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## **ISO 9000 in Education: a comparison between the United States and England**

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**ABSTRACT** Quality schooling has often been a subject of international concern. In an effort to meet government standards for federal funding, improve their performance, and obtain public trust, education institutions of all levels, in many countries are implementing the market-based ISO 9000 quality management system. ISO 9000 is an international quality management system created by the non-governmental organization, International Organization for Standardization (ISO). The literature surrounding ISO 9000 in education indicates that the application of this quality management system to education is debatable, the implementation process is time-consuming and difficult, and that the subject is understudied. While there have been numerous case studies on ISO 9000 in education, this was the first study to use quantitative survey research methods to examine and compare ISO 9000 implementation in education institutions in two different countries, the United States and England. Interestingly, US and English institutions turned out to be very much the same with regard to ISO 9000. For example, US and English education institutions have a similar time to ISO 9000 registration, define their customer, stakeholder, suppliers, and partners in the same manner, and are implementing ISO 9000 for similar reasons.

### **Introduction**

According to recent literature, ISO 9000 is becoming a popular choice for a quality management system in education institutions worldwide. Unlike the last two decades, where 'until mid-1995 just four schools in the whole world were granted accreditation by ISO [International Organization for Standardization],' the late 1990s experienced the most current movement of education institutions to adopt a quality management system (Shlomo & Moti, 1999). No formal statistics exist on the number of education institutions involved, but according to Zuckerman & Rhodes (2000), a variety of education institutions in Canada, Singapore, the United Kingdom, Switzerland and Australia have started to implement ISO 9000. The movement to implement ISO 9000 first started in the United Kingdom, followed by other European countries and then, finally, by the USA and Asia (Van den Berghe, 1997).

### **Purpose of the Study**

While implementing ISO 9000 in education institutions may potentially become a widespread practice, Crossley (2001) points out that 'while we can learn much from the experience of others, there are very real dangers in the uncritical transfer of policy and practice' (p. 45). Therefore, the purpose of this study was to examine and compare ISO 9000 in US and English education institutions. Building on previous qualitative research, this was the first study to use quantitative

survey research methods to examine and compare ISO 9000 implementation in two different countries. Specifically, the purpose of this study was to address the following 11 research questions:

- RQ1. How many education institutions in the USA and England are implementing ISO 9000?
- RQ2. Which types of education institutions are implementing ISO 9000 in the USA and England?
- RQ3. What are the primary reasons education institutions in the USA and England are implementing ISO 9000?
- RQ4. Did education institutions in the USA and England have other quality management systems or practices in place before implementing ISO 9000?
- RQ5. How long does it take education institutions in the USA and England to implement ISO 9000?
- RQ6. How many years have education institutions in the USA and England been registered to ISO 9000?
- RQ7. What is the cost of ISO 9000 implementation in the USA and England?
- RQ8. How does management in the USA and England show commitment to ISO 9000, and is there a management representative at every education institution?
- RQ9. Are education institutions in the USA and England obtaining external assistance (i.e. consultants or guidance documents) during the implementation of ISO 9000?
- RQ10. Before ISO 9000 implementation, are education institutions in the USA and England interpreting the standards into language that is related to education?
- RQ11. Do staff in the USA and England understand the internal processes of the education institution as defined by the ISO 9000 standards?

As the first study of this type, the results of this research will provide a comprehensive profile and comparison of education institutions that are implementing ISO 9000 in the United States and England. This research will inform consultants, policy makers, school administrators and registrars in national or international education institutions about ISO 9000 in education. The remainder of this article has been organized into the following sections: definition of ISO 9000; history of ISO 9000; ISO 9000 in education; ISO 9000 in US and English education; research methodology; findings; conclusions, and recommendations for future research.

### **Definition of ISO 9000**

The ISO 9000 international standards are a set of written guidelines that make up a non-specific quality management system that can be applied to any organization regardless of the product or service being provided (Kantner, 2000). According to its design, ISO 9000 simply provides a framework, without changing how the organization operates, 'that ensures that nothing important is left out and that everyone is clear about who is responsible for doing what, when, how, why and where' (ISO, n.d., para. 4).

Before becoming registered to the standards, an organization must comply with four levels of documentation. These levels include creating a quality manual, documenting procedures and forms, documenting instructions, and documenting supporting information. Once an organization has implemented all levels of the quality standards, a third-party audit is performed where the documents and performance of the organization are checked and compared with the ISO 9000 standards. The organization may or may not be certified to the ISO 9000 standards, depending upon the success of the audit (Harding et al, 2000).

Once certified, the ISO 9000 standards aid the organization in the marketplace due to the customer perception of 'certification' as 'quality'. The ISO 9000 standards ensure customers that products or services, regardless of the country of origin, are of the same quality (ISO, n.d., para. 2). Additionally, the standards allow organizations all over the world to apply the same rules and regulations to their systems of production or service.

### **History of ISO 9000**

The concepts of quality standards have existed since ancient times with the practice of standardizing stones and wooden gouges for measurement in the civilizations of the Egyptians and

Sumerians. Traces of standards for goods and products can be found throughout history with the merchants and tradesmen in the Roman Empire, China, India, Japan and the Islamic world. In the fourteenth century, the King of England standardized the quality of silver and gold, and during the Industrial Revolution in Europe, a set of strict standards was set up in the textile industry. In the early nineteenth century, a series of work standards was developed under the principle of 'scientific management' by Frederick Winslow Taylor (Hoyle, 2001).

Loya & Boli (1999) report that the first modern international quality standards can be traced back to the year 1926 when the International Federation of National Standardizing Association (ISA) for mechanical engineering was founded. Loya & Boli (1999) also report that the ISA dissolved during the Second World War. However, according to Stimson (1998), during the Second World War, quality standards were developed for both products and processes, which included the British Standard (BS) 5750 standard and the US Mil-Q-9598 standard.

After the Second World War, the concept of quality was taken seriously and used in various ways by many countries such as France, England, and Japan. In England, the private sector was encouraged to utilize the BS 5750 standard. However, in the USA, the standards were limited to the defense sector since the Government held to its laissez-faire policy regarding the marketplace (Stimson, 1998). In the 1980s, the BS 5750 standards became the cornerstone for national quality, and many other countries, including the USA, based their own national quality systems on the English standards. In the USA, this standard was developed and released as the American National Standards Institute (ANSI) ANSI 90 series of quality standards.

In 1947, during the same postwar era when the BS 5750 standards were gaining popularity, 25 national standardizing associations established the International Organization for Standardization (ISO) for a 'fresh start' in developing international quality standards (Loya & Boli, 1999). The founding of ISO was part of a global action to 'rationalize the thousands of conflicting standards of the various nations' and 'to promote standards in international trade, communications, and manufacturing' (Goetsch & Davis, 2002, p. 3). ISO is an international non-governmental organization, based in Geneva, Switzerland, and is not a part of any federal government, the European Union (EU) or the United Nations (UN) (Goetsch & Davis, 2002). However, ISO does have consultative status with 40 intergovernmental organizations (IGO) and the UN (Loya & Boli, 1999).

Individual countries may participate in ISO by having a national standard body that obtains membership in ISO. These member bodies may be governmental, quasi-governmental or private (Loya & Boli, 1999). A full member body is described by ISO as the national body 'most representative of standardization in its country.' These members of ISO are involved in the process and development of any of the ISO standards. Full member bodies are also entitled to participate and exercise full voting rights on any technical committee and policy committee of ISO (<http://-4mu/www.iso.org>). In the USA, this national body is known as American National Standards Institute (ANSI) and in the United Kingdom the national body is the British Standards Institute (BSI).

In 1987, ISO created the ISO 9000 quality standards, which were almost an exact copy of the successful British standard (Van den Berghe, 1997). This first set of standards, *ISO 9000: 1987*, was adopted by BSI in the United Kingdom and the European Committee for Standardization Commission (CEN) in the 1980s. Between 1987 and 1994, the standards underwent approximately 250 changes that were intended for clarification. It was only after this 1994 version was released that more than 60 other countries adopted the ISO 9000 standards in place of their own national standards (Tricker & Sherring-Lucas, 2001). The standards were revised again and re-released in the year 2000 as *ISO 9001: 2000*.

In this most recent revision, the *ISO 9001: 2000* quality management system consists of a set of quality standards that have been revised and improved in order to better be applied to a wider variety of organizations. The objective of ISO 9000 has changed from a model for quality assurance to a set of standards for effective quality management. The previous standards of *ISO 9001: 1994*, *ISO 9002: 1994*, and *ISO 9003: 1994* have been integrated into the *ISO 9001: 2000*. Organizations certified under any of the previous versions are now required to seek recertification under *ISO 9001: 2000*. Similarly, organizations certified under ISO 9001 must update their quality systems to meet *ISO 9001: 2000* requirements. This newest revision of ISO 9000 focuses on the aspects of the

management system that will deliver customer satisfaction and continual improvement of the system through objective evaluation (Hoyle, 2003).

Today, the ISO 9000 standards are being implemented around the world at an amazing rate. ISO has over 150 members and over 510, 000 registrations to the ISO 9000 standards (ISO, 2002). Loya & Boli (1999) note that the 'uniformity engendered by standardization is deep and far-reaching, but it is also subtle' (p. 197). Quality standards affect almost every aspect of daily life from dress sizes to television broadcasting to car models (Goetsch & Davis, 2002). But, 'remarkably, the global standardization sector and its consequences are invisible to almost everyone affected by them ... even their very existence is largely unknown outside rather narrow circles' and until recently, social scientists have not considered it a topic worth much study (Loya & Boli, 1999, p. 170).

### ISO 9000 in Education

Recently, education institutions have come under increasing pressure to improve and adopt a market-based, quality management system such as ISO 9000. There is pressure from ISO (Loya & Boli, 1999), pressure from the changing global environment and diminishing resources (Welch, 1998), and pressure for educators to meet the needs of industry with a better-skilled, quality workforce (Leslie, 1999). In addition, education institutions face financial accountability from state and institutional supporters (Peters & Wills, 1998).

A scan through the literature will reveal that ISO 9000 implementation is occurring in most countries around the globe. For example, ISO 9000 is being implemented in private schools in Thailand (Ayudhya, 2001), in the Technion-Israel Institute of Technology (Waks & Moti, 1999), in private education institutions and higher education in Turkey (Gozacan Borahan & Ziarati, 2002), in primary schools in the United Kingdom (Garbutt, 1996), in universities, colleges of further education, and primary schools in the United Kingdom (Moreland & Clark, 1998), in vocational education in the USA (Nair, 2002; Bevans-Gonzales & Nair, 2004), and also in the education system of Hong Kong (Kin-Keung Chan & Lai, 2002).

However, as ISO 9000 was originally intended as a quality system for the manufacturing industry, the transition of ISO 9000 to education has been far from smooth. Filled with controversy, the information surrounding ISO 9000 in education is immense and confusing as education institutions at every level and in every country are experimenting with the standards. Yet, despite the apparent popularity of this quality management system, and the controversy surrounding it, 'surprisingly, the standard has not been the subject of sustained scholarly analysis' (Corbett & Kirsch, 2001, p. 328).

For the purpose of much-needed clarity in the large amount of confusing information, the literature on ISO 9000 may be arranged into three dominant categories: official documentation, scholarly research, and anecdotal materials. Anecdotal materials include information such as articles or implementation suggestions from freelance writers and consultants. In this article, the review of literature was limited to a summary of the official documentation and the scholarly research available for ISO 9000 in education.

#### *Official ISO 9000 Documents*

The official documentation surrounding ISO 9000 in education consists of literature obtained from organizations and independent registrars such as ISO, ANSI, BSI and the European Centre for the Development of Vocational Training (CEDEFOP). These documents were developed in the late 1990s in both the USA and Europe and include the *BS 5750: Guidelines for Application to Education and Training* (British Standards Institute, 1991), the *ANSI/ASQC Z1.11-1996 Quality Assurance Standard – Guidelines for the Application of ANSI/ISO/ASQC Q9001 or Q9002 to Education and Training Institutions* (American Society for Quality Standards Committee, 1996), and the *Application of ISO 9000 Standards to Education and Training: interpretation and guidelines in a European perspective* (Van den Berghe, 1997).

The BS 5750 guidelines (developed in the UK) and the ANSI/ASQC Z1.11 guidelines (developed in the USA) were created with the goal of assisting education and training establishments in the

implementation of ISO 9000; and, to improve the communication between training and education institutions and the independent registrars. Both documents are very brief and are not to be utilized alone or to replace the actual standards. While more helpful than the actual ISO 9000 standards document, the guidelines created by the United Kingdom and USA are broad and non-specific, making it still very difficult for administrators, faculty, teachers and staff to interpret and implement the ISO 9000 standards.

In contrast to the brief documents created by the United Kingdom and the USA, the *Application of ISO 9000 Standards to Education and Training: interpretation and guidelines in a European perspective* offers a more extensive, in-depth review of the ISO 9000 standards and their effect on education and training institutions. These guidelines are based on research conducted in 1995 in several European countries (United Kingdom, France, Germany, Belgium, the Netherlands, and Denmark) by the European Centre for the Development of Vocational Training. In this document, Van den Berghe (1997) provides the positive and negative consequences of ISO 9000, and an interpretation of the standards into educational terms. But, due to lack of resources, the study did not include any new case-studies or an actual survey. Instead, the study was based on existing information, descriptions of case studies, reports or articles, and quality manuals of ISO 9000 certified institutions.

Currently, the newest developments on ISO 9000 in education are happening in the central body of ISO. The central organization is supporting the development of the *International Workshop Agreement 2: Quality Management Systems Guidelines for the Application of ISO 9001: 2000 in Education*. The guidelines are in the draft stage, but they were published in November, 2003 by ISO as an International Workshop Agreement (IWA). Different from traditional standards, an IWA is created by the participants at a workshop. Once created, the IWA must be reviewed for a number of years by a designated ISO member body, which may result in publication or withdrawal of the IWA.

The objective of the IWA is 'to provide guidelines to assist organizations that provide educational products to implement an effective quality management system that meets the requirements of *ISO 9001: 2000*, and to help educational organizations to relate the concepts in ISO quality management system standards to education practices' (IWA, 2003, p. 1). In addition, the IWA guidelines contain language support for the ISO 9000 standards in any level of education and provide definitions to help education institutions identify their customers, their customer requirements and their quality process. It still remains to be seen if this document will be of more assistance to those who wish to implement ISO 9000 in their education institution than the previously published guidelines.

#### *Scholarly Research*

Scholarly studies on the subject of ISO 9000 in education are becoming more prevalent, but the majority of studies are focused on the following four areas: the controversial application of ISO 9000, and other such market-driven concepts, to education (Welch, 1998; Alderman, 1999; Peters, 1999; Waks & Moti, 1999), the benefits and detriments of the standards (Solomon, 1993; Waks & Moti, 1999; Nair, 2002; McAdam et al, 2002; Bevans-Gonzales & Nair, 2004), the costs of implementation (Doherty, 1995; Zuckerman & Rhodes, 2000) and 'how-to' suggestions for the implementation process. In many of these publications, ISO 9000 is usually discussed or studied in conjunction with other quality management systems such as total quality management (TQM), the Business Excellence Model (BEM) or as it relates to concepts such as 'managerialism' or 'sense-making' (Moreland & Clark, 1998; Kin-Keung Chan & Lai, 2002) and 'competitiveness' or the 'privatization of education'. This study was not conducted in order to enter into the debate on ISO 9000 in education, which may be a debate that never ends. Instead, it is the purpose of this study to build on the previous research (primarily conducted through case study analysis) in order to obtain a more comprehensive understanding of ISO 9000 in education institutions in two different countries.

### ISO 9000 in US and English Education

It is important to express that an extensive description of the educational systems, and education policy, of England and the USA was not within the scope of this study; nor was it the intention of the authors to promote that one system is better or worse than the other system. The difference between the English and US educational systems is a topic in its own right and has been thoroughly analyzed by other authors, (see Green, 2001). Information on this subject was provided for the purpose, as cited by Noble (1997), of meeting two primary requirements of international comparative research: 'showing sufficient institutional and cultural similarity between countries to make the study meaningful' (Marsden & Ryan, 1991, p. 251). Therefore, a brief explanation will be given of the similarities and differences of the USA and England as they relate to the study of ISO 9000 in education.

The primary divergence in the US and English approach to the ISO 9000 quality standards is in the structure of their quality systems. In England and all other countries, except the USA, the private registrars for the standards are overseen by the Government in order to ensure uniformity among the standards. In addition, England has been more aggressive with the ISO 9000 standards, creating agencies to promote knowledge of the standards and encouraging all organizations to register (Stimson, 1998). BSI, the United Kingdom's ISO full member body, has become the world's largest management systems registrar with approximately 23,000 members (Loya & Boli, 1999) and routinely conducts research, publishes and promotes information about ISO 9000. Furthermore, according to authors such as Van den Berghe (1997) and Doherty (1995) the first education institutions that were ISO 9000 certified were located in England. Unlike BSI, the US registrar, ANSI, has approximately 2000 members and is described by Loya & Boli (1999) as a 'loose, disjointed federation ... under overt international pressure as well as pressure from their member firms to become more like other national bodies' (p. 177).

The major difference in the education systems has to do with control and centralization. As one of the four countries of the United Kingdom, England has a national curriculum, a national system of testing, and a system that is both centralized and decentralized. It includes bilingual and religious education in the curriculum, and compulsory education finishes at age 16 (in the USA it is age 18) (Green, 2001). The Department for Education and Skills (DfES) in England is responsible for all schools, maintained and independent, and further and higher education (Mackinnon et al, 1995, p. 96). In contrast, as suggested by Conway et al (2002), the USA has a highly decentralized education system with 15,000 school districts, almost all of which have distinct curriculum, instruction and assessment. The USA also faces an increasingly diverse student population, which brings struggles with the issue of bilingual education.

Despite these differences, in the context of this study, the USA and England provide an excellent basis for comparative international education studies since they share a common language and history, and they often face similar economic imperatives and policy problems. Furthermore, both countries have an increasingly diverse student population and an aging baby-boom population. Other similarities of English and US educational systems also exist, including: a similar bureaucratic organization of schools with English local education authorities comparing to US local school districts; a similar curriculum, with a focus on core subjects such as English, mathematics and science; a similar organization of schools into primary and secondary levels and social importance placed on further education by families and communities (Green, 2001).

Currently, no specific government policies, in England or the USA, appear to exist regarding the implementation of ISO 9000. However, in the late 1980s and continuing through the 1990s, policies began to appear in both England and the USA that supported market-driven, more efficient, quality measures in education. In the United Kingdom, these policies were supported by Prime Minister Thatcher and strengthened with the Education Reform Act of 1988. The 1988 Act allowed business representatives on national curriculum panels and governing bodies, modeled schools on a market system, enabling them to compete for students, forced poor schools to close, and allowed grant-maintained (charter schools) to open, giving more control to parents (Stromquist, 2002). Furthermore, according to Welch (1998), encouraging education institutions to serve the economy more efficiently and take account of the economic requirements of the country was made clear in the 1987 UK White Paper.

Similar to the political movement in the United Kingdom, market-driven policies linking education to the economy were supported in the USA by President Reagan. These ideals continue to be supported by both the Bush administrations and the Clinton administrations in the 2002 *No Child Left Behind Act* and the *Goals 2000: America 2000: an education strategy*. These policies promote more school choice, corporate involvement in schools, and were made with the objective to improve the competitive edge of the country in international markets (Spring, 2002).

Due to their differences, care must be taken when conducting comparative studies between the USA and England. Not only are there definite differences in the English and US approach to ISO 9000, but also in their existing education systems. However, as global leaders in the area of quality standards, the similarities of the US and English school system, their shared policy development, and their association with the history and development of ISO 9000 standards make these two countries ideal for the cross-national comparison of this subject.

## Methodology

As an international issue that is affecting education in many countries, this study explored ISO 9000 from the perspective of comparative international education. Considered both a method and an object of study by scholars such as Halls (1990), this research utilized comparative education as a methodology. The majority of research about ISO 9000 has been conducted via qualitative approaches, predominantly through case study analysis. This past research has provided a substantial amount of literature on ISO 9000 and has also allowed variables to be extracted from this literature, which, therefore, make the research suited to a quantitative study (Creswell, 1994).

The data in this study was collected from November 2004 to January 2005 with a cross-sectional, telephone survey conducted at education institutions registered to ISO 9000 in the USA and in England. The survey respondents were staff members who had been assigned to oversee the ISO 9000 implementation process at each school. The unit of analysis of the study was organizational as the research focused on education institutions in the USA and England. The population in the study included any education institution (with a focus on institutions that offer full-time, compulsory schooling or higher education) that was registered to ISO 9000 in the USA and England. These education institutions include higher education institutions, secondary, primary, and vocational or technical education institutions.

## Population and Sample

The issue of population and sample selection of these education institutions proved to be the most complicated aspect of the study. Despite the fact that ISO functions in a highly rationalized and technical environment, surprisingly, the researchers found the central body of ISO and the national bodies to be poorly organized and vague in respect to maintaining records of ISO 9000 registered institutions. This experience matches the description of the standardization sector by Loya & Boli (1999) as 'almost incomprehensibly complex ... even many participants have a fuzzy and incomplete image of their place in the whole' (p. 176).

Neither ISO (the central body) nor any national member bodies keep records of the number of ISO 9000 registered organizations. Instead an outdated list of education institutions registered to ISO 9000 as of October 2004 was obtained from private publishing companies that collect and disseminate information about ISO 9000 and the independent registrars. The BSI, the ANSI, the central body of ISO, the DfES in England, and several State Departments of Education in the USA were unable to verify or provide more information regarding the number of ISO 9000 registered education institutions. Most of the responses from these agencies were as follows: 'I could find no resource for the schools registered to ISO 9000 in England' (DfES, personal communication, October 24, 2004). The researchers verified the list by making preliminary calls to all institutions included on the list.

When the researchers made preliminary calls, they discovered that a number of institutions are voluntarily terminating their ISO 9000 registrations (an unanticipated finding that will be discussed in the Findings), and a final population identified for this study included 21 educational sites in the USA and 19 educational sites in England that were currently registered to ISO 9000.

### *Instrumentation*

The survey instrument utilized in the study was based on 15 variables that were operationalized by concept, variable, measure, and survey question in order to show a link between the purpose of the study, the literature and the survey instrument. The survey included 50 questions that were a mix of closed-ended and open-ended questions.

To ensure the validity and reliability of the study, several steps as suggested by Dillman (2000) and Fowler (1993) were followed. Questions on the survey were written and asked in complete sentences, the same scripts were utilized for every interview, and optional wording and definitions were provided in the script in order to maintain a consistent stimulus for each interview. An expert panel and pilot study were also conducted with the survey instrument. The comments and corrections from the expert panel and pilot study were incorporated into the survey before the study was conducted.

In addition, responses for items on the survey that were measured with three or more ordinal scales were checked for internal consistency and reliability utilizing a Cronbach  $\alpha$  coefficient. For the US survey responses, Cronbach's  $\alpha = 0.79$ . For the English survey responses, Cronbach's  $\alpha = 0.92$ . McMillan (2000) suggests that a value of 0.78 and higher is sufficient, and, therefore, it was considered that the reliability of the survey responses were adequate.

### *Data Analysis*

Nominal data were counted and described by frequency and percentages. Ordinal data were described utilizing measures of central tendency and spread such as the median, mode and percentages. Numerical data were described utilizing measures of central tendency and spread such as the mean, median, mode, range, and the standard deviation from the mean. Qualitative data was utilized to supplement the quantitative responses.

For the comparison between countries, parametric and non-parametric statistical tests were utilized. For interval by categorical data, if the data set was large enough a Brown–Forsythe analysis of variance (ANOVA) test was utilized to examine the difference between countries. According to the recommendation of Siegel & Castellan (1988), non-parametric tests were utilized if the data did not fit the assumptions for normality, measurement, and sample size. For ordinal-level data, a Kruskal–Wallis analysis of variance (ANOVA) was utilized. For nominal-level data, a  $\chi^2$ -test or a Fisher's exact test was utilized. Due to small sample sizes, if it did not alter the meaning of the data, it was occasionally necessary to collapse the data into fewer categories in order to perform meaningful statistical functions. For all tests comparing the two countries,  $\alpha$  was set at 0.05.

### *Response Rate*

The response rate was calculated according to the suggestion of Fowler (1993). In the USA, 19 out of 21 responses were obtained, which provided a response rate of 90.5%. In England, 11 out of 19 responses were obtained, which provided a response rate of 58%. For both countries, the response rate surpassed the 'response rate of 50 percent' that Babbie (1998) considers 'adequate for analysis and reporting' (p. 262). The non-respondents in the USA included two education institutions that refused to participate in the study due to a disappointing previous experience with other research projects. In England, the non-respondents included several individuals who were 'too busy,' and a few education institutions that were going through major restructuring and did not currently have an individual in charge of ISO 9000.

## **Findings**

### *RQ1. How many education institutions in the USA and England are implementing ISO 9000?*

At one time, according to the information obtained from the independent registrars in the USA and England, it appears that there were as many as 49 education institutions registered to ISO 9000 in the USA and 27 education institutions registered to ISO 9000 in England. Yet, when the researchers

made preliminary calls, they discovered that a number of institutions are voluntarily terminating their ISO 9000 registrations. Education institutions are not losing their ISO 9000 registrations – they are intentionally making the decision to stop using ISO 9000.

According to the respondents from the US education institutions, their education institutions dropped ISO 9000 registration due to cost and change in leadership. One US respondent noted that all of the education institutions in their district were no longer using ISO 9000 due to the high costs and the resignation of the Quality Director. The decision to drop ISO 9000 was made by a board at the school district level, which had a hard time justifying the \$7,500-\$10,000 annual cost to maintain ISO 9000 registration. Another US respondent noted similar reasons for dropping ISO 9000, and reported that the leadership of the school district changed and no longer viewed ISO 9000 as a priority. The problem was that ISO 9000 did not directly affect ‘kids or student achievement’ and due to budget cuts, the school district no longer had the ‘manpower or the finances’ to support ISO 9000.

An English respondent reported that English education institutions have started to drop ISO 9000 due to so many other inspections. English education institutions have inspections for ISO 9000, from the Office for Standards in Education (Ofsted), and from the Learning and Skills Council, just to name a few. According to the respondent, out of all these inspections, the ISO 9000 quality management system is voluntary, so it is the one that gets dropped.

The fact that education institutions are dropping ISO 9000 resulted in a final population that included 21 educational sites in the USA and 19 educational sites in England that were currently registered to ISO 9000. This is surprising and seemingly undocumented since previous literature suggested that implementation of ISO 9000 in education is growing in popularity, but no one had any actual numbers to report.

*RQ2. Which types of education institutions are implementing ISO 9000 in the USA and England?*

The majority of US education institutions involved in the study (73.7%,  $n = 14$ ) were secondary vocational-technical schools also known as career and technical centers. The remaining US education institutions included one technical academy, one high school, one middle school, one elementary school, and one college division. The majority of the English education institutions involved in the study (72.7%,  $n = 8$ ) were general further education colleges. The remaining education institutions included one secondary school, one independent, English as a second language school, and one business enterprise unit (similar to a college division in the USA). The majority of the education institutions in both countries were completely registered to the ISO 9000 standards (73% in England and 95% in the USA).

*RQ 3. What are the primary reasons education institutions in the USA and England are implementing ISO 9000?*

In the USA, 57.9% ( $n = 11$ ) of the respondents reported that the primary reason their school adopted ISO 9000 was ‘to improve school efficiency.’ Other reasons reported were ‘to have ISO 9000 as a market tool’ (31.6%,  $n = 6$ ); and because of ‘pressure from industry to provide more-skilled workers’ (10.5%,  $n = 2$ ). In England, 72.7% ( $n = 8$ ) of the respondents reported that the primary reason their school adopted ISO 9000 was ‘to have ISO 9000 as a market tool.’ Other reasons were ‘to improve school efficiency’ (18.2%,  $n = 2$ ) and ‘because of a changing socio-economic environment’ (9.1%,  $n = 1$ ). Education institutions in each country implemented ISO 9000 for similar reasons – either to have ISO 9000 as a market tool, or to improve the efficiency of the school.

*RQ4. Did education institutions in the USA and England have other quality management systems or practices in place before implementing ISO 9000?*

In the USA, most of the respondents reported that before ISO 9000 there was either a different or unspoken/unwritten quality management practice at their education institution. These previous practices usually included an informal set of regulations. For example, one school noted, ‘we had

started TQM [total quality management] training, but we weren't formalized.' In England, the majority of the respondents also reported that a different or unspoken/unwritten quality management practice existed in their school before ISO 9000. These previous practices were usually described as 'our own documented system,' or a quality management practice 'based around government inspection criteria.' One school noted that the previous quality management practice was 'effectively the individual's commitment to the task.' It was revealed in a Fisher's exact test that there is no significant difference in the previous quality management practice by country ( $p = .42$ ,  $df = 1$ ,  $V = 0.20$ ).

*RQ5. How long does it take education institutions in the USA and England to implement ISO 9000?*

Education institutions in the USA and England are taking approximately the same amount of time to implement ISO 9000. A Brown-Forsythe analysis of variance (ANOVA) test indicated that the difference in time to ISO 9000 registration by country is not significant ( $F = 0.06$ ,  $df = 1/28$ ,  $p = .80$ ,  $\eta^2 = 0.002$ ). The average time necessary for US education institutions to register to ISO 9000 was 16.47 months ( $SD = 4.64$ ). The average time necessary for English education institutions to register to ISO 9000 was 16.91 months ( $SD = 4.70$ ).

*RQ6. How many years have education institutions in the USA and England been registered to ISO 9000?*

The number of years that US education institutions have been registered to ISO 9000 ranged from 2 to 6, with 5 years being the most typical. The US education institutions had a mean rank ( $\bar{R}$ ) of 11.76 ( $n = 19$ ). The number of years that English education institutions have been registered to ISO 9000 ranged from 1 to 14, with 12 years being the most typical. The English education institutions had a mean rank ( $\bar{R}$ ) of 21.95 ( $n = 11$ ). A Kruskal-Wallis analysis of variance test (ANOVA) test revealed that the difference in the number of years registered to ISO 9000 by country is statistically significant ( $\chi^2 = 9.55$ ,  $df = 1$ ,  $p = .002$ ), with English education institutions being registered for a longer time than education institutions in the USA. This finding is consistent with the current literature, as Van den Berghe (1997) notes that the movement to implement ISO 9000 first started in the United Kingdom, followed by other European countries and then, finally, by the USA and Asia.

*RQ7. What is the cost of ISO 9000 implementation in the USA and England?*

It is estimated that the cost of ISO 9000 implementation is \$15,000 in registration fees and \$10,000 a year for an annual audit (Zuckerman & Rhodes, 2000). For this study, the cost of ISO 9000 was separated into three groups: internal implementation costs, external implementation costs, and current registration costs.

Internal implementation costs were described by the US respondents as the costs for 'preparation of the manuals and establishing a new filing system,' 'staff time away from work duties,' 'consultant fees,' and 'a part-time document control technician.' The majority of US respondents (78.9%,  $n = 15$ ) reported that the internal costs for ISO 9000 implementation were \$10,000 or less (£5000 or less) with specific amounts such as \$9000 (approximately £4800).

In England, internal implementation costs were described by respondents as the cost for 'staff time to develop it [ISO 9000] internally,' 'internal auditing and staff time,' and 'salaries for three members of staff (one part-time, two full-time).' External implementation costs were described as costs for 'travel expenses [for training],' and 'external consultancy.' Most of the English education institutions (63.6%,  $n = 7$ ) reported that their internal costs for ISO 9000 implementation were £5001-£10,000 (about \$10,000-\$20,000).

According to the data, English education institutions seem to be spending more on internal implementation costs than education institutions in the USA. It was indicated in a Fisher's exact test that there is a significant difference in internal implementation cost by country ( $p = .00$ ,  $df = 1$ ,  $V = 0.72$ ). While the data set was too small to afford additional analysis, it is possible that internal implementation costs are related to a demographic variable such as the size of the education institution.

External implementation costs were described both US and English respondents as the costs for 'travel to [ISO 9000] training,' 'consultants,' and 'auditors.' Some of the education institutions in the USA reported that the cost of ISO 9000 implementation was covered by special grant money from the Department of Education in their state. Seventy-three per cent ( $n = 14$ ) of the US education institutions reported that their external costs for ISO 9000 implementation were also \$10,000 or less (£5000 or less) centering on amounts such as \$3000-\$5000 (approximately £1600-£2600). Most of the English respondents (54.5%,  $n = 6$ ) reported that the external costs for ISO 9000 implementation at their school were £5000 or less (\$10,000 or less) and 27.3% ( $n = 3$ ) reported that the external costs were £5001-£10 000 (about \$10,000-\$20,000) with specific amounts, for example, as £6000 (\$11,200). English and US education institutions face similar external implementation costs for ISO 9000. No significant difference in external implementation cost by country was indicated by a Fisher's exact test ( $p = .40$ ,  $df = 1$ ,  $V = 0.19$ ).

There is also no significant difference in current registration costs by country. A Fisher's exact test indicated no significant difference in current registration costs between US and English education institutions ( $p = .28$ ,  $df = 1$ ,  $V = 0.25$ ). Current annual costs to maintain ISO 9000 registration in the USA (including audit visits) were also noted by most respondents (84.2%,  $n = 16$ ) as being \$10,000 or less (£5000 or less), with specific amounts such as \$4950 (£2640). Current annual costs to maintain ISO 9000 registration in England (including audit visits) were reported by all English respondents (100%,  $n = 11$ ) as being £5000 or less (\$10,000 or less), with specific amounts such as £900 (\$1600), £2500 (\$4600), and £3794 (\$7090).

*RQ8. How does management in the USA and England show commitment to ISO 9000, and is there a management representative at every education institution?*

There was not a strong similarity between US and English education institutions in how management shows commitment to ISO 9000. When asked how administration shows commitment to ISO 9000, most of the US respondents 26.3% ( $n = 5$ ) said it was by 'communicating quality objectives to all members of the school.' Other US respondents, 21.1% ( $n = 4$ ), reported that management shows commitment by 'providing the material resources necessary to reach quality objectives,' and 15.8% ( $n = 3$ ) said it was by 'stating a belief in the value of ISO 9000 registration.' In the English education institutions, the top three ways that administration shows a commitment to ISO 9000 were reported by respondents as 'stating a long-term vision for quality' (54.5%,  $n = 6$ ), 'communicating to all members the importance of meeting customer requirements for the educational service provided' (27.3%,  $n = 3$ ), and 'measuring the performance of the education institution according to the quality objectives' (18.2%,  $n = 2$ ).

All respondents for the US education institutions and English education institutions reported that an ISO 9000 management representative existed in the school. Most of the US respondents (78.9%,  $n = 15$ ) reported the management representative as being highly regarded by other members of the school 'to a very great extent.' In English education institutions, the management representative was described by most of the respondents (90.9%,  $n = 10$ ) as being highly regarded by other members of the school 'to some extent.' A Fisher's exact test revealed that there is no significant difference in how the management representative is regarded by country ( $p = 1.0$ ,  $df = 1$ ,  $V = 0.14$ ). The management representative was described by 18 (94.7%) of the US respondents as being 'both qualified and motivated in relation to their assistance with ISO 9000.' In England, the management representative was described by all of the respondents (100%,  $n = 11$ ) as being 'both qualified and motivated in relation to their assistance with ISO 9000.'

*RQ9. Are education institutions in the USA and England obtaining external assistance (i.e. consultants or guidance documents) during the implementation of ISO 9000?*

During the implementation of ISO 9000 education institutions in the USA are utilizing external assistance more than English education institutions. A Fisher's exact test indicated that there was a significant difference in the use of external assistance for ISO 9000 implementation by country ( $p = .001$ ,  $df = 1$ ,  $V = 0.66$ ). In the USA, all of the education institutions ( $n = 19$ ) used external assistance to implement ISO 9000 (either an external consultant and/or an external training

provider). In some cases, the external assistance was provided by the state Department of Education. In the English education institutions, 45.5% ( $n = 5$ ) used external assistance to implement ISO 9000, but the majority (54.5%,  $n = 6$ ) did not use external assistance.

A significant difference in using an educational guidance document for ISO 9000 implementation by country was also shown by a Fisher's exact test ( $p = .05$ ,  $df = 1$ ,  $V = 0.40$ ), with US education institutions using guidance documents more than English education institutions. In the USA, 94.7% ( $n = 18$ ) of the education institutions utilized an official ISO 9000 document such as the *ANSI/ASQC Z1.11-1996 Quality Assurance Standard – Guidelines for the Application of ANSI/ISO/ASQC Q9001 or Q9002 to Education and Training Institutions* during the implementation process of the standards. In England, 63.6% ( $n = 7$ ) of the English education institutions utilized a guidance document such as the *BS 5750: Guidelines for Application to Education and Training* during the implementation process of the standards.

Most education institutions in the USA and England are not aware of the *International Workshop Agreement 2: Quality Management Systems Guidelines for the Application of ISO 9001: 2000 in Education*. The document was only used by one school in the USA and not used at all by the English education institutions.

*RQ10. Are education institutions in the USA and England interpreting the standards into language that is related to education before ISO 9000 implementation?*

According to Nair (2002), Bevans-Gonzales & Nair (2004), and Van den Berghé (1997), one of the most difficult parts of ISO 9000 implementation in education institutions is applying the market-based standards with their market-based terminology to education. A Fisher's exact test showed that there was no significant difference in the extent ISO 9000 is defined in educational terms by country ( $p = 1.0$ ,  $df = 1$ ,  $V = 0.031$ ). In the USA, most of the respondents (84%,  $n = 16$ ) reported that ISO 9000 was defined in educational terms to some extent or greater. In England, 82% ( $n = 9$ ) of the respondents reported that ISO 9000 was defined in educational terms to some extent or greater. In order to obtain more detailed information about how the ISO 9000 terminology is being translated into educational terminology, respondents were asked to define their product, their customer, their primary stakeholders, their suppliers, and their partners.

In US education institutions the product was defined as the curriculum by 63.2% ( $n = 12$ ) of the respondents. The product was also defined as the 'provision of education (delivery of instruction)' by 36.8% ( $n = 7$ ) of the US respondents. Different from the US education institutions, 45.5% ( $n = 5$ ) of the English respondents wrote that their product was the 'added value to the student,' and 27.3% ( $n = 3$ ) said it was the student.

In the USA, 84.2% ( $n = 16$ ) of the respondents considered the customer to be the student. In 72.7% ( $n = 8$ ) of the English education institutions the customer was also considered the student. The remaining education institutions in both countries defined the customer as either employers or the board of education.

In 42.1% ( $n = 8$ ) of the US education institutions, respondents said that the primary stakeholders were defined as students. In 72.7% ( $n = 8$ ) of the English education institutions, the primary stakeholders were also defined as students. The remaining education institutions in both countries considered primary stakeholders to be other education institutions or employers.

US respondents defined suppliers as 'text book suppliers,' the 'eight sending school districts who supply us with our students,' 'business and industry,' and the 'occupational advisory committee.' English respondents defined their suppliers as 'the schools who provide students (who educate them until they are 16),' 'anybody who provides us with provisions, equipment, anything like that – but mainly career offices who provide us with students,' and 'suppliers of computers and other educational resources, caterers, cleaners, suppliers of management info services.'

US respondents identified school partners as 'the business community,' 'business and industry, coop employers, chamber of commerce,' and 'customers in business and industry, parents, community, school districts.' Respondents from English education institutions defined partners as 'employers and various community groups because they can help us with any ethnic issues ...,' 'probably the Learning and Skills Council who is our funding body,' and 'community partners, certain key employers, local authority.'

RQ11. Do staff in the USA and England understand the internal processes of the education institution as defined by the ISO 9000 standards?

According to the IWA 2 (2003), ‘educational organizations that provide educational products should define their processes. These processes, which are generally multidisciplinary, include administrative services and other forms of support, as well as those concerning assessment’ (p. 3). Processes are defined by the ISO 9001: 2000 as ‘an activity using resources, and managed in order to enable the transformation of inputs into outputs ... Often the output from one process directly forms the input to the next’ (section 0.2). Van den Berghe (1997) reported that there should be ‘a good understanding of internal processes’ in the education institution.

Except for the processes of communication and measurement, respondents from the USA reported that the members of their education institutions understand internal processes of the school ‘to a very great extent.’ For the English education institutions, responses were more varied, with the majority of respondents reporting that the members of their education institutions understand internal processes ‘to some extent.’ See Tables I and II for details.

Internal process	Great extent	Some extent	Small extent	Not at all	Don't know
Socio-economic role	78.9	21.1	–	–	–
Work environment	63.2	31.6	–	–	5.2
Curriculum development	89.5	10.5	–	–	–
Curriculum review	63.2	36.8	–	–	–
Update curriculum	89.5	10.5	–	–	–
Student assessment	89.5	10.5	–	–	–
Final assessment	68.4	31.6	–	–	–
Teach–learn support	89.5	10.5	–	–	–
Student support	94.7	5.3	–	–	–
Communication	47.4	52.6	–	–	–
Measurement	26.3	63.2	10.5	–	–

Table I. Percentage of school members that understand internal processes in US educational institutions.

When the extent to which school members understand all eleven internal processes was compared between the USA and England, a significant difference between countries was only found for five of the 11 processes.

A Fisher’s exact test found significant differences in the extent school members understand the process of curriculum development by country. Most of the US respondents reported that their school members understand the process ‘to some extent or greater,’ while the English respondents were evenly divided between both categories ( $p = .002$ ,  $df = 1$ ,  $V = 0.63$ ).

For the process of updating curriculum, all of the US respondents reported that their school members understand the process ‘to some extent or greater,’ while the English respondents were again evenly divided between both categories. A significant difference in the extent school members understand the process of updating curriculum by country was indicated by a Fisher’s exact test ( $p = .002$ ,  $df = 1$ ,  $V = 0.63$ ).

A Fisher’s exact test showed that there is a significant difference in the extent school members understand the teaching–learning support process by country ( $p = .004$ ,  $df = 1$ ,  $V = 0.56$ ). Most of the US respondents reported that their school members understand the process ‘to some extent or greater,’ while most English respondents reported that their school members understand the process ‘to a small extent or less.’

A Fisher’s exact test also showed that there is a significant difference in the extent to which school members understand the process of student support by country ( $p = .000$ ,  $df = 1$ ,  $V = 0.71$ ). Most of the US respondents reported that their school members understand the process ‘to some extent or greater,’ while most English respondents reported that their school members understand the process ‘to a small extent or less.’

For the process of communication, all of the US respondents reported that their school members understand the process ‘to some extent or greater,’ while the English respondents were almost evenly divided between both categories. A Fisher’s exact test indicated a significant

difference in the extent to which school members understand the process of communication by country ( $p = .003$ ,  $df = 1$ ,  $V = 0.59$ ).

Internal process	Great extent	Some extent	Small extent	Not at all	Don't know
Socio-economic role	18.2	72.7	9.1	–	–
Work environment	27.3	63.6	9.1	–	–
Curriculum development	36.4	9.1	45.5	–	9.1
Curriculum review	36.4	54.5	–	–	9.1
Update curriculum	45.5	45.5	–	–	9.1
Student assessment	45.5	45.5	9.1	–	–
Final assessment	54.5	45.5	–	–	–
Teach–learn support	36.4	63.6	–	–	–
Student support	27.3	72.7	–	–	–
Communication	27.3	27.3	45.5	–	–
Measurement	9.1	45.5	45.5	–	–

Table II. Percentage of school members that understand internal processes in English education institutions.

*Final Comments*

The final question on the survey asked respondents to add any other comment about ISO 9000 at their school. Many comments usually centered on a unique situation or challenge that each school had experienced with ISO 9000. Yet, the following general themes emerged from both US and English education institutions: student involvement in ISO 9000, the importance of management commitment to ISO 9000, benefits of ISO 9000 registration, and advice for other education institutions that wish to implement ISO 9000. For example, one respondent mentioned a high level of student involvement in their ISO 9000 system.

At our school we have an organization called Students in Free Enterprise. Those students provide the management representative every year and maintain all records and manuals, and there is a different [student] group that does all internal audits – because of that, 100 percent of [ISO 9000] costs are covered by Perkins [US federal grant money]. We have a class we offer that is on ISO 9000 standards – that is where the management representatives come from. They [the students] wrote the first [quality] manuals with the help of the consultant, but for the ISO 9001: 2000 they wrote all the manuals by themselves.

Other respondents made the following two comments about management commitment to ISO 9000:

Well, from experience, if I were talking to a group of people who had never been involved in ISO 9000, there's lots of things [I would like to tell them about ISO 9000]. I think that the main thing is that the very top management has to be in full favor of this initiative and be a part of it, not just hand it off to somebody below them and give them the directive to do this. I think that top management really has to believe it, then, slowly but surely the rest of the staff will buy in.

The biggest problem is not the implementation of the standard, it's the change of the culture in a continuously moving environment. No sooner do you make a degree of progress than someone moves the goal post and you have to recover the ground (i.e. training staff is continuously changing). If ISO can be implemented successfully it does genuinely become the bed rock of maintaining quality improvement, but it certainly does not implement itself, it needs team management, and very importantly the commitment of the top manager – the principal.

The two following quotes were provided from respondents that wished to give advice to future education institutions implementing ISO 9000:

I think ... it is very difficult for the average man in the street to relate what they do everyday to ISO 9000 ... one of the most challenging aspects is when you do an internal audit because you are conforming to the standard as well as the internal college procedure. So, you have to

explain the possible non-conformance in terms they [other member of the school] can understand and that is the most challenging thing – translating the standard into English. To actually raise enthusiasm, you have to focus much more on continual improvement because if it is just a question of – have you filled in a form? People think you are wasting their time – and you are.

The biggest thing you need to concentrate on if you implement ISO 9000 is (1) focus on the student; (2) formulate a quality team before you start, because the more you have buy-in at the beginning the clearer and more articulate your message will be on why you are doing it; (3) visit a site that is already doing it and doing it well – all of this helps to drive out fear and promote consistency of purpose.

### Summary and Conclusion

The objective for this study was to examine and compare ISO 9000 in US and English education institutions. Data revealed that ISO 9000 is being voluntarily implemented in many different levels of education in the USA and England. In some US states, ISO 9000 is only being implemented at the school district level in a few administrative programs. In other US states and in England, individual education institutions and colleges are completely implementing ISO 9000. In both countries, there are very few universities involved in ISO 9000. If a university is implementing ISO 9000, it is usually in certain departments or programs, but not in the entire university. Out of the wide variety of education institutions implementing ISO 9000, it does appear that ISO 9000 is the most popular in US Career and Technical Centers and in English general further education colleges.

This study showed that interesting differences exist between US and English education institutions with regard to ISO 9000 implementation. English education institutions have been registered to ISO 9000 longer than US education institutions and were less inclined to use external assistance or a guidance document during ISO 9000 implementation. English education institutions have defined the product in terms of the 'added value to the student' whereas most US education institutions have defined the product as the 'curriculum.' Furthermore, US survey respondents reported that their school members understand the internal processes of the school, especially the process of curriculum development, the process of curriculum updating, the teaching-learning support process, the student support process, and the process of communication. The English respondents, on the other hand, were divided, with about half reporting that their school members understand these internal processes.

Despite the differences between the US and English education institutions registered to ISO 9000, there were also striking similarities. The most interesting similarity was reflected in the time to ISO 9000 registration – with education institutions in both countries registering in approximately 16.5 months.

The external implementation costs and current registration costs for ISO 9000 are similar in both the USA and England, and all education institutions reported the existence of a management representative who was highly regarded by other members of the school. In both countries, the customers and stakeholders were defined as students, and ISO 9000 had been defined in educational terms. Furthermore, most of the education institutions in the USA and England were not aware of the *International Workshop Agreement 2: Quality Management Systems Guidelines for the Application of ISO 9001: 2000 in Education (IWA)*. Both English and US survey respondents identified suppliers and partners in a similar manner. In addition, the top reasons US and English education institutions are implementing ISO 9000 are 'to improve school efficiency' and 'to have ISO 9000 as a market tool.'

It is surprising that after such a long, complicated implementation process, there are education institutions that are deciding to stop using ISO 9000. Due to these new circumstances, it is difficult to predict the future for ISO 9000 in education. On one hand, ISO 9000 may gradually increase in popularity among educators, but on the other hand, it may never obtain the magnitude in education that it has obtained in the private sector.

As in all social science research, the findings of this study only have implications and are not necessarily the cause of the phenomena under study. Babbie (2004) notes that 'surveys often appear

superficial in their coverage of complex topics and can only collect self-reports of recalled past action or of prospective or hypothetical action.’ However, he also notes that ‘as with all methods of observation, a full awareness of the inherent or probable weakness of survey research can partially resolve them in some cases’ (p. 275). It is with caution that the results of any study should be interpreted, utilized, and projected.

Even though the data were drawn from a small sample, as the first quantitative cross-national comparative study on ISO 9000 in education the findings from this study provide valuable insight to other education institutions. Education institutions in the USA and England registered to ISO 9000 (or contemplating ISO 9000 registration) will benefit from the data collected in this study regarding the situation in education institutions that have successfully achieved ISO 9000 registration. For the first time, education institutions can gauge their ISO 9000 implementation process with other education institutions that have successfully implemented the ISO 9000 standards.

### Recommendations for Future Research

Ideally, future research for ISO 9000 would include obtaining a larger sample to test and develop the findings of this study. It would also be beneficial to conduct this same study in other countries to see if similar patterns arise. However, with the number of education institutions that have recently stopped using ISO 9000, and the difficulty in identifying a current population, these research ideas may not be viable options until some future date. Several other ideas for future research also emerged from the education institutions involved in the current study. The respondents in a number of education institutions mentioned a desire to identify and create ways to increase student involvement in ISO 9000. In addition, several of the education institutions would provide excellent case studies that would help to identify the best internal training practices for ISO 9000 in education.

### References

- Alderman, G. (1999) Review of the book *Quality Assurance in Higher Education: an international perspective*, *Studies in Higher Education*, 24(2), pp. 261-262.
- American Society for Quality Standards Committee (1996) *Quality Assurance Standards Guidelines for the Application of ANSI/ISO/ASQC Q9001 or Q9002 to Education and Training Institutions*. Milwaukee: American Society for Quality Standards Committee.
- Ayudhya, C.S.N. (2001) *ISO 9000 in Thai Private Schools: case studies*. Bangkok: Ministry of Education, Office of the Private Education Commission.
- Babbie, E. (1998) *The Practice of Social Research*, 8th edn. Belmont: Wadsworth.
- Babbie, E. (2004) *The Practice of Social Research*, 10th edn. Belmont: Wadsworth.
- Bevans-Gonzales, Theresa L. & Nair, Ajay T. (2004) Strengths and Weaknesses of ISO 9000 in Vocational Education, *Journal of Vocational Education and Training*, 56(2), pp. 163-180. <http://dx.doi.org/10.1080/13636820400200258>
- British Standards Institute (1991) *BS 5750: Guidance Notes for Application to Education and Training Institutions*. Milton Keynes: British Standards Institute.
- Conway, P.F., Goodell, J. & Carl, J. (2002) Educational Reform in the United States: politics, purposes, and processes, in R. Griffin (Ed.) *Education in Transition: international perspectives on the politics and processes of change*, pp. 83-108. Oxford: Symposium Books.
- Corbett, C.J. & Kirsch, D.A. (2001) International Diffusion of ISO 14000 Certification, *Production and Operations Management*, 10(3), pp. 327-342.
- Creswell, J.W. (1994) *Research Design: qualitative and quantitative approaches*. Thousand Oaks: Sage.
- Crossley, M. (2001) Reconceptualizing Comparative and International Education, in K. Watson (Ed.) *Doing Comparative Education Research: issues and problems*, pp. 43-68. Oxford: Symposium Books.
- Dillman, D.A. (2000) *Mail and Internet Surveys: the tailored design method*, 2nd edn. New York: John Wiley.
- Doherty, G.D. (1995) BS 5750 Parts 1 and 2/ISO 9000 (series); 1987 and education – do they fit and is it worth it? *Quality Assurance in Education*, 3(2), pp. 3-9. <http://dx.doi.org/10.1108/09684889510093488>
- Fowler, F.J. (1993) *Survey Research Methods*, 2nd edn. Newbury Park: Sage.

- Garbutt, S. (1996) The Transfer of TQM from Industry to Education, *Education & Training*, 38(7), pp. 16-22. <http://dx.doi.org/10.1108/00400919610130736>
- Goetsch, D.L. & Davis, S.B. (2002) *Understanding and Implementing ISO 9000: 2000*, 2nd edn. Upper Saddle River: Pearson Education.
- Gozacan Borahan, N. & Ziarati, R. (2002) Developing Quality Criteria for Application in the Higher Education Sector in Turkey, *Total Quality Management*, 13(7), pp. 913-926. <http://dx.doi.org/10.1080/0954412022000017021>
- Green, J.E. (2001) *Education in the United Kingdom and Ireland*. Bloomington: Phi Delta Kappa Educational Foundation.
- Halls, W.D. (1990) Trends and Issues in Comparative Education, in W.D. Halls (Ed.) *Comparative Education: contemporary issues and trends*, pp. 21-65. London: Jessica Kingsley.
- Harding, K.A., Tesolowski, D.G. & Simmons, J.B. (2000) Enhancing Technology Education Students' Understanding of ISO 9000, *Tech Directions*, 59(9), pp. 32-36.
- Hoyle, D. (2001) *ISO 9000: 2000: an A-Z guide*. New York: Butterworth-Heinemann.
- Hoyle, D. (2003) *ISO 9000 Quality Systems Handbook*, 4th edn. Woburn, MA: Butterworth-Heinemann.
- International Organization for Standardization (2002, July 19) ISO 9000 and ISO 14000 Certifications Reach Record Levels in 2001. <http://www.iso.ch/iso/en/commcentre/pressreleases/archives/2002/Ref830.html> (accessed November 30, 2002).
- ISO 9001 (2000) *ISO 9000 International Standard*, 3rd edn. Geneva: International Organization for Standardization.
- IWA 2 (2003) *Quality Management Systems – guidelines for the application of ISO 9001: 2000 in education*. Geneva: International Organization for Standardization.
- Kantner, R. (2000) *The ISO 9000 Answer Book*, 2nd edn. New York: John Wiley & Sons.
- Kin-Keung Chan, D. & Lai, P. (2002) Managerialism and ISO 9000: its relevance to quality education, in J. Ka-ho Mok & D. Kin-Keung Chan (Eds) *Globalization and Education: the quest for quality education in Hong Kong*, pp. 89-121. Hong Kong: Hong Kong University Press.
- Leslie, D. (1999) Quality Assurance and Student Work Experience, *Quality Assurance in Education*, 7(4), pp. 209-215. <http://dx.doi.org/10.1108/09684889910297712>
- Loya, T.A. & Boli, J. (1999) Standardization in the World Polity: technical rationality over power, in J. Boli & G.M. Thomas (Eds) *Constructing World Culture: international nongovernmental organizations since 1875*, pp. 169-197. Stanford: Stanford University Press.
- Mackinnon, D., Statham, J. & Hales, M. (1995) *Education in the UK: facts and figures*. London: Hodder & Stoughton and The Open University.
- McAdam, R., Reid, R. & Saulters, R. (2002) Sustaining Quality in the UK Public Sector: quality measurement frameworks, *International Journal of Quality & Reliability Management*, 19(5), pp. 581-595. <http://dx.doi.org/10.1108/02656710210427548>
- McMillan, J. (2000) *Educational Research: fundamentals for the consumer*, 3rd edn. New York: Addison Wesley Longman.
- Moreland, N. & Clark, M. (1998) Quality and ISO 9000 in Educational Organizations, *Total Quality Management*, 9(2/3), pp. 311-320.
- Nair, A.T. (2002) An Examination of ISO 9001 implementation in career and technical education. Doctoral dissertation, Pennsylvania State University.
- Noble, C. (1997) International Comparisons of Training Policies, *Human Resource Management Journal*, 7(1), pp. 5-18.
- Peters, J. (1999) Educational Accreditation through ISO 9000, *Quality Assurance in Education*, 7(2), pp. 85-89. <http://dx.doi.org/10.1108/09684889910269579>
- Peters, J. & Wills, G. (1998) ISO 9000 as a Global Educational Accreditation Structure, *Quality Assurance in Education*, 6(2), pp. 83-89. <http://dx.doi.org/10.1108/09684889810205732>
- Shlomo, W. & Moti, F. (1999) Application of the Total Quality Management Approach Principles and the ISO 9000 Standards in Engineering Education, *European Journal of Engineering Education*, 24(3), pp. 249-258.
- Siegel, S. & Castellan, J.N. (1988) *Nonparametric Statistics for the Behavioral Sciences*, 2nd edn. New York: McGraw-Hill.
- Solomon, H. (1993) Total Quality in Higher Education, *Management Services*, 37(10), pp. 10-22.

- Spring, J. (2002) *Political Agendas for Education: from the religious right to the Green Party*, 2nd edn. Mahwah: Lawrence Erlbaum Associates.
- Stimson, W.A. (1998) *Beyond ISO 9000: how to sustain quality in a dynamic world*. New York: AMACOM, American Management Association.
- Stromquist, N.P. (2002) *Education in a Globalized World: the connectivity of economic power, technology, and knowledge*. New York: Rowman & Littlefield.
- Tricker R. & Sherring-Lucas, B. (2001) *ISO 9000: 2000 in brief*. Boston: Butterworth-Heinemann.
- Van den Berghe, W. (1997) *Application of ISO 9000 Standards to Education and Training: interpretation and guidelines in a European perspective*. Marinou Antipa, Thessaloniki: Center for the Development of Vocational Training (CEDEFOP).
- Waks, S. & Moti, F. (1999) Application of the Total Quality Management Approach Principles and the ISO 9000 Standards in Engineering Education, *European Journal of Engineering Education*, 24(3), pp. 249-258.
- Welch, A.R. (1998) The Cult of Efficiency in Education: comparative reflections on the reality and the rhetoric, *Comparative Education*, 34(2), pp. 157-175. <http://dx.doi.org/10.1080/03050069828252>
- Zuckerman, A. & Rhodes, L. (2000) Quality Assurance through ISO 9000, *School Administrator*, 57(6), pp. 12-18.
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