The role of socio-cultural, political-legal, economic, and educational dimensions in quality management

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Abstract Quality management practices have recently flourished across the globe. In this research we review and integrate the literature by identifying and organizing significant research findings, and develop a conceptual model of the relationships between international environmental conditions (e.g. socio-cultural, political-legal, economic, and educational factors) and dimensions of quality management (e.g. strategic quality planning, customer focus and satisfaction, human resource development and management, information and analysis, management of process quality, and quality and operational results). The model developed here helps us move beyond examining the differences in quality practices across countries to an understanding of why such differences occur, and helps practitioners gain a better perspective on how quality management techniques can be adopted in different regions around the world.

Introduction
In the past two decades, quality and international operations management have increasingly become accepted in industry and academia. Most companies in today’s global marketplace have realized the importance of raising the quality of goods and services. Quality management is now well established in the USA (Powell, 1995; Rho et al., 2001), Western Europe, and Australia (Mandal et al., 1999), and is increasingly being implemented in developing countries such as China and India (Rao et al., 1999), and in the emerging markets of Central and Eastern Europe (Dickerson et al., 2000; Krygier, 1993). At the same time, academicians have also been focusing on quality as evidenced by special issues in journals like Decision Sciences, Academy of Management Journal, and California Management Review, and the advent of several new journals such as Quality Management Journal, Journal of Quality Management and Benchmarking for Quality Management and Technology. In addition, organizations such as the Global Manufacturing Research Group (GMRG) (Whybark and Vastag, 1993) have been advancing the field of international operations management and quality management through coordinated data collection and theory development.

Dimensions in quality management

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Historically, the management of quality has been tied to the underlying environmental conditions prevalent in societies. For example, in Europe, the growth of commerce led to the development of quality warranties (Juran, 1995). Similarly, Japan’s drive for quality began prior to the 1940s to help it prepare for World War II (Robinson and Robinson, 1994). After the war, the US administration wanted Japan to develop, and encouraged the implementation of training programs in quality control (Robinson and Robinson, 1994). The quality movement grew in Japan, and its impact was noticed in the USA by the 1980s (Juran, 1995; Marash, 1993). In trying to emulate Japan’s success, quality management has now been adopted in several places in South East Asia, contributing to the rapid industrial growth of this region (Krygier, 1993). Today, developing countries such as China are actively seeking quality management tools to help in their economic development (Zhao et al., 1995b).

Even with this widespread acceptance of quality management, however, not all attempts to implement quality practices in the international arena have been successful. Large differences in quality management have been found across countries (Maheshwari and Zhao, 1994; Zhao et al., 1995a), and multinational corporations have recognized that implementing quality practices internationally can be difficult (Eroglu and Machleit, 1989; Malhotra et al., 1994; Papadopoulos et al., 1990). Rather than simply trying to emulate the Japanese quality process, Greene (1993) stresses the importance of taking advantage of the unique competitive advantages that various nations offer. It is, therefore, important for us to understand the various socio-cultural, political-legal, economic, and educational factors that influence international quality management. By international quality management, we refer to quality practices across countries “accommodating to the various markets in terms of culture, diversification and priorities, and . . . systems which . . . take advantage of the differences in countries’ economic/technological capabilities via a global network” (Kim and Chang, 1995); that is, the adaptation and implementation of quality management practices based on international socio-cultural, political-legal, economic, and educational environmental conditions.

Unfortunately, the literature on international quality management has not been integrated into a comprehensive framework. This paper begins the process of integration by identifying and organizing significant research findings, and developing a conceptual model of the relationships between international environmental conditions (e.g. socio-cultural, political-legal, economic, and educational factors) and dimensions of quality management (e.g. strategic quality planning, customer focus and satisfaction, human resource development and management, information and analysis, management of process quality, and quality and operational results).

Although this paper focuses specifically on the international environmental conditions that influence quality management, we acknowledge that company-specific factors can also influence quality practices. The literature suggests that
a number of intra-organizational factors such as company culture, life-cycle, and stage of development can influence the outcomes of quality management programs. Theoretical models have been postulated and tested by a number of authors examining the links between such organizational factors and quality management. For example, Anderson et al. (1995) link organizational practices, quality practices and process outcomes. More recently, Das et al. (2000) developed an integrative framework of quality management involving high involvement, work practices, quality practices, quality performance and firm’s performance, and found that international competition moderates the relationship between quality practices and customer satisfaction performance, and also affects the relationship between high involvement practices and firms’ performance.

We recognize the importance of such intra-organizational factors on quality outcomes. In the interests of parsimony, however, our framework focuses specifically on international environmental conditions (factors outside the organization) that influence quality management, and we consider intra-organizational factors (albeit important) as falling outside the boundaries of this framework. We believe that our focus on international environmental factors is especially important because these issues have been largely unexamined in the literature. Therefore, the purpose of this paper is to move beyond examining the differences in quality practices across countries to an understanding of why such differences occur by investigating the international environmental conditions that might cause such differences.

**Sample and procedure**

To identify and integrate the existing literature on international quality management, exhaustive manual and computer searches of the literature were conducted using several search techniques. Information searches were conducted using key words such as “quality”, “continuous improvement”, “Kaizen”, “Baldrige” and “ISO”. We systematically reviewed key operations management and other relevant journals, many of which have been identified by scholars (Barman et al., 1991; Coe and Weistock, 1984; Stahl et al., 1988) as leading research outlets[1]. This process was done manually and entailed examining each issue since 1986. We chose 1986 as a starting point, since the quality management literature exploded after then. In addition, we also carefully went through the reference lists of relevant articles and numerous literature reviews.

Articles were included in the data set if they met the following two criteria:

(1) the article should concentrate specifically on the area of quality management; and

(2) it should contribute to our understanding of the international environmental conditions that influence quality management.
Case study articles that have been conducted in only one country were of value if the quality programs were directly or indirectly affected by the unique set of international conditions composed of socio-cultural, political-legal, economic, and educational variables. By knowing the types of countries (e.g. developed/developing) comparisons could be made to isolate the influence of international variables on quality. Articles comparing two or more countries make the process easier, in that quality dimensions and measures are standardized, and the variance is primarily affected by the influence of international variables on quality management. Articles on a global scale provided generalizations about the influence of the international environment on quality practices.

Using these articles, we integrated and classified the literature, and developed a conceptual model of the relationships between international environmental conditions and dimensions of quality management; these relationships are expressed through a series of propositions. According to Bacharach’s (1989) work on theory-building, propositions are broad, general expressions of relationships among constructs on an abstract level (in contrast to hypotheses that describe more specific, concrete relationships among variables, such that any proposition can be manifested through several hypotheses); propositions are essential building-blocks of conceptual models.

Figure 1 depicts the model and Table I provides examples of research that have been classified by the interaction between international environmental conditions (e.g. socio-cultural, political-legal, economic, and educational factors) and dimensions of quality management (e.g. strategic quality planning, customer focus and satisfaction, human resource development and

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Table 1.
management, information and analysis, management of process quality, and quality and operational results). Next, we describe the various international environmental conditions that can influence quality management; in the following section, we examine the literature and present general propositions about the relationships between the environmental conditions and specific dimensions of quality management.

International environmental conditions
The international environment can be classified into four major categories (Oliff et al., 1989): socio-cultural, political-legal, economic, and educational. According to Oliff et al. (1989), the socio-cultural dimension includes factors such as attitudes toward managers, perceptions of authority, inter-organizational cooperation, attitudes toward achievement and work, class structure and individual mobility, attitudes toward wealth and material gain, attitudes toward scientific management, attitudes toward risk, national ideology, beliefs about foreigners, and the nature and extent of nationalism. Cultural effects of customs, languages, attitudes, motivation, social institutions, status symbols, and religious beliefs have all been documented in the international business literature. Although many sub-cultures may exist within a country, the term “national culture” is used to describe the general practices of nations (Hofstede, 1980). Cultures have been measured along a number of dimensions, including individualism-collectivism, power distance, masculinity-femininity and uncertainty avoidance (Hofstede, 1980), and high-low context (Hall, 1981). The political-legal dimension includes conditions such as defense/military policy, foreign policy, political stability, political organization, flexibility of law, the role of government, labor organizations, local needs, industry standards, political ideology, political stability, relevant legal rules for foreign businesses, international treaty obligations, import-export restrictions, international investment restrictions, profit remission restrictions, and exchange control restrictions. The economic dimension includes factors such as central banking systems and monetary policy, fiscal policy, economic stability, organization of capital markets, market size and type, social overhead capital, exchange rate stability, market taste and demand, geographic dispersion, the quality of infrastructure, international trade patterns, membership and obligations in international financial obligations, international competition and international standards. Finally, the educational dimension includes items such as local literacy levels, specialized vocational training and education, higher education, and management programs (Oliff et al. 1989). In this research, we focus on international environmental conditions, that is, differences between countries on the four environmental factors discussed previously.

The next section examines the influence of these international environmental conditions on six dimensions of quality management based on the Baldrige categories:
(1) strategic quality planning;
(2) customer focus and satisfaction;
(3) human resource development and management;
(4) information and analysis;
(5) management of process quality; and
(6) quality and operational results.

Although the Baldrige Award is American, the general categories are applicable internationally, and have been used in previous research (Evans and Lindsay, 1996).

The influence of international environmental conditions on quality management

Strategic quality planning

Organizations implementing quality management practices require top management to make strategic shifts to promote a culture of quality throughout the organization (Adebanjo and Kehoe, 1999; Dawson and Patrickson, 1991). Such a strategy should emphasize long-term orientation, lifetime commitment to human resources (Westbrook, 1995), and open systems with close coordination with suppliers (Flynn, 1992; Flynn et al., 1995; Garvin, 1986; House, 1990; Naidu et al., 1996). However, managers around the world rank the importance of quality and strategic planning for quality differently; for example, the priority rankings of quality in North American and European strategies were found to be similar, but different from Asian firms (Noble, 1995). Furthermore, empirical evidence indicates that what managers view as critical factors for quality management also varies among operations in America, Europe and Asia (Youssef and Zairi, 1995). Researchers have suggested that international environmental conditions may influence strategic quality planning in different countries (Benson et al., 1991); it is, therefore, essential to understand the unique effects of socio-cultural, political-legal, economic, and educational factors on quality planning.

Strategic quality planning requires that organizations foster long-term rewards, a lifelong commitment to human resources (Westbrook, 1995), and employee involvement (Dawson and Patrickson, 1991); such values can be influenced by the socio-cultural beliefs prevalent in the country, such as attitudes towards work and attitudes towards employees (Dotchin and Oakland, 1994a, 1994b; Dumond, 1995). For example, the literature suggests that differences in socio-cultural conditions created difficulties when quality management practices appropriate for Japan were first implemented in Western countries (Cole et al., 1993; Dawson, 1994; Easton, 1993), although such cultural differences were not insurmountable (Anderson et al., 1995), but could be managed through training and organizational restructuring or by adapting the quality program to the national culture (Ngowi, 2002). Similarly, Collins and
Fischer (1992) suggest that the short-term values often prevalent in the USA can be a disadvantage for quality planning, and Mathews et al. (2001) found that cultural differences between the UK, Portugal, and Finland influenced the planning and implementation of quality systems. More recently, the salient cultural dimensions (individualism-collectivism, power distance, masculinity-femininity and uncertainty avoidance and high-low context) have also been linked to quality management (Tata and Prasad, 1998a).

The political-legal environment can also have an effect on strategic quality planning (Hurd, 1992; Zhao et al., 1995b). The literature suggests that the government can play an important role in encouraging or discouraging strategic quality planning (Thanassoulis et al., 1994) by creating barriers in specific industries, establishing quality regulations (Benson et al., 1991), and securing state ownership (Jenner et al., 1998). In addition, strategic quality planning can also be influenced by import and export restrictions among countries, differences in quality standards and regulations across countries, and the amount of political stability and the stability of governments (Boom, 1995; Lakhe and Mohanty, 1994).

The degree of international economic involvement can also influence leadership and strategic quality planning (Cole et al., 1993). Firms that experienced greater international competition were more likely to implement quality initiatives (Azaranga et al., 1998; Barringer et al., 1999; Das et al., 2000; Handfield and Ghosh, 1994). As international competition increases, cost, quality and competitiveness become much more interdependent (Naidu et al., 1996; Tagaras et al., 1994); intense global competition can cause firms to re-examine their quality strategies and practices (Tan et al., 2000; Yong and Wilkinson, 2001). Similarly, the opening of new markets can increase economic pressures toward affordable quality, resulting in a greater focus on quality in the strategic planning process (deMarcedo-Soares and Chamone, 1994; Feigenbaum, 1994).

Finally, educational conditions can influence the strategic quality planning process, especially the dissemination of a quality vision to employees. The literature indicates that in countries such as India, low levels of education, along with the prevalence of numerous languages, make it difficult for managers to communicate their ideas and quality visions to all employees (Lakhe and Mohanty, 1994, 1995; Majumdar et al., 1991). Similar problems are also apparent for expatriate managers who are not proficient in the local language. Thus, the transfer of skills and knowledge across countries has to be designed to reflect the conditions of the local country (Klassen and Whybark, 1994). In addition, countries with education and training systems that follow traditional artesian structures with extensive apprenticeships may be more suited for the shift to a quality culture (Sousa-Poza et al., 2001).

Based on the literature discussed, it appears that the socio-cultural, political-legal, economic, and educational conditions prevalent in the international
environment can influence the strategic quality planning process. Hence, it was proposed:

**P1.** International environmental conditions will influence strategic quality planning.

Mid-level propositions can also be then generated as detailed in Table II.

**Customer focus and satisfaction**

For quality planning to yield results, it is essential to orient the organization toward customer focus and satisfaction; international socio-cultural, political-legal, economic, and educational conditions can influence this dimension of quality management.

The literature suggests that culture can affect the orientation of managers toward customer focus and satisfaction (Dumond, 1995). For example, Japanese managers have been found to be more oriented toward customers relative to their counterparts in Australia (Everett and Sohal, 1991), which might be due to the differences in attitudes and beliefs about connections with customers (Dotchin and Oakland, 1994a, 1994b). Other scholars (e.g. Sousa-Poza et al., 2001) suggest that a high masculinity index may reduce the extent to which firms are concerned about customers.

The underlying political-legal system can also have a significant effect on customer focus (Lakhe and Mohanty, 1994, 1995). The literature indicates that in closed communist societies, quality was not tied to customer expectations (Eklof and Salivanova, 2000; Farker, 1990), whereas in open societies such as the UK, the Government has been found to act as a conduit between disgruntled customers and industry (Field and Shutler, 1990).

The degree of economic competition can influence the level of customer focus and satisfaction (Farker, 1990). In closed economies where government protections prevail, there is less motivation to focus on customer expectations (Das et al., 2000); as the level of competition increases, however, customer expectations tend to increase, and customers may become more demanding (Pooley and Welsh, 1994). Das et al. (2000) discuss how the automobile industry in India was protected from international competition until recently and, as a consequence, customer expectations were limited by the narrow range of products available. With the weakening of trade barriers, however, customers in India are now exposed to more international products and demand higher quality automobiles; these changing customer needs have to be satisfied by organizations. Similarly, when China decided to lower trade barriers to revitalize its economy, organizations began to anticipate shifts in customer priorities (China Economic Review, 2000). To remain competitive in such conditions, organizations have to match their quality levels to changing customer values (Feigenbaum, 1994).

The literature also suggests that low literacy rates and low levels of education in developing countries often result in unorganized customer sectors;
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<td>Societies that are more collectivistic, have low power distance, high femininity, low uncertainty avoidance and low context values are more likely to implement strategic quality planning</td>
<td>The greater the openness in the political-legal environment, the more likely is it that strategic quality planning will occur</td>
<td>The greater the degree of economic competition, the more likely is it that strategic quality planning will occur</td>
<td>The greater the proficiency of expatriate managers in the local language and higher the education levels of workers, the more effective will be the strategic quality planning process</td>
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<td>Implications for managers</td>
<td>Using Hofstede's (1980) dimensions, strategic planning is more likely to occur in countries such as Norway or Sweden as opposed to Belgium</td>
<td>Strategic planning is more likely to occur in open societies relative to closed ones. Given all things being equal, open societies such as the USA will have more strategic planning than closed societies such as China. However, as nations such as Russia are become more open politically/legally a greater level of strategic planning would be expected</td>
<td>As countries open up their markets the greater would be the likelihood strategic quality planning would occur. Hence, as WTO lowers barriers, MNC managers should expect an increase in the amount of strategic planning in the WTO member countries</td>
<td>It is imperative that MNC managers are fluent in the local language for strategic planning to be effective. Also, MNCs should encourage their employees to gain additional levels of education to make the process more effective</td>
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organizations in such countries are less likely to find it necessary to focus on customer satisfaction (Lakhe and Mohanty, 1994, 1995). In contrast, developed countries often have organized customer sectors and organizations that are more focused on customer needs; for example, formal approaches to external and internal customer satisfaction are common in organizations in countries such as the USA and New Zealand (Adam et al., 1994, 1997; Dumond, 1995).

Based on the literature discussed above, it appears that the socio-cultural, political-legal, economic, and educational conditions prevalent in the international environment can influence customer focus and satisfaction. Thus, it was proposed:

P2. International environmental conditions will influence the extent to which customer expectations and customer satisfaction are emphasized.

Mid-level propositions can also be generated as detailed in Table III.

Human resource development and management
The literature suggests that even in organizations with quality as a strategic objective, a gap often exists between intention and behavior (Barclay, 1993). To bridge this gap, firms need to ensure that quality strategies get effectively implemented by focusing on human resource development and management. Researchers have indicated that this focus on human resource development requires organizational designs that are oriented toward organizational learning (Adler and Cole, 1993); such organizational designs should include cross-functional teams, employee empowerment, the training of employees and management (Adler and Cole, 1993), and a move away from problem detection modes toward problem prevention ones (Handfield, 1989). Environmental conditions, however, can influence the extent to which such organizational designs can be implemented.

The literature suggests that managers may be unaware of the embedded cultural assumptions of human resource programs developed in foreign countries; such assumptions may be inconsistent with the local culture (Lawler, 1994; Maccoby, 1994; Roney, 1997; Tata and Prasad, 1998a). For example, the power values prevalent in a culture (Hofstede, 1980; Kluckhohn and Strodtbeck, 1961) can influence the implementation of employee empowerment programs; motivation and employee receptivity to quality management can be affected by the desire on the part of employees to have responsibility for decision making (Kowalski and Walley, 1993; Sousa-Poza et al., 2001). Companies in authoritarian or high power distance countries are more likely to have centralized control over decision-making, and control-oriented cultures. In these countries, organizational restructuring to empower employees is likely to introduce significant changes in the distribution of real and symbolic power and status. Managers in such cultures may feel uncomfortable with the perceived lack of respect for basic managerial authority, and employees may feel uncomfortable with making decisions without managerial approval; for
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<td>Propositions</td>
<td>Societies that have high more femininity, low uncertainty avoidance and low context values are more likely to have a customer focus</td>
<td>The greater the openness in the political-legal environment the greater will be the focus on customers and their satisfaction</td>
<td>The greater the degree of economic competition, the greater will be focus on customers and their satisfaction</td>
<td>The greater the literacy and education levels of the population, the greater focus will be on customers and their satisfaction</td>
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<td>Implications for managers</td>
<td>Using Hofstede's (1980) dimensions, countries such as Singapore and Canada will require a greater degree of customer focus and satisfaction. In these countries companies could perhaps use QFD to get a greater degree of precision in aligning product and quality levels to customer needs</td>
<td>As societies open up the focus on customers and their satisfaction becomes more important. Firms exporting products to the former Soviet Union could send export products of relatively poor quality. This is still the case in some Central Asian republics. However, with more open societies in Eastern Europe this is no longer possible</td>
<td>As WTO reduces barriers among member states and economies become more competitive, MNCs will need to increase the level of focus on customers and their satisfaction</td>
<td>Societies with high level of literacy, such as Singapore, would demand a greater level of customer focus and satisfaction. Hence, in these types of countries greater effort needs to be placed on designing products to more carefully meet customer expectations and increase the level of after-sales service. In societies with low level of literacy such as Pakistan, the degree of customer focus and satisfaction can be lower</td>
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example, Rao et al. (1999) found that the level of employee participation was low in three high power distance countries – India, China, and Mexico. In contrast, firms in less authoritarian cultures are more likely to decentralize decision making and empower employees (Tata and Prasad, 1998a). Similarly, many researchers have found that the greater the percentage of workers that are team-oriented (collectivistic) and willing to take responsibility, the faster is the rate of adoption of quality management programs (Young, 1992). Cultural values have also been connected to problems encountered with quality training in the UK, Portugal, and Finland (Mathews et al., 2001). Sousa-Poza et al. (2001) suggest that companies that emphasize aspects of quality management that match their national culture have a better chance of success compared to firms that try to implement quality practices that contradict the culture.

The Government can also have a positive or negative impact on the implementation of human resource practices and training programs (Ehrenberg and Stupak, 1994). For example, in China, consultants’ recommendations are not to be “in conflict with the policies of the Government” (Dian-Xiang and Willborn, 1990), although recent policies have emphasized training and improvement in the quality of the labor force (China Economic Review, 1999). On the other hand, laws and regulations on worker democracy and participation, such as those found in Scandinavian countries, can help in the implementation of employee empowerment programs (Tonnessen, 1997). The Government can also provide a strong impetus for the spread of quality management by lending moral support and legitimizing quality training programs, and retaining control over course content and the licensing of instruction (Robinson and Schroeder, 1993).

A number of economic variables can influence the management of human resources. Given the lower cost of capital, Japanese firms employ a longer time horizon when making decisions, which often leads to long-term or lifetime employment. Also, the frequency of purchases and geographic distances seem to affect quality problems (Gross et al., 1993; Yavas and Burrows, 1994); for example, large distances and multiple sites make the transfer of knowledge more difficult (Mann and Kehoe, 1995). This becomes an important factor for companies in large countries such as Australia (Barnett, 1991; Chapman et al., 1991) or multinationals operating in several geographically-dispersed countries.

Finally, basic education is essential for the success of training programs in quality management. Evidence from developed countries indicates that higher levels of mathematical education yield faster implementation of quality management and improved organizational performance (Young, 1992), and workers in former communist countries who are literate have been found to be more receptive to quality management training (Lee et al., 1992).

In developing countries, one of the key impediments to quality is the inadequate training of workers and the lack of commitment to motivate workers for quality results (Maheshwari and Zhao, 1994; Zhao et al., 1995a). Leung et al. (1999) state that foreign manufacturing firms in China face problems
because of poor quality management staff and under-educated workers. Hence, specialized vocational training programs have been designed to account for unique local conditions. For example, the Chinese Government has recognized the lack of awareness by managers on quality management and encouraged partnerships with overseas universities (Dian-Xiang and Willborn, 1990). Similarly, companies in Mexico do more on the job training (Knotts and Tomlin, 1994) and multinationals make extensive use of bilingual and bi-cultural training to disseminate technology transfer (Vargas and Johnson, 1992, 1993).

Based on the literature discussed above, it appears that the socio-cultural, political-legal, economic, and educational conditions prevalent in the international environment can influence human resource management and development. Therefore, it was proposed:

P3. International environmental conditions will influence the effectiveness of human resource development practices for quality (e.g. employee empowerment, cross-functional teams, etc.).

Mid-level propositions can also be generated as detailed in Table IV.

Information and analysis
Given the right impetus from upper management and a corresponding customer-orientation, information and its analysis become critical to the improvement of quality (Voss and Ahlstrom, 1997). In this paper, we concentrate on information relevant to the management of process standards rather than engineering standards; the literature suggests that process standards (such as data collection for zero defect programs) are more likely to be influenced by international environmental conditions than engineering standards. Engineering standards, such as specification limits, are more likely to be based on physics and chemistry as opposed to international environmental conditions.

The literature suggests that the values and beliefs prevalent in a society can influence the type of information about quality that is available to employees (Choi and Liker, 1995; Kettinger and Lee, 1995; Loveday, 1993). For example, in the USA, information is provided to directly support the implementation of zero defects, whereas in Japan it is presented to focus workers’ attention on continuous improvement (Daniel and Reitsperger, 1994).

Governments have recognized the value of promoting quality (Sohal and Lu, 1995) and have established awards to recognize leaders. Quality awards are available in most developed countries and in some developing nations. Although awards in the USA, Japan, and Europe have some similar elements, they differ in a number of important ways. For example, the European Quality Award emphasizes satisfaction of local community needs to a greater extent than the Deming Award (Bohoris, 1995; Loveday, 1993). The requirements for these awards can have an impact on the type of information considered important, and award criteria can become an important indicator of product quality (Wisner and Eakins, 1994).
<table>
<thead>
<tr>
<th>Propositions</th>
<th>Socio-cultural</th>
<th>Political-legal</th>
<th>Economic</th>
<th>Educational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Societies that are more collective and have low power distance will adopt quality management programs faster</td>
<td>The more control of information by the government, the less effective will be the quality training process</td>
<td>The lower the cost of capital, the greater is the investment in human resources</td>
<td>The more educated the workers are, the faster will be the implementation of the quality program</td>
<td></td>
</tr>
<tr>
<td>The greater the regulations on worker's democracy and participation, the more effective the quality training process</td>
<td></td>
<td>The more remote a facility is, the less effective will be the quality training process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using Hofstede's (1980) dimensions, countries such as Argentina would adopt quality management faster. Greater delay and more effort/involved would be required in countries with cultures such as to France</td>
<td>Countries where information is tightly controlled such as China would experience less effective quality training processes. Thus, a MNC investing in China should spend relatively more on training programs and expect its duration to last longer. Companies operating in European nations that promote worker participation and democracy would find the quality training process to be quicker</td>
<td>Firms operating in countries facing relatively high real interest rates (e.g., Turkey) would find that investments in HRM are lacking. Thus MNCs in such countries would need to invest more in HRM. In addition, with MNC operations distributed around the world one should expect that the training programs are less effective than those designed to operate within one country. Training programs in large countries such as Australia would face similar problems</td>
<td>As literacy rates rise among developing countries, the implementation of quality training should speed up. However, if MNCs want their training programs to be truly effective, they must customize them to the local culture and language</td>
<td></td>
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</table>

Table IV. Human resource development and implications for practitioners and managers
Similarly, international quality standards and regional quality standards are becoming increasingly more prevalent; such standards may be perceived as "order qualifiers" (Chavel, 1994), that is, aspects of products or services that are essential for the product to be considered for purchase by local and international customers (Mehta and Wilcock, 1996). For example, the standards developed by the International Standards Organization (ISO) have readily been adopted in Europe and are now being accepted in North America (Eckstein and Balakrishnan, 1993). Given that the standards are similar across countries, multinational corporations have encouraged their use (Lutman, 1994). Even local medium-sized firms have been pressured to incorporate ISO standards, given their interactions with these multinational corporations (Miles et al., 1999; Taylor, 1995). Today, ISO certification is almost a requirement to conduct business.

Regional organizations have also been set up in South East Asia (Hurd, 1992) and Europe (Dolores and Luzon, 1993) that have developed standards either for specific industries or for a wide range of organizations. Industry-specific standards are useful for unique operating conditions such as the environment in which government entities function (Field and Shutler, 1990). Although industry standards such as BS 5750 for civil engineering construction in the UK provide only consistency to a pre-determined system of operation (Oakland and Aldridge, 1995), they indirectly integrate some minimum quality levels; Rwelamila (1995) suggests that in South Africa the lack of similar standards has caused quality problems in the construction industry. Quality standards of one region can also influence the standards of other regions; Guerrero-Cosumano and Selen, (1997) compared the French EAQF, German VDAB, and USA QS 9000 standards in the automobile sector and found a converging trend based on QS 9000 requirements.

Finally, the level of education of a country’s workforce can be instrumental in the type and quality of information available and its analysis (Dolores and Luzon, 1993). For example, in some developing countries in Southern Africa, problems occur due to the lack of written guidance and the use of verbal communications (Rwelamila, 1995), and low education levels in China have been suggested as interfering with the ISO documentation process (Tang and Rao, 1996). Dickerson et al. (2000) tested three quality assessment systems (third-party certification, self-assessment, and a hybrid model) and found that the weak education and institutional infrastructure of quality management created significant drawbacks for all three systems.

Based on the literature discussed above, it appears that the socio-cultural, political-legal, and educational conditions prevalent in the international environment can influence information and analysis for quality. Therefore, it was proposed:

\[ P4. \] International environmental conditions will influence the type, quantity, and quality of information and analysis available for quality management.

Mid-level propositions can also be generated as detailed in Table V.
<table>
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<tr>
<th>Propositions</th>
<th>Socio-cultural</th>
<th>Political-Legal</th>
<th>Economic</th>
<th>Educational</th>
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<tbody>
<tr>
<td>Societies that are high in uncertainty avoidance and have high context cultures are more likely to use information and conduct analysis</td>
<td>The more international/national standards are applicable, the greater will be the type, quantity and quality of information and analysis available</td>
<td></td>
<td></td>
<td>The higher the literacy rate in a society, the greater will be the type, quantity and quality of information and analysis available</td>
</tr>
</tbody>
</table>

| Implications for managers | Using Hofstede's (1980) dimensions workers Thailand and Germany are more likely to collect and analyze information as part of the quality management program. Also, controls might be put in place by MNCs to ensure that the local operations in these countries do indeed collect and utilize information as part of their quality processes | Nations develop or adopt standards from abroad. Operations located in developed countries such as in the European Union where standards have been locally developed would collect more and better quality information. However, for many MNC operations in developing countries, the standards need to be imported causing additional difficulties | | Countries with low level of education would present a problem for MNCs in the information collection and analysis process. Firms putting up operations in countries with low literacy rates might have to invest in educational facilities to ensure that the information processes are implemented correctly |

Table V. Information propositions and implications for practitioners
Management of process quality

The management of process quality refers to the systematic processes used by companies to ensure the quality of goods and services. Quality tools and techniques are necessary for the management of process quality to monitor and improve the performance of systems. These tools can be classified into two types: people-oriented and quantitative (Ettlie, 1997; Tata and Prasad, 1998b). Among the people-oriented approaches in use internationally, quality circles, just-in-time (JIT) techniques, and quality function deployment (QFD) seem to be the most popular. Although the use of quality circles began in the 1970s, it was only in the 1980s that it intensified in the USA (Kano, 1993). In a study of Saudi Arabian operations it was found that quality circles had successfully increased productivity and job satisfaction, and lowered absenteeism rates (Elmuti, 1989).

Other types of process improvement methods include QFD and tools/techniques as part of JIT philosophy and methodology. Many of the ideas of JIT originated in the USA (Robinson and Robinson, 1994), but have since evolved in Japan. In Japan, JIT systems put more emphasis on customers, flexibility, and problem prevention. For example, workers are given the authority to stop the production line (jidoka) to prevent quality problems. More recently in the West, organizations are using QFD to encourage the voice of the customer in the planning process and inspire sharing and cooperation (Zairi and Youssef, 1995). Today, the use of QFD has spread to other countries and it has been suggested that such techniques have helped East Asian nations grow rapidly (Lyu and Gunasekaran, 1993).

Among the more quantitative approaches, statistical quality control seems to be the most prevalent method internationally. Statistical quality control was developed in the USA by Bell Labs in the 1920s and 1930s. This knowledge was then exported to Japan in the 1950s, where it developed rapidly (Hart, 1991). By the late 1980s, many US firms had emulated the Japanese and were at the preliminary stages of using quality control (Modarress and Ansari, 1989); many USA subsidiaries of Japanese corporations were using advanced quality control methodologies (Ebrahimpour and Lee, 1988).

The literature suggests that the effectiveness of techniques, such as quality circles, is dependent on a number of factors including external environmental conditions (Fabi, 1992) and socio-cultural factors (Mathews et al., 2001). Training and the degree of voluntary management support were found to be the most important factors in the successful implementation of quality circles in the USA (Honeycutt, 1990). In contrast, problems in implementation arose in European countries due to cultural differences in terms of power and authority, distance between supervisors and subordinates (de Vries and van de Water, 1992), and the belief that conflicts between departments were natural (Atkinson and Naden, 1989).

Effects of culture on statistical process control (SPC) have also been reported in the literature. Bushe (1988) examined the relative emphasis on learning as
opposed to performance, the meaning of information, and holism versus segmentation on statistical quality control. Findings from this research indicate that SPC implementation and the nature of this technique are counter-cultural. Specifically, "learning must be as highly valued as performance for SPC to be successful" (Bushe, 1988). In addition, SPC tends to work against cultures with high power distance. Also, in certain cultures where events, actions and information tend to be viewed within a segmentalist context, SPC might be in conflict due to the holistic approach of the process and factory organization. The research on international quality management also indicates that barriers to the rapid implementation of quality control include the personality of inspectors (Hsu and Chan, 1994), social structures, employment patterns, and religion (Handfield, 1989). However, these cultural differences may be managed by employing the right managerial approach (Melcher et al., 1990). Therefore, for successful implementation of such programs it is necessary to adapt quality management practices to the environment in which they are being administered (Frohner and Iwata, 1996).

The connection between political-legal systems and the management of process quality has not been thoroughly examined in the literature, but the existing research suggests that the use of quality tools and techniques becomes more prevalent as the system becomes more open. For example, when New Zealand moved away from protectionist policies, local industries realized that they had to implement quality techniques (Adam et al., 1994). Similarly, government subsidies have been found to act as an impediment to the rapid implementation of quality control (Al-Faraj and Alidi, 1992).

The literature also suggests that the success of both quantitative and people-centered approaches can be influenced by the level of education in the society (Honeycutt, 1990); for example, the UAE employs many semi-literate workers from South Asia (Badri et al., 1995), making the use of SPC and quality circles difficult. The training for quantitative techniques such as SPC and product design also varies between the USA and Japan; SPC training in the USA is not linked to process standardization (Kano, 1993) and limited to specific departments; Japanese firms extend training on quality control throughout the organization.

Based on the literature discussed above, it appears that the socio-cultural and educational conditions prevalent in the international environment can influence the management of process quality. Thus, it was proposed:

P5. International environmental conditions will influence the management of process quality.

Mid-level propositions can also be generated as detailed in Table VI.

Quality and operational results
Quality and operational results (that is, improvements in quality outcomes) are influenced by the five dimensions of quality management discussed earlier –
Table VI. Management of process quality: propositions and implications for practitioners

<table>
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<tr>
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<th>Socio-cultural</th>
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<th>Economic</th>
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<tr>
<td>Propositions</td>
<td>Societies that are more collective, have low power distance, low uncertainty avoidance and low context are more likely to use qualitative and quantitative tools</td>
<td>The greater the protectionist policies in place, the less is the likelihood of quality tools and techniques being used</td>
<td>The greater the availability of government subsidies, the lower will be the use of quality techniques</td>
<td>The higher the literacy rates of employees, the greater will be the likelihood of both quantitative and qualitative techniques being used</td>
</tr>
<tr>
<td>Implications for managers</td>
<td>Using Hofstede’s (1980) dimensions, countries such as Belgium and France are less likely to use qualitative and quantitative tools. Hence, in these countries MNCs need to place additional resources in training workers to employ these techniques and controls to ensure their use</td>
<td>Industries in specific countries enjoy protectionist policies. However, such barriers lead to a reduction in the use of quality tools and techniques</td>
<td>Government subsidies are often sought out by firms to lower their cost of production. However, it is essential that such financial incentives do not reduce the use of quality techniques. More monitoring of the use of the techniques should occur in such cases</td>
<td>Operations in developing countries might face difficulties on the use of both qualitative and quantitative techniques due to the lack of education among its workers. It is imperative that MNCs in such locations invest in the primary education of workers. Only when workers are fully literate will the use of quality techniques be truly effective</td>
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</table>
strategic quality planning, customer focus and satisfaction, human resource development and management, information and analysis, and management of process quality (Award Criteria, 1996) — and, therefore, are indirectly influenced by international environmental conditions. For example, there is considerably more difficulty in promoting quality management in developing countries due to problems such as unorganized customer sectors, lack of quality standards and testing facilities, obsolete technologies, low levels of education, dearth of capital for technological investment, and lack of communications infrastructures (Lakhe and Mohanty, 1994, 1995). In addition, in many of these countries, public sector operations are viewed as sources of employment rather than units for profit (Majumdar et al., 1991).

These indirect effects of international socio-cultural, political-legal, economic, and educational conditions on quality outcomes might explain differences across countries in terms of quality results. The evidence from developed countries such as Australia (Sohal and Terziowski, 2000), New Zealand (Batley, 1993) and Spain (Lewis, 1992) indicates that operations in these countries are capable of producing high quality products, but have not yet maximized their levels of quality, perhaps because of socio-cultural factors; firms still tend to be internally-oriented and lack top management commitment to quality (Dumond, 1995). In the USA, quality is being viewed as important by all employees, but process improvements had been primarily limited to the production area (Nichols and Fournier, 1999).

In addition, quality outcomes can be connected to political-legal conditions. In countries with closed markets, such as in the former Soviet Union, quality levels remained stagnant (Forker, 1990), whereas quality levels have increased in emerging markets as entry barriers have fallen (Boom, 1995; Chen, 1992; Fatti and Stewart, 1986; Feigenbaum, 1994; Mustafa, 1994; Tagaras et al., 1994).

International economic conditions can also explain why many countries have improved their quality levels in both newly-industrialized and developing regions of the world. For example, research in Singapore found that, as the level of economic development increased, quality standards increased (Pheng, 1993; Yong and Wilkinson, 2001) and TQM factors (e.g. the role of top management leadership, customer focus, human resource focus, information and analysis) correlate with quality performance (Brah et al., 2002). Another stream of research (e.g. Das et al., 2000), however, suggests that the link between quality practices and outcomes may be weaker in highly dynamic, competitive market environments because other factors, such as product innovation, may have a greater impact on firm performance in such environments. The literature also indicates that improvements in quality can influence other operational outcomes; for example, researchers have found that quality practices resulted in increased productivity in the USA (Lewis, 1992), and a decrease in setup time with a corresponding 10 per cent to 15 per cent improvement in productivity in the UK (Capon et al., 1995). Other evidence from the USA and Australia
indicates that higher quality reduces costs and improves profitability (Eisen et al., 1992; Johnson and Kleiner, 1993), contrary to the expectations of some managers (Wisner and Eakins, 1994). In addition, differences in quality management methods and levels in the two countries (Rho et al., 2001) have narrowed since a decade ago (Kobu and Greenwood, 1991). In addition, in the USA, Baldrige award winners have been rewarded with above-average shareholder value (Tai and Przasnyski, 1999).

Based on the literature discussed above, it appears that the socio-cultural, political-legal, economic, and educational conditions prevalent in the international environment can indirectly influence quality and operational results through the mediating influence of strategic quality planning, customer focus and satisfaction, human resource development and management, information and analysis, and management of process quality.

**Discussion and conclusion**

Quality management has been evolving since ancient times (Juran, 1995) and will continue to do so in this millennium in tandem with the international environment. As the achievement of high levels of quality becomes more important, organizations around the world are implementing quality management practices. The success of such practices, however, often depends on the extent to which they take into account the unique socio-cultural, political-legal, economic and educational conditions found in the international environment.

In this research we develop a model of international quality management as a function of socio-cultural, political-legal, economic, and educational factors. Links between these factors and dimensions of quality management are highlighted, including strategic quality planning, customer focus and satisfaction, human resource development and management, information and analysis, management of process quality, and quality and operational results.

The model and propositions developed here can potentially be of use to practitioners such as governments and businesses trying to raise quality levels. Tables II-VI, present a list of mid-level propositions and corresponding examples of how practitioners could use this information. There are 19 specific recommendations provided in these tables. Businesses can examine the specific socio-cultural, political-legal, economic, and educational environmental conditions prevalent in a region or country, identify their impact on dimensions of quality management, and figure out how best to implement quality management practices under those specific environmental conditions. Similarly, governments can examine international environmental conditions to understand how best to adapt or manage those conditions to improve quality practices. For example, in Table II, the effect of the political-legal systems on strategic quality planning is explained. Strategic planning is more likely to occur in open societies relative to closed ones. Given all things being equal, open
societies such as the USA will have more strategic planning than closed societies such as China. However, as nations such as Russia are becoming more open politically/legally a greater level of strategic planning would be expected. Likewise, in Table III, the influence of culture on customer focus and satisfaction is identified. Using Hofstede's (1980) dimensions, countries such as Singapore and Canada will require a greater degree of customer focus and satisfaction. In these countries, companies could perhaps use QFD to get a greater degree of precision in aligning product and quality levels to customer needs.

This paper can also be useful to researchers in the area of international quality management. The synthesis of the literature and the development of propositions helps us understand the relationships between dimensions of quality management and international environmental conditions. The existing literature largely provides descriptions of quality practices in specific countries or makes comparisons between established trading partners such as the USA and Japan. The model and propositions developed in this paper go a step further and provide a more integrative analysis, which can help us understand differences in quality across countries.

The propositions developed here present general relationships between abstract constructs such as international environmental conditions and strategic quality planning, management of process quality, etc. These propositions can provide guidelines for further empirical research in international quality management; future researchers can use this model to develop specific hypotheses (relationships between specific variables). For example, the model can be tested by collecting data on various operations of a single MNC around the world. Using data from one company in a manner such as Hofstede's (1980) work holds constant the effect of intra-organizational factors such as company culture and stage of development on quality management. Specific measures to conduct such a large-scale study are available in the literature (Saraph et al., 1989). Measures for a country's education level, political-legal openness, and economic competitiveness are published by international agencies such as the World Bank. Measure of socio-cultural dimensions are reported by Hofstede (1980). Once the data has been collected, statistical analysis can be used to identify the specific effects of international conditions on quality dimensions.

The integration of the literature also indicates areas in international quality management that need further examination. For example, numerous studies have examined the connection between international socio-cultural conditions and strategic quality management. Few studies, in contrast, have examined the relationships between strategic quality planning and international political-legal and economic conditions. Future researchers can further examine such issues. For example, previous international studies on strategic quality planning could be combined with data on country conditions, and salient relationships identified using structural equations modeling.
Another type of study that researchers might want to embark on would be to conduct quantitative meta-analyses, that is, statistical procedures used to integrate and summarize the results of independent, primary-level studies that can be applied to test theoretical issues using the results of previous research (Mullen, 1989). For example, if several researchers have examined the effect of geographic distances on quality effectiveness, quantitative meta-analyses can provide numerical integrations of the results of those studies. In addition, longitudinal studies of the patterns of quality management dissemination among different regions of the world can highlight the long-term effects of international socio-cultural, political-legal, economic, and educational environmental conditions.

Note

References


Award Criteria (1996), Malcolm Baldrige National Quality Award, US Department of Commerce, Washington, DC.


Further reading


Dimensions in quality management

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