendering a dynamic collaboration around student learning. • Recommends a move from the ritual of teaching to focus on student learning, academic productivity and organisation performance. • Radical change using student learning as the central criterion.
Excellence model	Pires da Rosa <i>et al.</i> (2001, 2003), Portugal	<ul style="list-style-type: none"> • Based on empirical research, nine criteria supporting self-analysis and acting as a source for quality improvement and leading strategic development. • Quality management associated with evaluation activities covering teaching and research and regarded by participants as positive.
Academic award model	Badri and Abdulla (2004), UAE	<ul style="list-style-type: none"> • Concerned with teaching, research and services to develop a more explicit approach to faculty rewards/awards. • Model includes criteria for diversification, course development, material production, student evaluation, course files, teaching portfolio and contributions to conferences and workshops.

Model to assess quality of student experience and learning outcomes	Tam (2002, 2006), Hong Kong	<ul style="list-style-type: none"> • Assessment of quality in HE should be measured in terms of student growth. This calls for attention to student outcomes, including cognitive and non-cognitive aspects of learning, skills and satisfaction with university environment. • Investigates relationship between university experience and student outcomes as a means of determining a university's success in meeting its educational goals and proposes approach oriented to this. • Instrument designed to help understand the student experience.
Multi-models of quality in education	Cheng and Tam (1997), Hong Kong	<ul style="list-style-type: none"> • Identifies seven models of quality in education and emphasises the complexity of pursuing educational quality. • Effectiveness and quality are concepts used to understand performance, so approach needs to be comprehensive and take account of longer-term goals. • Cross cultural issues require further investigation.
Performance measures for academic departments	Al-Turki and Duffuaa (2003), Saudi Arabia	<ul style="list-style-type: none"> • Adopts a systems approach and identifies performance measures to evaluate productivity, efficiency, effectiveness, internal structure, growth and development. • Hierarchical performance measurement model is based on outcome measures for each category – input, process and outputs.
Internal audit	Reid and Ashelby (2002), UK	<ul style="list-style-type: none"> • Identifies tangible benefits from internal audits, such as significant cultural changes, which can reinforce quality enhancement, create greater staff involvement, as well as give benefits to the institutions. • Considers programme management, development and evaluation, staff development, assessment of students, external examining processes, collaborative provision and value added.
Internal audit	Becket and Brookes, (2006), UK	<ul style="list-style-type: none"> • Model to evaluate quality management approaches in departments. • Six dimensions identified: internal/external perspective; qualitative/quantitative information; snapshot/longitudinal timespan; quality dimension assessed; system elements, and enhancement or assurance focus
Quality dimensions framework	Owlia and Aspinwall (1996), UK	<ul style="list-style-type: none"> • 30 different quality characteristics identified for HE, using generalised dimensions defining quality drawn from manufacturing/software and service methods.
Programme evaluation model	Mizikaci (2006), Romania	<ul style="list-style-type: none"> • Considers HE as a system (input, processes and outputs) for programme evaluation and identifies social, technical and management systems within these.
Quality management framework	Grant <i>et al.</i> (2002, 2004) Widrick <i>et al.</i> (2002), USA	<ul style="list-style-type: none"> • Identify dimensions of quality in HE – quality of design, conformance and performance. • Quality of performance is least likely to be considered.
Subject quality assurance system	Martens and Prosser (1998), Australia	<ul style="list-style-type: none"> • University-wide system of quality assurance to enable systematic review and enhancement of individual subjects, allowing for discipline-specific requirements. • The focus is on the improvement of student learning.
ISO-based TQM model	Borahan and Ziarati (2002), Turkey	<ul style="list-style-type: none"> • Combine TQM, Malcolm Baldrige and ISO 9000 principles, drawing on USA and UK practices to identify quality criteria. • Building blocks for quality assurance and control include: programme management and operations; curriculum design content and organisation; teaching, learning and assessment; student support and guidance; and quality assurance and enhancement.

Five-phase TQM implementation model	Motwani and Kumar (1997), USA	<ul style="list-style-type: none">• Identifies the issues which institutions need to consider when implementing TQM in five phases: deciding; preparing; starting; expanding or integrating; and evaluating.
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(Brookes and Becket, 2007)

Table 3: Quality management models developed for HE