CHAPTER 13

Quality management

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Introduction

Quality management is the most researched operations management topic in hospitality (Jones 2007). This chapter begins by examining different definitions of quality and goes on to look how quality can be designed into hospitality operations and organizations. Five basic approaches are reviewed: quality inspection (QI), quality control (QC), quality assurance (QA), total quality management (TQM) and continuous improvement (CI). Operators may also seek external recognition or accreditation of their quality standards. A number of schemes exist and have been adopted in the industry – these are explained and reviewed. Within strategies, specific approaches to measuring quality are adopted – mystery guest, customer surveys and audits – so research in these areas is reviewed.

The whole approach to quality in industry in general and in hospitality in particular has gradually become more sophisticated over the years. The most unsophisticated strategy – QI – was largely the way quality was managed up to and including the 1950s. During the 1960s, a number of sectors introduced new technologies and created new systems, along with which QC systems were established. For instance, the adoption of cook-chill led to the development of HACCP (hazard analysis and critical control point). However, as with many service operations, the service worker can directly impact a customer satisfaction so that the control approach in some cases was further modified in order to achieve QA. Finally, the 1990s saw the development of the concept of TQM, and more recently CI.

What do we mean by quality?

Quality in the dictionary is defined as 'the degree or standard of excellence of something'. This suggests that there is an absolute standard against which all things can be measured. So, for instance, it is sometimes assumed that five star hotels are of a higher 'quality' than three star hotels, or fine dining restaurants are of a higher 'quality' than quick service outlets. This is wrong. Quality is not absolute, it is relative – like has to be compared with like. So it is possible to have high-quality five star hotels and poor-quality ones, and high-quality quick service restaurants and low-quality examples.

The so-called Quality Gurus – Japanese experts like Shingo, Ishikawa and Taguchi, and Americans like Deming, Crosby and Juran – spent several decades developing concepts and practice in this area and have always thought of quality as relative. Juran, for instance, has defined quality as fitness for purpose. The British Standards Institution likewise defines it as 'the totality of

features and characteristics of a product or service that bear on its ability to meet a specific need'. For Crosby (1979: 15), quality means 'conformance to requirements'. Those requirements must be clearly established, as not conforming to the requirements means that quality is absent. Nevertheless, being free from defects does not guarantee quality (Anand 1997). Crosby coined the phrase 'quality is free' as he saw that non-quality items were adding costs, which would only be avoided by *doing things right first time* (Crosby 1979). This echoes the Zero defect programme nurtured in the Martin Company (Garvin 1987).

Taguchi and Clausing (1990) suggest that quality begins in the design stage, as such the Zero defect programme may not help to deliver quality. Instead of chasing defects, the design in the first place must not allow defects to occur, shifting most of the burden to the design team. This programme is seen by Anand (1997) as a means to reach quality. However, Anand (1997: 196) attacks seeing quality as 'conformance to standard' accusing it of being 'the biggest enemy of quality' and holding it 'largely responsible for poor quality products being produced at high cost'. Juran (2000) also criticizes it as it ignores the customers' interests, and Smith (1993: 237) believes it does not differentiate between 'a concept's meaning with its operationalization or method of measurement'.

Feigenbaum defines quality as 'the total composite product and service characteristics of marketing, engineering, manufacture, and maintenance through which the product and service in use will meet the expectations of the customer' (Feigenbaum in Kolarik 1995: 5). Feigenbaum's first definition of quality had the products as its object, but later service found its way into his definition, reflecting realization of the growth and importance of the service sector (Reeves and Bednar 1994). Feigenbaum's call for 'Total Quality Control' brought a more integrated look to quality, reflecting a sense of responsibility sharing among the 'inter-functional teams'. However, Feigenbaum did not think of quality as a strategy, according to Garvin (1987). Garvin stresses that quality should be thought of as a strategy. He subdivides product quality into eight dimensions or categories, namely *performance, features*, *reliability, conformance, durability, serviceability* and the most subjective *aesthetics* and *perceived quality*. *Conformance* and *reliability* are 'the most traditional notions'.

It can be concluded that there is no universal definition that can be applied to all businesses and cases. The different definitions have evolved over time; each one represents a certain focus that reflects the prevailing thinking in its time. For that reason, new dimensions or even definitions may be added as the need arises. However, every business should define quality

according to its environment and situation, and as Garvin stresses, it is better to consider many definitions of quality and not to rely on just one.

Why is quality difficult to achieve?

A number of models have been developed to describe service quality, many of which are just as relevant to products. Brogowicz et al. (1990) usefully integrate these into a single model, which identifies five main areas where service quality problems are likely to arise.

Gap 1 is called the *positioning* gap. It develops if the product or service concept diverges from customer requirements, as may happen if fashions or demographic changes affect the market place or new products and services come into the market place. Long-term control of the positioning gap can be achieved by regular top-level reviews of the established concept. This is usually done through both qualitative and quantitative market research, aimed at identifying customers' current wants and needs.

Gap 2 is the *specification* gap. This occurs when management set standards of performance that are different to what they perceive to be customer requirements. This may occur because these requirements are contradictory, difficult to execute or too costly to achieve. It may also occur when firms move into new markets, perhaps overseas, where they apply existing brand standards to new customers.

Gap 3 is the *delivery* gap and occurs when employees do not, or cannot, deliver the product or service to the standard required. It is this gap that is most frequently managed in operations through management audits and mystery shopper programmes (see below).

Gap 4 relates to promotional *communication*. This has an important influence upon customer perceptions of service quality, because for many operations, it is the basis upon which customers build their expectations. It should therefore reflect products and service accurately and faithfully.

Gap 5 is the *perception* gap, that is the difference between what customers expect and what they perceive they have received. The perception gap may be monitored by SERVQUAL (see below), customer satisfaction questionnaires or market research surveys.

From an operations perspective, these gaps are very different in nature, and hence how they should be managed differs greatly. The positioning gap is highly strategic and relies heavily on expertise in the marketing field. The specification gap is the point at which operations managers seek to develop

policies, systems and technologies that can deliver customer requirements. The expertise needed here has very much to do with socio-technical systems and how this relates to process design and job design.[1] A failure to design quality in will lead to systemic failures in products and service delivery. The delivery gap is clearly the responsibility of the operations management team at all levels within the organization, from first-line supervisors up to the operations director. The communications gap relies heavily on the marketing and operations functions working closely together to ensure the operation's capabilities are not exaggerated, whilst the final challenge, the perception gap, is entirely inside the customer's head. It is this gap that the SERVQUAL instrument seeks to measure. Managers dealing with dissatisfied customers have to realize that it is customers' perceptions they have to deal with, even if these are at variance with 'reality'. For instance, customers who complain about waiting too long typically exaggerate the time they have waited for.[2] Finally, gap theory also has implications for the design of quality measurement tools, which are discussed later in this chapter.

SERVQUAL

One of the most influential research instruments in researching service quality has been SERVQUAL. Parasuraman et al. (1988) developed SERVQUAL as a scale to measure the quality of service, where perceived service quality is the outcome of a comparison between a customer's expectations of the ser-vice and the perceived service. The original 10 service quality determinants were reduced to five dimensions, namely tangibles, reliability, responsiveness, assurance and empathy. It is worth noting that not all the dimensions are equal in their importance. Some have higher importance than the others, as identified by Parasuraman (1988) where reliability was more important and empathy the least important. The relative importance of dimensions depends on the nature of the service (Ghobadian et al. 1994).

Tsang and Qu (2000) used SERVQUAL to examine the gaps between the expectations and perceptions of international tourists and hotel managers in nine hotels in three Chinese cities. In addition to the traditional five gaps, two more gaps were examined: 'the difference between consumer perceptions of service delivery and what management believes they deliver' and 'the difference between management's perception of consumer expectations and management's perception of its

[1] See Chapter 2.
[2] See Chapter 5.

service delivery' (Tsang and Qu 2000: 318). The study by Ekinci et al. (2003) explored British tourists' evaluation of the accommodation in Crete. Intangibles, more than tangibles, were appreciated by the tourists, especially female respondents.

Parasuraman et al. (1988: 30–31) do not claim that SERVQUAL is applicable to all kinds of operations – 'The instrument has been designed to be applicable across a broad spectrum of services it provides a basic skeleton through its expectations/perceptions format, encompassing statements for each of the five service-quality dimensions'. They understand also that it may need modification – '[It], when necessary, can be adapted or supplemented to fit the characteristics or specific research needs of a particular organization'. Hence it has been adapted to specific contexts in hospitality. Knutson et al. (1991) proposed LODGSERVE to evaluate quality in hotels, and Raajpoot (2002) developed TANGSERV for the foodservice sector. Stevens et al. (1995) and Knutson et al. (1995) reported on DINESERVE which was a modified version of the SERVQUAL to fit the restaurant business. DINESERVE has 29 items, distributed on five dimensions – tangibles, reliability, responsiveness, assurance and empathy. Heung et al. (2000) studied service quality using DINESERVE in their study of four restaurants in Hong Kong – Chinese, casual dining, full service and quick service. Akbaba (2006) used an 'adapted/modified' SERVQUAL of 29 attributes, subsequently reduced to 25, in studying business hotels in Turkey. He found that tangibles was the most critical service quality dimension to most hotel guests, and identified a new dimension – convenience. He also found that for the business travellers, convenience received the highest expectation scores, while understanding and caring came the last. Juwaheer (2004) applied SERVQUAL on hotel international guests in Mauritius, identifying nine factors – reliability, assurance, extra room benefits, staff communication skills and additional benefits, room attractiveness and décor, empathy, staff outlook and accuracy, food and service, hotel surrounding and environmental factors.

However, SERVQUAL has been heavily criticized (Ekinci 2002). Davies et al. (1999) argue that SERVQUAL has been promoted because of its alleged universal applicability, but even this, according to Davies et al. can be rejected as many studies have modified the model to adapt it to their contexts. SERVQUAL was criticized by Cronin and Taylor (1992) on the grounds that perceptions alone can be used to predict service quality; the dimensions of SERVQUAL are not believed to be applicable to all service encounters and they may need to be altered (Carman, 1990). Buttle (1996) noted that SERVQUAL is decried on both theoretical and operational grounds. Table 13.1 summarizes this critique.

Table 13.1 Critical issues with SERVQUAL

Theoretical	Operational
Paradigmatic objections SERVQUAL is based on a disconfirmation paradigm rather than an attitudinal paradigm (Cronin and Taylor 1992; 1994); and SERVQUAL fails to draw on established economic, statistical and psychological theory (Buttle 1996).	*Expectations* The term expectations is polysemic; consumers use standards other than expectations to evaluate SQ; and SERVQUAL fails to measure absolute SQ expectations (Buttle 1996).
Gap model There is little evidence that customers assess service quality in terms of P-E gaps (Buttle 1996).	*Item composition* Four or five items cannot capture the variability within each SQ dimension (Buttle 1996).
Process orientation SERVQUAL focuses on the process of service delivery, not the outcomes of the service encounter (Buttle 1996; Ekinci 2002).	*Moments of truth (MOT)* Customer's assessments of SQ may vary from MOT to MOT (Buttle 1996).
Dimensionality SERVQUAL's five dimensions are not universals; the number of dimensions comprising SQ is contextualized (Carman 1990); items do not always load on to the factors which one would a priori expect (Carman 1990); and there is a high degree of intercorrelation between the five RATER dimensions (Buttle 1996; Ekinci 2002).	*Polarity* The reversed polarity of items in the scale causes respondent error (Buttle 1996).
	Scale points The seven-point Likert scale is flawed (Buttle 1996).
	Two administrations Two administrations of the instrument causes boredom and confusion (Buttle 1996; Carman 1990).
	Variance extracted The overall SERVQUAL score accounts for a disappointing proportion of item variances (Buttle 1996).

Source: Adapted from Buttle (1996).

Strategies for managing quality

Another potential measure of overall quality is the *cost* of quality. According to Wyckoff (1984) and Crosby (1979), quality costs fall into four main categories:

- *Prevention*. Costs of setting up standards and a system to maintain them, for example training staff, preparing purchase specifications, developing processes, monitoring and documenting procedures (setting up costs).
- *Assurance*. Cost of actually maintaining standards, for example resources required for inspection, measurement and documentation (staff time and administrative costs).
- *Internal failure.* Costs due to waste or losses before the product or service reaches the customer, for example rejection of raw materials, losses due to faulty storage, products rejected as a result of inspection (cost of waste and inefficiency).
- *External failure.* Costs due to defective items reaching the customer, for example a free meal or room offered to placate offended individuals (ultimately marketing costs and loss of repeat business).

Crosby (1984) does not count the costs of setting up and maintaining a quality system as part of the cost of quality. These are costs which diligent management would have to bear anyway to set up an effective system. He argues for what he calls the price of non-conformance (PONC), namely the cost to management of not getting it right first time and every time. In other words, this is the cost of internal and external failure. However, calculating PONC is not easy, because it is not easy to assess the value of lost repeat business customer dissatisfaction and negative word of mouth. However, companies do assign such costs to their operations. PONC calculations are usually carried out department by department, and individual mangers are consulted as to what constitutes a 'non-conformance'. The normal procedure is to decide standard costs for specific failure events and to multiply them by the number of such failure events.

There are five main approaches to managing quality that focus on managing processes – QI, QC, QA, TQM and CI. These are not mutually exclusive. Hence, there may be QI as part of the TQM approach, and QA is typically found in CI programmes. Each of these will now be discussed.

Quality inspection

The simplest way to manage quality is to inspect the product before it is sold to the customer. Therefore, the goals of a QI

system are very simple: set up a specification of the product, cost it, and detect any defects before delivering it or selling it to the end user. It is very much a 'shop-floor' activity, involving only those employees directly concerned with the making of the product or delivery of the service, and their superiors. While it is easy to install, the point at which quality is checked is at the output point. This means QI takes place *after* the product has been produced. This approach has been used extensively in the hospitality industry for many years. For example, hotel rooms are routinely checked by floor housekeepers before being made available for the next customer and food items are routinely checked at the hot plate by the chef before being taken into the restaurant.

Whilst QI may prevent external failure, this system may lead to high internal failure costs. There is little spent on prevention and assurance, so failure may be high and systemic. The system can only be improved by increased inspection, thus increasing cost, so there is often a trade-off between quality and cost. It is a simple system often found in small hospitality businesses, but does not achieve a great deal in quality terms. Finally, QI cannot easily be applied to intangible aspects of the product/service package, and it therefore provides the operator with only a partial quality management system.

Quality control

A range of models have been proposed with regard to QC in the hospitality industry, for instance Wyckoff (1984), Jones (1983) and King (1984). King's approach, based on the manufacturing model of QC, is fairly typical of the QC strategy, as illustrated in Table 13.2.

The decision to segment the market has major implications for quality management. Each market sector has discrete quality standards which must be communicated both to the customer and to the staff. Once the operator has determined its market requirements, it can then translate these into definite product specifications in terms of the layout, décor and design of room facilities, equipment and materials to be used, ancillary items, and in a broader context, the scale and nature of other facilities and services within the operation. Furthermore, the operating procedures for the implementation of service provision must also be specified in this approach by detailed standards of performance manuals, detailed training of staff and specific organizational systems.

In this control model of quality management, after designing the quality level and setting product standards, the principal

Table 13.2 Model of quality control

1. Design quality level
   Define customer requirements
   - Identify desired quality characteristics.
2. Set product standards
   Design product to meet standards:
   - Drawings
   - Equipment and materials specification
   - Document procedures
   - Plan organization and training.
3. Check conformance
   Output
   - Inspecting
   - Quality audit
   - Guest complaint.

   Process
   - Check employee performance
   - Equipment monitoring.
4. Correct non-standard output
   - Redo or defer sale of rejects
   - Analyse rejects for cause of failure
   - Adjust production process.

Source: King (1984).

role of the manager is checking on conformance. Two features can be monitored, the actual outcomes and the process of working practices employed. Both can be evaluated internally or by an external auditor. Typically, a number of approaches are adopted – internal inspection, quality audits, mystery shopper or mystery guest programmes and so on. These are discussed in more detail later in this chapter.

The final stage of the control system is to 'correct non-standard output'. For instance, in housekeeping this would mean that if a room is not up to the expected standard, the maid or supervisor will put it right. If for some reason the room cannot be brought up to the standard, perhaps due to inundation by water, vandalism or some other serious defect, then the room will be put 'off' until the necessary work has been carried out to restore it to the level of quality expected. Management should ensure that the reasons for failing to meet the required standards are investigated so that action can be taken to ensure

that it does not happen again. Two approaches to QC; statistical process control (SPC) and HACCP, will now be discussed.

Statistical process control

SPC is a quality technique based on statistics. It was developed by Shewhart, Dodge, and Roming in the Bell Telephone Laboratories in the 1930s. The British Standard Institute describes SPC as: 'The in-process application of statistical data analysis methods to identify out of tolerance conditions for a specific production process and to notify the operator of the current or impending problem' (BSI 1994 in Herbert et al. 2003: 64). The technique aims to eradicate the special causes of variation; it is used to observe, control, canvas and improve the process performance. Although it is the tool most associated with SPC, the control chart is not all SPC (Barker 1990). The other tools constituting SPC include check sheets, histograms, scatter diagrams, Pareto analysis, cause and effect diagrams, and graphs. Two studies have looked at the application of SPC in the hospitality industry. Jones and Dent (1994) reported on a study in a cafeteria, and Jones and Cheek (1997) compared SPC with mystery shopper programmes to assess the efficacy of these two alternatives.

HACCP

Hazard analysis and critical control point (HACCP) is a specific approach to QC designed for large-scale catering and food manufacturing largely to assure the safety of food products. Food poisoning is a major problem. In Hong Kong, poor food-handling procedures caused 60% of the food-borne illnesses between 1997 and 1999 (Kivela et al. 2002). In the United States, it accounted for 9,000 deaths and 33 million illnesses, resulting in costs of $9.3 to $12.9 billion annually (Riswadkar 2000). In Australia, more than 700 people suffered from food poisoning in three individual cases in Queensland which took place in November 1996, and one month later, a salmonella-contaminated sandwich was the reason for an old patient's death in a hospital in Queensland (Morrison et al. 1998). The two incidents were preceded by the disclosure of a microbial inspection results of salad bars in retail and foodservice outlets revealing the presence of *Listeria monocytogenes*, *Staphylococcus* and *Bacillus cereus* in eight out of twenty-four tested operations (Morrison et al. 1998).

The adoption of HACCP in the UK was suggested as a result of the excessive incidents of food poisoning all over the kingdom

in the 1980s (Barnes and Mitchell 2000). According to Wilson et al. (1997), the worries regarding food-related problems, food poisoning incidents and the BSE crisis resulted in increased concerns for better food hygiene and handling procedures. They argue that with the change in the life style of consumers, and the observed growth of eating out, the need for a system that guarantees the correct food handling is proving to be a necessity. Morrison et al. (1998) elaborate the same view, suggesting that demographic changes produced more vulnerable people who can contract diseases easily, new pathogens are discovered, and species are becoming more resistant to the traditional safety practices, and the food supply chain has more intensive farming.

The foodservice industry is accused of being a major source of ill health as 70% of the food poisoning incidents caused by bacteria are accounted for by caterers (Wilson et al. 1997). But the situation is more significant than such numbers suggest, since the reporting of food poisoning incidents is less than 10% (Morrison et al. 1998). A high percentage of foodservice operations are managed by their owners, and many do not have adequate food safety background. In addition, the special nature of the foodservice business, where large batches of food are prepared beforehand, and busy periods where the hygiene rules may be forgotten or ignored, make increases in risk more likely (Eves and Dervisi 2005).

Food safety programmes that concentrated on final product inspection proved to be a failure – unable to protect the consumers, the producers and the service providers (Ehiri et al. 1995; Riswadkar 2000). The need for a system that expects the problems and takes the necessary precautions to prevent them was required. Initially HACCP was developed to provide space programmes in the United States with food (Sperber 2005a; Riswadkar 2000). HACCP can be defined as a 'risk-based food safety assurance system that concentrates prevention strategies on known hazards' (Morrison et al. 1998: 101). The system tries to pinpoint the possible hazards by identifying the stages in an operation where they are likely to happen (Wilson et al. 1997). A hazard may be a microbiological, chemical or physical substance (Riswadkar 2000; Wilson et al. 1997), or a 'condition of food with the potential to cause an adverse health effect' (Mortimore 2001: 212). HACCP identifies and eliminates hazards that could result in a food-borne illness instead of depending on examining samples of final products randomly, as it incorporates quality in every stage of food processing and handling (Riswadkar 2000).

Hazard identification is the first step of the process and this step is followed by an evaluation of the identified hazards. The

typical way to identify hazards is by reviewing the sensitivity of the ingredients being used or through the brain-storming process performed by the HACCP team. Where hazards are greatest in the process, theses points are termed critical control points (CCPs). These are 'subsystems within the food production/service process for which loss of control would result in an unacceptable risk of food-borne illnesses' (Wilson et al. 1997: 151). HACCP works by practicing control over those points. Initially HACCP was based on three principles which over time expanded to be seven, as illustrated in Table 13.3.

Sun and Ockerman (2005) provide a comprehensive look over the situation of HACCP implementation in the foodservice area. Microbial examination of food items is an indication of the success of an HACCP programme. Soriano et al. (2002) report the observed decline in the microbial count in Spanish omelette and pork loins after the implementation of HACCP in 19 university restaurants. HACCP proved another success in the fight against Salmonella which was reduced by 50% on chicken carcasses (Billy 2002). Kokkinakis and Fragkiadakis (2007) examined tomato salads (a raw prepared food with high risk) in six mass-catering businesses in Greece – operations that adopted HACCP had less microbial count than those that did not.

However, HACCP has not been adopted industry wide due to some concerns with the system. Panisello and Quantick (2001: 168) identify the 'technical barriers' which are 'all those practices, attitudes, and perceptions that negatively affect the understanding of the HAACP concept and hence the proper

Table 13.3 HACCP principles (1972 and 1997)

HACCP principles, 1972
1. Conduct hazard analysis
2. Determine critical control points
3. Establish monitoring procedures
HACCP principles, 1997
1. Conduct hazard analysis
2. Determine critical control points
3. Establish critical limits
4. Establish monitoring procedures
5. Establish corrective actions
6. Establish verification procedures
7. Establish record keeping procedures

Source: Sperber (2005b).

and effective implementation of the HACCP principles'. Such obstacles may happen before, during or after the adoption of HACCP. Documentation is crucial under HACCP, as a means to affirm the adherence to the right procedures and to prove 'due diligence' (Azanza 2006; Eves and Dervisi 2005). Nevertheless, it is seen as a 'restraining factor' (Eves and Dervisi 2005). IT solutions, such as Hygiene Management System software, are helping to overcome this. It is user friendly, with an ability to generate many reports and using the multimedia to help guide the step-by-step implementation of HACCP. Maher (2001) argues that it makes it much easier for those involved in the production and processing of food to adopt HACCP. The effective use of technology is also reported by Eves and Dervisi (2005), where HACCP computer-based training (CBT) was provided for the food handlers.

HACCP audits can be conducted through two approaches, internally or independently (Motarjemi 2000). Internally the food business carries out self-audit, and independently it can be done by regulatory bodies (representing the government) or a third party (an external firm) (Souness 2000). Governmental institutions have a crucial responsibility for HACCP implementation and assessment and this is explained in the joint consultation of the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO). Motarjemi (2000) highlights this consultation. While some operations appreciated the role of the enforcement officers and recognize their assistance, others felt that the officers made it more complicated and added to their confusion, as the officers lack catering work experience that qualifies them to understand the nature of the tasks carried out (Eves and Dervisi 2005). The same negative regard is shared by another operator in the study by Taylor and Taylor (2004), who described them as 'bureaucratic', 'suits' and having 'no intimate knowledge'.

Operations that implement HACCP benefit from the advantages it offers. The system is proactive, not reactive; it does not wait for problems; instead it prevents them (Morrison et al. 1998; Wilson et al. 1997). Those who support the system argue that it concentrates on the critical phases of food handling, from the raw material till it is ready for consumption, in a 'cost effective manner' (Morrison et al. 1998). Control is relatively easy, focusing on time, temperature and appearance. Execution of the system is the responsibility of the staff as part of their daily duties, and it should raise staff morale and increase their sense of ownership (Wilson et al. 1997). In food manufacturing, Ehiri et al. (1995) report that HACCP increases the potentials

of exporting for the food industry, as many countries would prefer HACCP-certified traders to non-certified ones. This is also confirmed by Gagnon et al. (2000) who see HACCP as 'food passport' to international trade. Ehiri et al. (1995) argue that the benefits gained from HACCP implementation exceed any related costs, even if spending on staff training, which is just one of the different associated expenses, was estimated to be £35–42 million in the UK food industry. A cost-benefit analysis should convince operators to adopt HACCP (Ehiri et al. 1995).

Wilson et al. (1997) reports some disadvantages associated with HACCP. HAACP adoption represents a considerable financial burden especially for small businesses. Taylor (2001) argues that small companies are considered an essential part of the economic development in most countries. In the UK, small companies represent 99% of all food operations, offering jobs to 50% of the work force and a 38% contribution to turnover. A glance over these percentages warrants the concerns over the food safety practices, and systems applied in that sector. Taylor (2001) also noted that HACCP implementation in small operations proved to be mediocre. Small companies are lacking motivation to adopt HACCP. If they apply, it is due to compliance with legislation not persuasion (Morrison et al. 1998; Taylor 2001).

Likewise keeping documents and records is basic to HACCP, but this practice is not sufficient, as they can be faked. Moreover, watching all the practices of staff at one time is impossible, especially in the catering industry which has multiple functions. For small business, HACCP is considered a complicated system (Hilton 2002), described as 'bureaucratic nightmare' (Taylor and Taylor 2004). Taylor (2001) explains the impediments that confront small businesses in their implementation of HACCP, and she also reports on the 'theoretical benefits' they can gain. Taylor and Kane (2005) investigated how HACCP could be simplified for SMEs. They developed a tool kit for HACCP implementation, finding that problems 'can be partially helped by providing simplified documents or streamlined verification methods, but only in an overall context of training and support that addresses the primary problem – that of the SME's basic lack of understanding of the HACCP approach' (Taylor and Kane 2005: 837). Worsfold (2006) reports on the experience of assisting small fast food businesses through workshops to understand and adopt the Food Standard Agency (FSA/UK) guidance manual on HACCP. Finally, Adams (2002: 357) argues that 'HACCP is not a magic wand nor magic bullet. Even the best and the most

elegant HACCP plan is still prone to human error, and failed execution'. Sperber (2005a: 514) observes that 'food safety is not synonyms with HACCP', as 'Food safety is HACCP plus prerequisite programs' and 'Farm to Table Food Safety' should be stressed rather than 'Farm to Table HACCP'.

A number of studies have been conducted with respect to the application of HACCP to the foodservice industry. Jones (1983) and Farkas and Snyder (1991) both identified how this might be applied to catering, and O'Donnell (1991) describes its application in a specific firm. Eves and Dervisi (2005) undertook a detailed study of HACCP in seven different types of foodservice outlet, identifying that compliance with regulations was the main motivation for adopting it.

Quality assurance

Quality assurance (QA) is built on the principle 'get it right first time every time'. More is invested in assurance costs, which should ensure a significantly greater decline in internal and external failure costs.

With regard to the business environment, most employees can easily identify what the business is but may have a very wide range of views about the most important aspect of that business. Quality can be brought to the forefront of their thinking by an overt use of the word from the moment of recruitment, right throughout the induction period and during any on-the-job training. Since this concept may also be consistent with the image the operation wishes to create in the consumer's mind, it can become part of an advertising slogan. This emphasis on one feature of the operation can then become central to the shared value system of the organization, whereby management praise high-quality performance; promotion or bonuses are seen to be relative to the quality of work done; the physical resources, such as equipment and work environment, provide the necessary tools to achieve quality and are of high quality themselves; and so on. It will be difficult for management to convince their work force of the need for quality front-of-house if their changing rooms are poor, their work clothes ill-fitting, and management do not appear to care about time-keeping, personal appearance and standards. Both management and staff can therefore help to set standards by behaving as role models, thereby contributing to the cultural climate.

In the hotel sector, a number of studies have considered how the industry has gone about adopting a quality management programme. Walker and Salameh (1990) assessed the impact

of the American Hotel and Motel Association sponsored QA programme, finding that hotels with QA had higher employee satisfaction and lower labour costs than hotels without QA. Breiter et al. (1995) investigated how Bergstrom Hotels had implemented their quality programme. Lockwood et al. (1996) report on quality management in six hotels, and Harrington and Akehurst (1996) survey hotel managers to investigate their quality management practices. Baldacchino (1995) reported on an in-depth study of total quality management (TQM) being applied in a single property. Hsieh and Hsieh (2001) research the role that job standardization has in delivering service quality.

Quality circles

As well as these general principles aimed at creating the appropriate climate in which quality can thrive, there is a particular technique that is meant to result in total commitment to the idea – namely the quality circle. A quality circle has been described as 'a group of four to ten volunteers working for the same supervisor who meet once a week, for an hour, under the leadership of the supervisor, to identify, analyse and solve their own work-related problems' (Robson 1983: 8). The typical features of such circles are that they are entirely voluntary, intensely practical and unbureaucratic. But there is widespread confusion about both the objectives and the appropriate format of quality circles in the USA and the UK. Originally modelled on circles developed in Japan, certain features of Japanese work ethics and culture do not exist in the West. For instance, Japanese workers are very loyal, expect to work for the same employer for their lifetime, exhibit a group-based work ethic and are prepared to join in many company-organized activities, including quality circles, outside their normal working hours.

On the basis of the Japanese model, it has been proposed that the growth and development of the circles depends entirely on the employees and is not dictated by the organization. The way in which each circle works should be as follows:

- Originate list of problems by brainstorming;
- Reject those problems outside own work area;
- Select those problems that are possible to solve;
- Rank problems in priority order;
- Analyse the problem;
- Collect relevant data;
- Solve problem;
- Sell this solution to management.

This approach, however, often has had only mixed results (Jones and Merricks 1994). The UK has a very different labour relations and industrial climate to Japan. In particular, by involving employees in a more open and participative style of management, employee expectations may be raised, but frustration may set in when these expectations are not met. Because of this, it may not be practical to think of quality circles as a long-term approach, but one with relatively short-term and specific quality objectives.

The reported benefits of quality circles are numerous. Most importantly, they change attitudes within the organization: staff are better motivated, supervisor gain confidence, problem solving is more competent, communication at all levels is improved and there is the creation of a problem-solving ethic rather than blame-shifting ethic. As well as these unquantifiable results, organizations have found that the solutions that circles generate can in some cases save them thousands of pounds per year. And a better motivated work force has resulted in less absenteeism and lower rates of staff turnover.

These reported benefits have also caused some confusion as to the role that circles play. In Japan and as described above, quality circles are all about solving problems and issues broadly related to quality. The 'side effects' of improved work relations are largely taken for granted. In the West, however, quality circles have sometimes been formed with the intention and objectives of improving work relationships. Such objectives should be viewed as possible, but quite separate and distinct from the quality issue. The use of circles to effect such changes at work are in effect using them as a devise to modify organizational culture and as such they require even more support, commitment and depth than the QC model described above. In this context, circles should always be viewed as a long-term device since cultural shifts cannot take place in the short term unless very great external forces for change exist.

Total quality management

A significant development of the 1980s was the emergence of the concept of TQM. The strategy is entirely customer driven and its holistic approach is adopted with an almost missionary zeal. TQM is a way of organizing and involving the whole organization, every department, every activity, every single person at every level. Soriano (1999) researched the application of TQM to hotels in Spain, whilst Breiter and Bloomquist (1998) reviewed TQM in American hotels.

Jones and Riggott (1992) proposed that a TQM strategy in the hospitality industry involves a number of key steps. Whilst this includes some of the features of the QC and QA strategies, TQM differs from these in a number of ways. First, it is holistic and involves the whole organization. Secondly, senior executives play a key role in leading the quality drive and communicating the quality message. A further key aspect is employee empowerment which involves staff more actively in the decision-making process. While it can be thought of as allowing employees to do something about quality defects as they notice them so that organizations can continuously correct their performance, it encompasses more than that. Employees at all organization levels should be allowed to make decisions (which should be monitored) within clearly defined parameters in order to free up their superiors for their tasks. Developing the appropriate organizational culture and a concomitant leadership style are fundamental to the development of TQM in line with the requirements of the effective introduction and reinforcement of any major organizational change. Because of this it can take up to five years to get the system up and running, and many organizations give up before they have achieved their goal.

Continuous improvement

In services especially, TQM has tended to become enshrined as *the* 'best practice' in quality management, partly through the accreditation such as European Foundation for Quality Management (EFQM) and recognition schemes such as Malcolm Baldrige. However many firms, notably in manufacturing, are highly effective in managing their quality, without adopting TQM, through CI. CI has many similarities to TQM, but is more flexible in its philosophy and approach. Originating in Japan as *kaizen*, CI is 'a strategy to continually, and incrementally change and improve all operational components: equipment, procedures, skills, throughput time, quality, supplier relations, product and service designs, and so on' (Lowson 2002: 84).

Lowson (2002: 85) identifies 'ten guiding principles' of CI. These are:

1. Process driven across all organizational functions
2. Total employee involvement
3. Good labour-management relations
4. Effective leadership and cross communication
5. Adaptability to changing environment

6. Visibility and control of all processes
7. Reducing waste
8. Customer orientation
9. Standardization
10. Quality awareness and QC

External accreditation of quality

Whichever of the quality strategies a firm adopts, it may also seek to gain recognition or accreditation of quality through any one of a number of schemes. In many cases, firms use these schemes as one of the ways to upgrade and improve their approach to quality, since they provide a specific objective for management and employees to work towards. The cost of introducing such quality schemes is hard to quantify. Quality systems generally result in considerable savings in staff time and wastage. There is usually an ongoing requirement of at least one high-level full-time quality manager with administrative support, and time will have to be allocated by many other staff to operate this system. In general, in the long term the benefits would outweigh the costs. The implementation of a quality scheme is best carried out by initially briefing senior managers on what is involved in introducing quality systems and then launching the scheme as a pilot scheme focusing on a particular area of operations. The pilot scheme should have clearly definable goals and should maintain a high profile with regular reports being issued so that all members of the institution are aware of what progress is being made. Regular briefing sessions will be required in order to maintain a high profile of the project, so that staff realize the importance of the introduction of quality. When the initial project has been completed, other areas can be targeted and the programme rolled out.

Some of the major schemes being currently used in the hospitality industry are BS 5750 (ISO 9000), the EFQM Scheme, the Malcolm Baldrige Award, and six sigma. These are briefly described below.

BS 5750 (ISO 9000)

The British Standard BS 5750 was initially published in 1979 to define to suppliers and manufacturers what is required for a quality-orientated system and later developed into the international standard ISO 9000. Although originally devised for manufacturing industry, it was quickly adopted by service organizations, including financial services, foodservice, health

care and educational establishments. The standard is very process orientated, relying heavily on fully documenting and controlling all aspects of 'production processes.' The standard covers the definition and description of a wide range of operational activity, as illustrated in Table 13.4. Contract foodservice firms particularly are adopting these standards, largely because their clients specify that suppliers should be so accredited. ISO 9000 was researched by Ingram and Daskalakis (1999) in their study of hotels in Crete. Nield and Kozak (1999) investigated the gained benefits of ISO 9000 in 34 hospitality operations in UK.

Table 13.4 BS 5750 specifications

1	Management responsibility.
2	Quality system principles.
3	Internal quality auditing.
4	Quality-related cost considerations.
5	Quality in marketing including contract review.
6	Quality in specification and design (design control)
7	Quality in procurement (purchasing control).
8	Quality in production (production process control).
9	Control of production.
10	Material control and traceability (product identification and traceability).
11	Control of verification status (inspection and testing).
12	Product verification (inspection and testing).
13	Control of measuring and testing
14	Control on non-conformity of product.
15	Corrective action.
16	Handling of post-production functions (handling, storage, packaging and delivery).
17	After-sales servicing.
18	Quality documentation and records (document control).
19	Quality records.
20	Personnel (training).
21	Product safety and liability.
22	Use of statistical methods.
23	Purchaser supplied products.

European foundation for quality management scheme

The EFQM was formed in 1988. A TQM model for self-appraisal was issued in 1992. The scheme allows institutions to introduce a TQM scheme which is self-assessed for the purposes of obtaining a quality award. However, a representative of the foundation may request a site visit to validate the information given in the self-assessment. The scheme is not focused on products, customers or services but is a total quality scheme which attempts to address all aspects of quality within an organization including:

- Leadership
- Policy and strategy
- People management
- Resources
- Processes
- Customer satisfaction
- People satisfaction
- Impact on society
- Business results

Each of the categories can be further split down, describing the major issues to be addressed. Camison (1996) researched the application of the EFQM to hotels

Malcolm Baldrige National Quality Award

The Malcolm Baldrige National Quality Award (MBNQA) originated in the United States in 1987 as a government-backed accreditation programme (Ghobadian and Woo 1996). Ghobadian and Woo (1996: 23) describe it as 'an audit framework which enables organizations to perform internal self-assessment and identify the areas that need improvements and the values they need to enact in order to attain a culture and operating system capable of attaining CI and customer satisfaction'. The award is regarded as 'standard for performance excellence' (Lau et al. 2004: 705).

The MBNQA criteria are based on seven dimensions that are used to assess the performance of the organization. The total score is 1000 points distributed as:

1. Leadership (95 points);
2. Information and analysis (75 points);
3. Strategic quality planning (60 points);

4. Human resources development and management (150 points);
5. Management of process quality (140 points);
6. Quality and operational results (180 points); and
7. Customer focus and satisfaction (300 points).

Annually, there are two champions in each of three classes – manufacturing, service and small business. Evaluation of the candidates includes examining their documents, besides on-site visits to their operations. Garvin (1991: 80) proposes that the award 'has become *the* most important catalyst for transforming American business', just a few years after its introduction. However, Leonard and McAdam (2002) observe that some of the Quality Gurus – Deming and Crosby – are less convinced about its impact.

The Ritz-Carlton hotel company won the MBNQA in 1992 and 1999 (Bacon and Pugh 2003). Ritz-Carlton remains the pioneer and single hospitality establishment to achieve this. It is also the first and only service organization to win the award twice (Cai and Hobson 2004). In 2000, the Canadian company Delta Hotels acquired the National Quality Institute's (NQI's) 'Canada Awards for Excellence' (Pallet et al. 2003).

Six sigma

Six sigma is not new – it originated in the1980s (Klefsjö et al. 2001). It was developed by Motorola (Antony 2006; Behara et al. 1995). It can be defined as a 'business improvement strategy used to improve profitability, to drive out waste, to reduce quality costs and improve the effectiveness and efficiency of all operations or processes that meet or even exceed customers' needs and expectations' (Antony and Coronado 2001: 119). Specifically it is a '[statistical] term that refers to 3.4 defects per million opportunities (DPMO), where sigma is a term used to represent the variation about the average of any process'.

Behara et al. (1995: 9) observe that six sigma is an echo of Crosby's zero defects programme; however, six sigma is more of 'possible near-perfection'. Six sigma works not by chasing defects but by preventing their possible occurrences (Antony 2006). He identified that business strategy linked to six sigma was the major critical success factor for implementing the programme successfully. Antony (2006: 244) also notes that six sigma is very like TQM but argues it is better at 'achieving measurable and quantifiable financial returns to the bottom-line of an organisation'.

There are many advantages that businesses can gain from six sigma implementation: enhanced inter-departmental cooperation, promotion of proactive culture rather than reactive one, reduction of costs, reduction of variability, and more sound decisions can be rendered by management as it is based on facts (Antony 2004). Nonthaleerak and Hendry (2006) have reviewed literature on six sigma, identifying more than 200 studies. In the hospitality industry, Starwood has a global six sigma strategy – '[it] has helped increase our financial performance by improving the quality and consistency of our guests' experiences as well as those of our internal customers' (www.starwoodhotels.com 2007). The Intercontinental Hotels Group PLC (IHG), with the assistance of Xerox, adopted six sigma to overcome IT problems, thereby achieving cost savings of $1.2 M, and increasing customer satisfaction (www.xerox.com 2007).

Quality measurement techniques

There are three main methods used by the hospitality industry to monitor quality – mystery guest programme, customer satisfaction survey and quality audit. Each of these will now be explained and critiqued.

The mystery shopper or mystery guest

The 'mystery' customer, shopper or guest technique is used by some hospitality companies to monitor service standards. Mystery shoppers are trained personnel who buy a meal as a member of the public (i.e. without announcing themselves) or stay in a hotel and report the standard of service to head office. This procedure aims to evaluate the performance of the retail and service units within the firms (Finn and Kayandé 1999), to ensure consistent process and procedures (Wilson 2001). It was started in the 1940s, but became a sophisticated technique by the 1980s (Calvert 2005). It may be called 'secret, phantom, or anonymous consumer shopper' (Finn and Kayandé 1999). The financial sector was the first client of the mystery shopping service, followed by fast food chains and hotels (Erstad 1998). The volume of the mystery shopping business in the UK was estimated to be £20–30 million in 1996, with many sectors benefiting from it; financial services, governmental departments, leisure and travel and transport (Wilson 1998b).

Although the mystery shopper programme is used on a wide scale, there is little published about its details and stages (Wilson 1998a). Finn and Kayandé (1999) found that mystery

shopping is more cost effective than customer surveys, considering the enhanced quality of the information it provides with regard to service quality, yet it is estimated to cost 10 times the costs of customer surveys. A key feature of the mystery shop is that it is carried out deliberately, with the aim to observe, evaluate and report. This is not present in customer surveys, which ask customers about their perceptions of an experience that has ended (Finn and Kayandé 1999).

There is usually a precisely laid out shopping or dining procedure, and observations may be reported on a standard form. Stopwatches may be used to measure the timing of service, and the food temperature may be determined with a probe thermometer. The steps needed to conduct the mystery shopper programme are demonstrated in Figure 13.1. The disguised shopper evaluates the physical facilities and the environment (tangibles) and also, most importantly, the shopping interaction (intangibles). Then s/he completes the evaluation form allowing the identification of the shortfalls and strengths in the performance of the shopped outlet (Baggs and Kleiner 1996; Finn and Kayandé 1999). The number of visits required per business unit is determined according to the objective of the evaluation and what is to be measured. Finn (2001) cites that 40 visits per unit is needed to benchmark service quality, and 10 visits for benchmarking a store environment may be needed. Consequently, that affects the costs associated with the scheme.

The mystery shopper programme may be managed in-house or outsourced to specialist firms. The use of internal shoppers may offer some advantages in terms of money savings and the high degree of the internal shoppers' knowledge of the company's goals and products. This, however, has its shortfalls, namely the possibility of unmasking the identity of the mystery shopper. Other drawbacks are the subjectivity of employees and the resistance of employees of such practice, not liking to be shopped by colleagues (Erstad 1998). The rapid growth in service organizations typically led to the use of external shoppers, as there were not enough internal shoppers to cover the increasing volume of business to be shopped. However, the shortcomings of outsourcing are the efforts and resources needed to gear up the external shoppers to perform the visits and the impact of shoppers' turnover on reliability (Erstad 1998).

To create an evaluation form, it is recommended to use the contributions of the front-line employees, which can be extracted through focus groups or by interviewing them. This helps to involve the staff in the programme and increases their sense of responsibility. Questions should be simple and open ended, focusing on the description of the process. The evaluation form

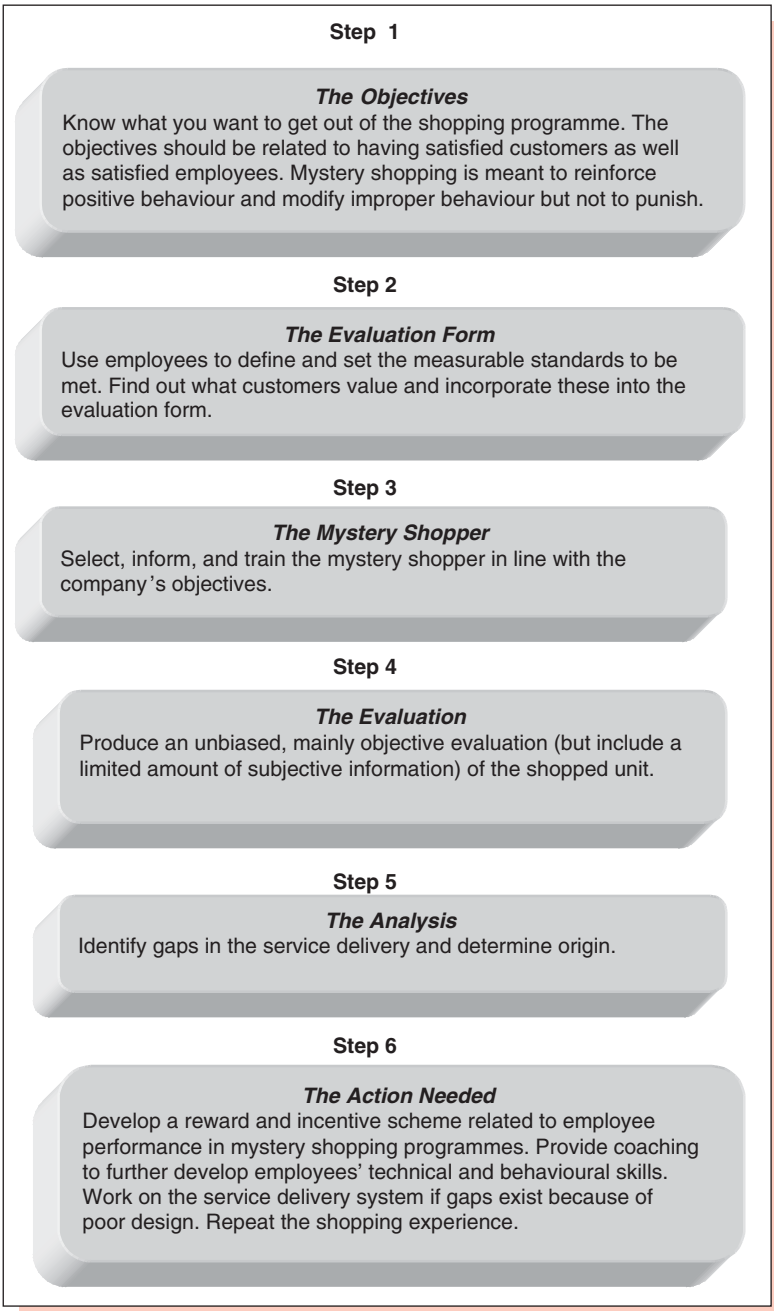

Figure 13.1
The mystery shopping programme steps (*Source*: Erstad 1998).

can be produced in the form of a checklist, a service rating (which places value on overall standard) of service or a performance index, which gives points for certain actions (Erstad 1998).

The results of the visit can be produced in the form of reports with each report having a special focus matching the interests of its audience, such as employees, managers, top management, customers and suppliers (Wilson 1998a). Each may be interested in different ways and act upon the findings differently. All stakeholders need to be informed of the improvements adopted as a response to the findings (Erstad 1998). Two studies in hospitality were conducted in the United States. Beck and Miao (2003) investigated how the mystery shopper is operated and hotel senior management perceptions of the effectiveness of the scheme in assessing the service quality. Beck et al. (2004) aimed at developing and assessing the mystery shopper scheme at a U.S. Air Force base.

The threefold outcomes of the mystery shopping visits are as follows:

Act as a diagnostic tool: It can be used to highlight the main components of the service and the weakness areas that need to be remedied. This is revealed from the perspective of customers not as a result of a managerial assessment (Wilson 1998a).

To encourage, develop and motivate: The results of mystery shopping are used to appraise the service staff, to acknowledge those with high accomplishment, whether individuals or teams, and to reward them. This requires a systematic communication between the management and the staff, as they must be informed on what attributes they would be assessed and consequently rewarded (Wilson 1998a; Erstad 1998). This sends a message to the service staff that the programme is not about fault finding nor simply rewards for managers (Baggs and Kleiner 1996). In some instances, the feedback from the visit can be declared upon completion, before the shopper leaves the unit. Immediate reward can be given to the deserving staff member, serving to ground the seriousness of the programme (Erstad 1998). From the motivation perspective, Wilson (1998a) claimed that mystery shopping has limited impact in the long run. Although the service performance level rises with the initiating of the programme, it gradually becomes steady. To overcome this, some organizations would start a new programme, whilst others would halt it.

Assess competitiveness: Mystery shopping is used to benchmark the competitors and can be used to benchmark other firms in other lines of business. This may inspire new standards or help develop better standards (Finn and Kayandé 1999).

Employees can perform mystery visits to competitors. This approach provides an evaluation of the competitors and alerts the employers to the strengths and weaknesses of the competitors, and develops a sense of criticism in them (Erstad 1998).

However, mystery shopping is not without criticism. Covert observations as applied in the mystery shopper programme may worry some people and raise ethical concerns (Slack and Rowley 2001). Wilson (2001) described the use of mystery shoppers as 'using deception'. He mentions that observing people without notifying them is considered a privacy violation, so the service staff should be informed of the mystery programme. According to Shing and Spence (2002), mystery shopping is a means of competitor intelligence gathering, although it is practiced 'on the edge of the public domain' as information is readily available for whoever seeks it. But they express ethical concerns about dishonesty, misrepresentation and unapproved observation. Wilson (1998a) warns that when shopping at competitors, some ethical matters must be considered. A purchase is to be done not just an enquiry, and enquiries should be simple and not meticulous ones. Other ethical concerns may include assigning shoppers to evaluate interactions they do not approve of, for example, shopping a casino or a bar (Calvert 2005). The world Association of Opinion and Marketing Research (ESOMAR) provides guidelines and instructions on the usage of the mystery shops and introducing them in business (Wilson 2001).

There are a number of advantages of this approach to quality measurement. Finn (2001) argues that the use of customer satisfaction surveys and SERVQUAL in businesses classified as 'hit-and-run', such as fast food and petrol stations, is not practical – the mystery shopper is more suitable as a measurement tool in such operations. Roberts and Campbell (2007: 59) claim that using the mystery shopper 'have been shown to produce accurate and stable results even with a small number of observations'. They argue that this approach compared to other means of customer surveys is heedful, and its deliberate observation is a distinctive feature. Wilson (2001) suggests that 'only' mystery shopper is able to evaluate the service performance against the service standards, especially the factors related to the staff behaviour. Although Finn (2001) admits it is expensive to conduct a mystery shopper programme, he claims it as 'cost-effective tool' to obtain 'reliable' assessment.

The major disadvantage of a mystery shopper programme is the sample size. Judgements cannot be based on one or two visits to an operation as this is not valid statistically (Calvert

2005), and management cannot rely on such information to make decision (Finn 2001). Reliability is very crucial in a mystery shopping programme, as the outcomes of such a programme would provide management with insights of what requires their attention.

To increase its reliability, the shoppers must be selected carefully and be provided with the proper amount and quality of training (Wilson 1998a). Such training may be done through video tapes, photographs and simulations (Wilson 1998a). The shoppers' skills of data gathering can be improved through training in the situations they will experience. Data-gathering training concentrates on the attributes to be observed, and the keeping and recording of data which cannot be done while carrying out the visit itself (Calvert 2005). Training may also include memory training and testing; whilst technology may help with this, as the use of 'aides-memoir' may be allowed to help in recording data (Wilson 1998a). The service situation involves two parts: the service provider and the customer. The quality of that experience depends on the two sides. The personal attributes of the mystery shopper may have an influence over the service interaction. However, this should not represent a problem as the rule is to treat all customers the same regardless of their characteristics (Wilson 1998a).

Customer satisfaction surveys

Customer satisfaction has been heavily studied with more than 15,000 published papers in trade and academic journals since 1960. However, it remains an 'elusive concept' (Ekinci 2004). Baggs and Kleiner (1996) argue that customer satisfaction could determine the success of any company. Thus, measuring customer satisfaction is very crucial as, based on the outcomes of the evaluation, the company can identify which areas should be developed and compare its performance against its competitors. Competition is a major driver behind the interest in customer satisfaction (Fečiková 2004); the growing globalization and relationship marketing are also contributing to such pursuit (Veloutsou et al. 2005). Ensuring customer satisfaction is the means to stand out from competitors and to achieve long-term profitability. However, not having highly competitive market does not dictate that customer satisfaction is not a major concern (Jones and Sasser 1995). Companies are obliged to satisfy their customers, so customer satisfaction can be seen as 'the glue that holds various corporate functions together and directs resource allocation' (Peterson and Wilson 1992: 61).

Pizam and Ellis (1999) suggest there are nine salient customer satisfaction theories:

1. Expectancy disconfirmation;
2. Assimilation or cognitive dissonance;
3. Contrast;
4. Assimilation–contrast;
5. Equity;
6. Attribution;
7. Comparison-level;
8. Generalized negativity; and
9. Value-precept.

However, the expectancy disconfirmation theory of Oliver (1997) is the most adopted one (Pizam and Ellis 1999).

Oliver (1997: 13) defined satisfaction as 'the consumer's fulfilment response. It is a judgement that a product or service feature, or the product or service itself, provided (or is providing) a *pleasurable* level of consumption-related fulfilment, including levels of under- or overfulfilment'. He notes that 'satisfaction is a post usage phenomenon, purely experiential and results from a comparative process'. Understanding the way customers form their satisfaction helps to measure it. Oliver (1997) developed a model based on the expectancy disconfirmation in which a comparison between performance and expectations yields objective disconfirmation, leading to the formation of subjective disconfirmation and that result in satisfaction.

Measuring customer satisfaction can be done through direct methods such as customer satisfaction surveys or indirect methods like customer re-purchase profiling (Adebanjo 2001). Other market research techniques that can be used are:

1. Customer satisfaction surveys methodologies (Fečiková 2004); mail surveys, telephone surveys, call back and survey through personal contact (Babbar 1992);
2. Focus group (Fečiková 2004; Babbar 1992);
3. Standardized packages for monitoring customer satisfaction (Fečiková 2004);
4. Evaluation and suggestion slips (Babbar 1992);
5. Delphi or nominal group method (Babbar 1992);
6. Various computer softwares (Fečiková 2004).

Using different ways to collect the customer satisfaction information – such as telephone, mail or personal contact – may influence the level of reported satisfaction, with personal and telephone surveys raising the satisfaction level by almost

10–12% than self-administered surveys (Peterson and Wilson 1992). Response to mail surveys is dependent on the memory of the respondent and even if the time lapse between the service encounter and the survey is small, this diminishes its accuracy and reliability. Other problems associated with mail surveys are non-response rates as generally mail surveys yield the lowest response rates (Lin and Jones 1997). To overcome this, a reply paid envelope may induce respondents to participate in the survey. Cost and multiple mailings are other problems associated with this type of survey, and this may explain why mail surveys are not as popular as they were (Babbar 1992). There are limitations and problems with every technique; selecting the technique is not the sole problem; of more importance is that they are 'being used infrequently and often at arbitrary points in time by management' (Babbar 1992: 41).

Danaher and Haddrell (1996) identify that there are more than 40 different scales to measure customer satisfaction for products or service. Scales used in customer satisfaction surveys are classified into two main categories: single and multi-item scales; other scales used in consumer research include 'rank order, constant sum, graphical, Likert, semantic differential, paired comparison and staple scales' (Danaher and Haddrell 1996: 6). The scales can be sorted in three classes:

- Performance scales – poor, fair, good and excellent;
- Disconfirmation scales – worse than expected to better than expected;
- Satisfaction scales – very dissatisfied to very satisfied.

Lin and Jones (1997) stated that there are four methodological issues related to the customer surveys.

1. *Sampling structure*: the sample needs to be representative of the population of the customer, so the way the sample is selected is very crucial. The sample size, target population and the segment of the target population are all factors to be considered when sampling.
2. *Enhancing quality of survey data and tool*: timeliness, completeness, usability and accuracy are the crucial characteristics of data quality. Response error and procedures error are two kinds of errors associated with measurement using customer satisfaction surveys. Improving the quality of the surveys instrument can be done through eradicating scales which demonstrate undesirable psychometric qualities.
3. *Non-response*: this is common to all customer surveys. Low response rates diminish the validity and generalizability of a

survey. To improve response rates, incentives can be offered to respondents, and if that does not help, 'post-survey adjustments' can be adopted.

4. *Reporting and interpretation*: customers can be segmented into certain clusters and that should be considered when designing surveys. Multi-item scales help to cover broad concepts and increase the reliability but should be analysed carefully. The time lapse between the customer experience and the survey makes it hard to rectify failures identified by the customers. Applying wrong statistical analysis yields false results that may mislead management.

Peterson and Wilson (1992: 62) note that 'virtually all self-reports of customer satisfaction possess a distribution in which a majority of the responses indicate that customers are satisfied and the distribution itself is negatively skewed'. They identified this as a 'striking characteristic' and pointed out reasons for this. First, it may be truly the perception of the customers. Second, satisfaction may have a distribution different than the normal distribution, due to the antecedents of satisfaction. Third, the customer satisfaction distribution may be influenced by the 'artifacts of the research methodologies', that is the instruments used to conduct the research. Peterson and Wilson (1992) also examined several factors that may cause this, such as response rate bias, data collection mode bias, question form, question context, measurement timing, response styles and mood. They concluded that 'unless viable unobtrusive measuring devices become available, it is probably not possible to measure "true satisfaction". True satisfaction is probably so intertwined with both intrapersonal characteristics and methodological considerations that it may never be possible to disentangle them' (Peterson and Wilson 1992: 69). Lin and Jones (1997) also expressed concerns over the usage of the customer satisfaction surveys such as disposition to express a high degree of satisfaction, deficiency of satisfaction scales, the incremental employment of surveys and customers reporting being over-surveyed.

Customer satisfaction surveys have been compared to the mystery shopper. Wilson (2001) notes that the customer satisfaction surveys are implemented to measure the results of the service encounter, while mystery shopper measures the process. He conducted interviews with four service organizations that reported that they cannot depend solely on customer satisfaction surveys to discover and rectify failures in the service delivery process as customer satisfaction surveys do not yield adequate information. Interviewing service managers revealed

that they stressed that customer satisfaction levels remain relatively constant and therefore they are not utile (Wilson 2001).

Rust and Oliver (1994) propose that quality and satisfactions have different meaning. While some researchers consider that satisfaction is antecedent to quality, there is another group who argue that service quality is antecedent to the satisfaction, while others see that 'there is a non-recursive relationship'. Oliver (1997) cites some conceptual differences between quality and satisfaction:

- *Experience*: quality perceptions do not require consumption, while satisfaction is based on experiencing the service.
- *Attributes and standards*: the elements inherent in quality judgements are quite particular, whether they are cues or properties. Satisfaction judgements, however, can be brought about from any factor, quality related or not.
- *Expectations and standards*: expectations for quality are founded on ideals or 'excellence' perceptions; satisfaction judgements are built on many non-quality factors: needs, equity or fairness.
- *Cognition or affect:* while quality judgements are principally cognitive, satisfaction is made up of cognition and affect.
- *Conceptual antecedents*: 'Quality has fewer *conceptual* antecedents, although personal and impersonal communications play a major role'. Satisfaction is affected by a 'number of cognitive and affective processes including equity, attribution and emotion' (Oliver 1997: 179).
- *Short- or long-term temporal focus*: quality endures over longer periods; quality is linked to a certain product or service in a '*global sense*', while satisfaction is '*experience specific*'.

Both customer satisfaction and service quality are based on the comparison between pre-consumption expectations and post-consumption perceptions (Oh and Parks 1997). Oh (1999) examined the expectancy-disconfirmation principle in SERVQUAL and customer satisfaction surveys. He argues that expectancy and disconfirmation in SERVQUAL aims to 'describe' the perceived service quality, whereas in the customer satisfaction, it tries to 'explain and theorize' a consumption process. Oh and Parks (1997: 44) state that the distinctive difference between the two constructs is that customer satisfaction is seen as 'a result of customers' *subjective* comparison between expectation and performance, while SQ is viewed as the researcher's *objective* comparison between the two components'. However, measuring expectations subject-ively in the expectancy disconfirmation model proved to be more

valid than in the objective measurement of SERVQUAL (Oh 1999). Ekinci (2004) investigated the relationship between customer satisfaction and service quality, attitudes, self-concept congruence, desires congruence and behavioural intentions. His findings showed that service quality evaluation results in customer satisfaction, a reverse relationship was not sustained and the overall attitude is affected by customer satisfaction rather than service quality.

Quality audits

Quality audits can be used either to test hypotheses or substantiate hunches about the organization's service effectiveness, or they can be used as part of a total quality improvement programme. An audit has been defined by Juran and Gryna (1980) as 'independent evaluation of service quality to determine its fitness for use and conformance to specifications'. As we shall see, such an audit attempts to overcome the problems we have identified above by ensuring objectivity through independence from the organization and by expert and articulate evaluation of the experience through observation and participation. Prior to any such audit taking place, management and auditor will discuss and agree the objectives, methodology, scheduling and reporting procedures of the study.

A quality audit is a systematic appraisal of a service process. A checklist of items is drawn up and compared by the author with each aspect of the service. It is a quick and effective way (often the only practicable way) to get an impression of service quality, and it is therefore used by many types of service organizations. Audits may be conducted either by in-house personnel or by specialized consultants. There are two main types: auditing by department and customer perception audits.

In the case of hotels, Haywood (1983) suggests that the nature of the service is so complex that an audit cannot be made of the entire service experience. Therefore, it is necessary to establish the objectives of the audit. A commonly used method is Pareto analysis, in which every possible problem is listed and then ranked in their order of importance. A second technique, advocated by Wyckoff (1984) is 'fishbone' analysis which helps to identify cause and effect.

Once the objectives are established, the next step is for the auditor to adopt the consumer's frame of reference. This is done by familiarization with the profile of typical customers in terms of their age, background, occupation, income and so on.

From this, some judgements can be made concerning their life style and likely attitudes towards the service provision. Some attempt will also be made to assess the purpose and importance of the service, that is for instance in a hotel stay for pleasure or business purposes.

As with other forms of measurement, there are advantages and disadvantages with audits. Jones and Merricks (1994) argue that the advantages are:

- They are consumer orientated;
- Auditors take a consumer's perspective but can explain themselves to management in a way that management can understand;
- The audit is independent and therefore objective;
- It provides a wealth of detail;
- The data collected is actionable, that is to say management can act to correct below-standard performance.

The disadvantages are (Jones and Merricks 1994):

- In terms of statistical sampling, an audit does not provide any valid evidence of actual guest's level of satisfaction;
- There may be bias on the part of the auditor;
- The auditor's experience is unique and may provide misleading evidence;
- An audit can only be carried out infrequently due to its complexity and cost;
- The detail of the audit may result in results that do 'not see the wood from the trees'.

Audit by department is mainly concerned with the way in which the service conforms with management's perception of the operation, that is with gaps 1 and 2 of the service provision model of Brogowicz et al. (1990). Audit checklists therefore tend to emphasize the departmental nature of the foodservice outlet. For example, they may involve a detailed study of kitchen hygiene or an evaluation of the behaviour, dress and attitudes of service personnel. If access is regarded as an auditable issue, it will tend to be associated with separate departments, for example the grounds and car park, or disabled facilities at reception.

An organizational quality audit is defined as 'an examination of an organization's arrangements to control and ensure the quality of its products or services' (Øvretveit 1993: 75). Quality audits are conducted to help organization to compete in markets and as evidence that they are pursuing quality (Øvretveit

1993). Evaluating the effectiveness of the QA endeavours and ensuring the compliance with quality standards such as ISO 9000 have given quality audits its salient task (Karapetrovic and Willborn 2000).

According to Fuentes (1999), audits are known as 'performance protocols'. They try to measure numerically the performance of the professional during a specific process. Fuentes (1999: 231) regards this as implementing the 'Acceptable Levels of Quality' and 'the ultimate aim of audits is not to exceed the minimum requirements, that is to say, at no time is it intended is improve the quality of the processes'. This is contradictory to Karapetrovic and Willborn (2000: 679) who suggest that 'many authors argue that one of the primary purposes of audits is continuous improvement'.

Summary and conclusion

This chapter has reviewed five main ways in which quality can be managed in foodservice operations. Moving on from QI, through QC and QA, to TQM and CI, these strategies increase in complexity and sophistication. Organizations that have adopted a strategic approach to quality can also seek external recognition of their quality. The industry has consistently adopted certain ways of measuring quality, through mystery guest, customer surveys and quality audits, albeit these are increasingly being questioned as the most effective approach.

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References

Adams, C. E. (2002) Hazard analysis and critical control point-original "spin", *Food Control*, 13, 6–7, 355–358

Adebanjo, D. (2001) Understanding customer satisfaction – a UK food industry case study, *British Food Journal*, 103, 1, 36–45

Akbaba, A. (2006) Measuring service quality in the hotel industry: a study in a business hotel in Turkey, *International Journal of Hospitality Management*, 25, 2, 170–192

Anand, K. N. (1997) Quality: an evolving concept, *Total Quality Management*, 8, 4,195–200

Antony, J. (2004) Six Sigma in the UK service organisations: results from a pilot survey, *Managerial Auditing Journal*, 19, 8, 1006–1013

Antony, J. (2006) Six sigma for services processes, *Business Process Management*, 12, 2, 234–248

Antony, J. and Coronado, R. B. (2001) A strategy for survival, *Manufacturing Engineer*, 80, 3, 119–121

Azanza, M. (2006) HACCP certification of food services in Philippine inter-island passenger vessels, *Food Control*, 17, 2, 93–101

Babbar, S. (1992) A dynamic model for continuous improvement in the management of service quality, *International Journal of Operations and Production Management*, 12, 2, 38–48

Bacon, T. R. and Pugh, D. G. (2003) Ritz-Carlton and EMC: The gold standards in operational behavioral differentiation, *Journal of organizational Excellence*, 23, 2, 61–76

Baggs, B. C. and Kleiner, B. H. (1996) How to measure customer service effectively, *Managing Service Quality*, 6, 1, 36–39

Baldacchino, G. (1995) Total quality management in a luxury hotel: a critique of practice, *International Journal of Hospitality Management*, 14, 1, 67–78

Barker, R. L. (1990) SPC and total quality management, *Total Quality Management*, 1, 2, 183–196

Barnes, J. and Mitchell, R. T. (2000) HACCP in the United Kingdom, *Food Control*, 11, 5, 383–386

Beck, J., Lalopa J. and Hall, J. (2004) Insuring quality service: training mystery shoppers, *Journal of Human Resources in Hospitality and Tourism*, 2, 2, 41–56

Beck, J. and Miao, L. (2003) Mystery shopping in lodging properties as a measurement of service quality, *Journal of Quality Assurance in Hospitality and Tourism*, 4, 1/2, 1–21

Behara, R. S., Fontenot, G. F. and Gresham, A. (1995) Customer satisfaction measurement and analysis using six sigma, *International Journal of Quality and Reliability Management*, 12, 3, 9–18

Billy, T. J. (2002) HACCP – a work in progress, *Food Control*, 13, 6–7, 359–362

Breiter, D. and Bloomquist, P. (1998) TQM in American hotels: an analysis of application, *Cornell Hotel and Restaurant Administration Quarterly*, 39, 1, 26–33

Breiter, D., Tyink, S. A. and Corey-Tuckwell, S. (1995) Bergstrom hotels: a case study in quality, *International Journal of Contemporary Hospitality Management*, 7, 6, 14–18

Brogowicz, A. A., Delene, L. M. and Lyth, D. M. (1990) A synthesised service quality model with managerial implications,

International Journal of Service Industries Management, 1, 1, 27–45

Buttle, F. (1996) SERVQUAL: review, critique, research agenda, *European Journal of Marketing*, 30, 1, 8–32

Cai, L. A. and Hobson, J. S. P. (2004) Making hotel brands work in a competitive environment, *Journal of Vacation Marketing*, 10, 3, 197–208

Calvert, P. (2005) It's mystery: mystery shopping in New Zealand's public libraries, *Library Review*, 54, 1, 24–35

Camison, C. (1996) Total quality management in hospitality: an application of the EFQM model, *Tourism Management*, 17, 3, 191–201

Carman, J. M. (1990) Consumer perceptions of service quality: an assessment of the SERVQUAL dimensions, *Journal of Retailing*, 66, 1, 33–55

Cronin, J. J. Jr. and Taylor, S. A. (1992) Measuring service quality: a reexamination and extension, *Journal of Marketing*, 56, 3, 55–68

Cronin, J. J. Jr. and Taylor, S. A. (1994) SERVPERF versus SERVQUAL: reconciling performance-based and perceptions-minus-expectations measurement of service quality, *Journal of Marketing*, 58, 1, 125–131

Crosby, P. (1984) *Quality Without Tears: The Art of Hassle-Free Management*, McGraw-Hill: New York, NY

Crosby, P. B. (1979) *Quality is Free*, McGraw-Hill: New York, NY

Danaher, P. J. and Haddrell, V. (1996) A comparison of question scales used for measuring customer satisfaction, *International Journal of Service Industry Management*, 7, 4, 4–26

Davies, B., Baron, S., Gear, T. and Read, M. (1999) Measuring and managing service quality, *Marketing Intelligence and Planning*, 17, 1, 33–40

Ehiri, J. E., Morris, G. P. and McEwen, J. (1995) Implementation of HACCP in food businesses: the way ahead, *Food Control*, 6, 6, 341–345

Ekinci, Y. (2002) A Review of the theoretical debates on the measurement of service quality: implications for hospitality research, *Journal of Hospitality and Tourism Research*, 26, 3, 199–216

Ekinci, Y. (2004) An investigation of the determinants of customer satisfaction, *Tourism Analysis*, 8, 2–4, 197–203

Ekinci, Y., Prokopaki, P. and Cobanoglu, C. (2003) Service quality in Cretan accommodations: marketing strategies for the UK holiday market, *International Journal of Hospitality Management*, 22, 1, 47–66

Erstad, M. (1998) Mystery shopping programmes and human resources management, *International Journal of Contemporary Hospital Management*, 10, 1, 34–38

Eves, A. and Dervisi, P. (2005) Experiences of the implementation and operation of hazard analysis critical control points in the food service sector, *International Journal of Hospitality Management*, 24, 1, 3–19

Farkas, D. F. and Snyder, O. P. (1991) How to describe a food process for quality control, *Journal of Foodservice Systems*, 6, 147–153

Fečiková, I. (2004) An index method for measurement of customer satisfaction, *The TQM Magazine*, 16, 1, 57–66

Finn, A. (2001) Mystery shopper benchmarking of durable-goods chains and stores, *Journal of Service Research*, 3, 4, 310–320

Finn, A. and Kayandé, U. (1999) Unmasking a phantom: a psychometric assessment of mystery shopping, *Journal of Retailing*, 75, 2, 195–217

Fuentes, C. M. (1999) Measuring hospital service quality: a methodological study, *Managing Service Quality*, 9, 4, 230–239

Gagnon, B., McEachern, V. and Bray, S. (2000) The role of the Canadian government agency in assessing HACCP, *Food Control*, 11, 5, 359–364

Garvin, D. A. (1987) Competing on the eight dimensions of quality, *Harvard Business Review*, 65, 60, 101–109

Garvin, D. A. (1991) How the Baldrige award really works, *Harvard Business Review*, 69, 6, 80–93

Ghobadian, A., Speller, S. and Jones, M. (1994) Service quality: concepts and models, *International Journal of Quality and Reliability Management*, 11, 9, 43–66

Ghobadian, A. and Woo, H. S. (1996) Characteristics, benefits and shortcomings of four major quality awards, *International Journal of Quality and Reliability Management,* 13, 2, 10–44

Harrington, D. and Akehurst, G. (1996) An exploratory investigation into managerial perceptions of service quality in UK hotels, *Progress in Tourism and Hospitality Research*, 2, 2, 135–150

Haywood, K. M. (1983) Assessing the quality of hospitality services, *International Journal of Hospitality Management*, 2, 4, 165–177

Herbert, D., Curry, A. and Angel, L. (2003) Use of quality tools and techniques in services, *The Service Industry Journal*, 23, 4, 61–80

Heung, V. C. S., Wong, M. Y. and Qu, H. (2000) Airport-restaurant service quality in Hong Kong: an application of SERVQUAL, *Cornell Hotel and Restaurant Administration Quarterly*, 41, 3, 86–96

Hilton, J. (2002) Reducing foodborne disease: meeting the food standard agency's targets, *Nutrition & Food Science*, 32, 2, 46–50

Hsieh, Y-M. and Hsieh, A-T. (2001) Enhancement of service quality with job standardisation, *Service Industries Journal*, 21, 3, 147–166

Ingram, H. and Daskalakis, G. (1999) Measuring quality gaps in hotels: the case of Crete, *International Journal of Contemporary Hospitality Management*, 11, 1, 24–30

Jones, P. (2007) From the bottom up: operations management in the hospitality industry, In Brotherton, B. (Ed.), *Handbook of Hospitality Research*, Sage: London, UK

Jones, P. and Cheek, P. (1997) Service quality: an evaluation of approaches to measuring actual performance against standards in the hospitality industry, *6th CHME National Research Conference*, Oxford Brookes University

Jones, P. and Dent, M. (1994) Lessons in consistency: statistical process control in Forte Plc, *The TQM Magazine*, 6, 1, 18–23

Jones, P. and Merricks, P. (1994) *The Management of Foodservice Operations*, Casell: London, UK

Jones, P. and Riggott, G. (1992) TQM in five star hotels – old style hospitality or modern day operations management? *International Operations Management Conference,* Operations Management Association (UK), University of Manchester

Jones, P. A. (1983) The restaurant – a place for quality control and product maintenance, *International Journal of Hospitality Management*, 2, 2, 93–100

Jones, T. O. and Sasser, W. E. (1995) Why satisfied customers defect, *Harvard Business Review*, 73, 6, 88–91

Juran, J. M. (2000) How to think about quality, In Juran, J. M. and Godfrey, A. B. (Eds.), *Juran's Quality Handbook*, 5th edition, McGraw-Hill: New York, NY

Juran, J. M. and Gryna, F. M. (1980) *Quality Planning and Analysis*, McGraw Hill: New York, NY

Juwaheer, T. D. (2004) Exploring international tourists' perceptions of hotel operations by using a modified SERVQUAL approach – a case study of Mauritius, *Managing Service Quality*, 14, 5, 350–364

Karapetrovic, S. and Willborn, W. (2000) Quality assurance and effectiveness of audit systems, *International Journal of Quality and Reliability Management*, 17, 6, 679–703

King, C. A. (1984) Service-oriented quality control, *Cornell Hotel and Restaurant Administration Quarterly*, 25, 3, 92–98

Kivela, J., Lam, M. L. and Inbakaran, R. (2002) Food safety in school catering in the People's Republic of China, *International Journal of Contemporary Hospitality Management*, 14, 6, 301–312

Klefsjö, B., Wikland, H. and Edgeman, R. L. (2001) Six sigma seen as a methodology for total quality management, *Measuring Business Excellence*, 5, 1, 31–35

Knutson, B., Stevens, P. and Patton, M. (1995) Dineserv: measuring service quality in quick service, casual/theme and fine dining restaurants, *Journal of Hospitality and Leisure Marketing*, 3, 2, 35–44

Knutson, B., Stevens, P., Wullaert, C., Patton, M. and Yokoyama, F. (1991) LODGSERVE: a service quality index for the lodging industry, *Hospitality Research Journal*, 14, 3, 277–284

Kokkinakis, E. N. and Fragkiadakis, G. A. (2007) HACCP effect on microbiological quality of minimally processed vegetables: a survey in six mass-catering establishments, *International Journal of Food Science and Technology*, 42, 1, 18–23

Kolarik, W. J. (1995) *Creating Quality: Concepts, Systems, Strategies, and Tools*, McGraw Hill: New York, NY

Lau, R. S. M., Zhao, X. and Xiao, M. (2004) Assessing quality management in China with MBNQA criteria, *International Journal of Quality and Reliability Management*, 21, 7, 699–713

Leonard, D. and McAdam, R. (2002) The role of the business excellence model in operational and strategic decision making, *Management Decision*, 40, 1, 17–25

Lin, B. and Jones, C. A. (1997) Some issues in conducting customer satisfaction surveys, *Journal of Marketing Practice: Applied Marketing Science*, 3, 1, 4–13

Lockwood, A., Baker, M. and Ghillyer, A. (1996) *Quality Management in Hospitality: Best Practice in Action*, Cassell: London, UK

Lowson, R. H. (2002) *Strategic Operations Management: The New Competitive Advantage*, Routledge: London, UK

Maher, D. (2001) Integrated software for hygiene management, *Nutrition & Food Science*, 31, 1, 27–30

Morrison, P., Caffin, N. and Wallace, R. (1998) Small establishments present challenge for Australian food safety code, *International Journal of Contemporary Hospitality Management*, 10, 3, 101–106

Mortimore, S. (2001) How to make HACCP really work in practice, *Food Control*, 12, 4, 209–215

Motarjemi, Y. (2000) Regulatory assessment of HACCP: a FAO/WHO Consultation on the role of government agencies in assessing HACCP, *Food Control*, 11, 5, 341–344

Nield, K. and Kozak, M. (1999) Quality certification in the hospitality industry: analysing the benefit of ISO9000, *Cornell Hotel and Restaurant Administration Quarterly*, 40, 2, 40–45

Nonthaleerak, P. and Hendry, L. C. (2006) Six sigma: literature review and future research areas, *International Journal of Six Sigma and Competitive Advantage*, 2, 2, 105–161

O'Donnell, C. D. (1991) Implementation of HACCP at Orval Kent Food Company Inc., *Foodservice Research International*, 6, 3, 197–207

Oh, H. (1999) Service quality, customer satisfaction, and customer value: a holistic perspective, *International Journal of Hospitality Management*, 18, 1, 67–82

Oh, H. and Parks, S. C. (1997) Customer satisfaction and service quality: a critical review of the literature and research implications for the hospitality industry, *Hospitality Research Journal*, 20, 3, 35–64

Oliver, R. L. (1997) *Satisfaction: A Behavioural Perspective on the Consumer*, McGraw-Hill: New York, NY

Øvretveit, J. A. (1993) Auditing and awards for service quality, *International Journal of Service Industry Management*, 4, 2, 74–84

Pallet, W. J., Taylor, W. W. and Jayawardena, C. (2003) People and quality: the case of Delta Hotels, *International Journal of Contemporary Hospitality Management*, 15, 6, 349–351

Panisello, P. J. and Quantick, P. C. (2001) Technical barriers to Hazard Analysis Critical Control Point (HACCP), *Food Control*, 12, 3, 165–173

Parasuraman, A., Zeithaml, V. A. and Berry, L. L. (1988) SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality, *Journal of Retailing*, 64, 1, 12–40

Peterson, R. A. and Wilson, W. R. (1992) Measuring customer satisfaction facts and artifacts, *Journal of the Academy of Marketing Science*, 20, 1, 61–71

Pizam, A. and Ellis, T. (1999) Customer satisfaction and its measurement in hospitality enterprises, *International Journal of Contemporary Hospitality Management*, 11, 7, 326–339

Raajpoot, N. A. (2002) TANGSERV: a multiple item scale for measuring tangible quality in the foodservice industry, *Journal of Foodservice Business Research*, 5, 2, 109–127

Reeves, C. A. and Bednar, D. A. (1994), Defining quality: alternatives and implications, *Academy of Management Review*, 19, 3, 419–445

Riswadkar, A. V. (2000) An introduction to HACCP, *Professional Safety*, 45, 6, 33–36

Roberts, B. and Campbell, R. C. (2007) Being new-customer friendly: determinants of service perceptions in retail banking, *International Journal of Bank Marketing*, 25, 1, 56–67

Robson, M. (1983) *Quality Circles: A Practical Guide*, Gower: Aldershot, UK

Rust, R. T. and Oliver, R. L. (1994) Service quality: insights and managerial implications from the frontier, In Rust, R. T. and Oliver, R. L. (Eds.), *Service Quality: New Directions in Theory and Practice*, Sage: London, UK, 1–20

Shing, M. N. K. and Spence, L. (2002) Investigating the limits of competitive intelligence gathering: is mystery shopping ethical? *Business Ethics: A European Review*, 11, 4, 343–353

Slack, F. and Rowley, J. (2001) Observation: perspectives on research methodologies for leisure managers, *Management Research News*, 24, 1/2, 35–42

Smith, G. F. (1993) The meaning of quality, *Total Quality Management*, 4, 3, 235–244

Soriano, D. R. (1999) Total quality management: applying the European model to Spain's urban hotels, *Cornell Hotel and Restaurant Administration Quarterly*, 40, 1, 54–59

Soriano, J. M., Rico, H., Molto, J. C. and Manes, J. (2002) Effect of introduction of HACCP on the microbiological quality of some restaurant meals, *Food Control*, 13, 4–5, 253–261

Souness, R. (2000) HACCP in Australian food control, *Food Control*, 11, 5, 353–357

Sperber, W. H. (2005a) HACCP doesn't work from farm to table, *Food Control*, 16, 6, 511–514

Sperber, W. H. (2005b) HACCP and transparency, *Food Control*, 16, 6, 505–509

Stevens, P., Knutson, B. and Patton, M. (1995) DINESERVE: a tool for measuring service quality in restaurants, *Cornell Hotel and Restaurant Administration Quarterly*, 36, 2, 56–60

Sun, Y. M. and Ockerman, H. W. (2005) A review of the needs and current applications of hazard analysis and critical control point (HACCP) system in foodservice areas, *Food Control*, 16, 4, 325–332

Taguchi, G. and Clausing, D. (1990) Robust quality, *Harvard Business Review*, 68, 1, 65–75

Taylor, E. (2001) HACCP in small companies: benefit or burden? *Food Control*, 12, 4, 217–222

Taylor, E. and Kane, K. (2005) Reducing the burden of HACCP on SMEs, *Food Control*, 16, 10, 833–839

Taylor, E. and Taylor, J. Z. (2004) Perceptions of "the bureaucratic nightmare" of HACCP: a case study, *British Food Journal*, 106, 1, 65–72

Tsang, N. and Qu, H. (2000) Service quality in China's hotel industry: a perspective from tourists and hotel managers, *International Journal of Contemporary Hospitality Management*, 12, 5, 316–326

Veloutsou, C., Gilbert, G. R., Moutinho, L. A. and Goode, M. M. H. (2005) Measuring transaction-specific

satisfaction in services: are the measures transferable across cultures? *European Journal of Marketing*, 39, 5/6, 606–628

Walker, J. R. and Salameh, T. T. (1990) The QA payoff, *The Cornell Hotel and Restaurant Administration Quarterly*, 30, 4, 57–59

Wilson, A. M. (1998a) The role of mystery shopping in the measurement of service performance, *Managing Service Quality*, 8, 6, 414–420

Wilson, A. M. (1998b) The use of mystery shopping in the measurement of service delivery, *The Service Industries Journal*, 18, 3, 148–163

Wilson, A. M. (2001) Mystery shopping: using deception to measure service performance, *Psychology & Marketing*, 18, 7, 721–734

Wilson, M., Murray, A. E., Black, M. A. and McDowell, D. A. (1997) The implementation of hazard analysis and critical control points in hospital catering, *Managing Service Quality*, 7, 3, 150–156

Worsfold, D. (2006) HACCP workshops – practical guidance for small fast food businesses, *Nutrition & Food Science*, 36, 1, 32–42

Wyckoff, D. D. (1984) New tools for achieving service quality, *Cornell Hotel and Restaurant Administration Quarterly*, 25, 3, 78–91