FACTORs THAT RELATE TO THE SUCCESSFUL IMPLEMENTATION OF ISO 9000 IN EDUCATION: A COMPARISON BETWEEN THE US AND ENGLAND

A Thesis in
Workforce Education & Development and
Comparative International Education & Development
by
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Abstract

Quality schooling has often been a subject of international concern. In all nation-states, government bodies and concerned communities are pressuring educational institutions to be more efficient as they prepare students for life and the labor market. In an effort to meet new government standards for federal funding, improve their performance, and obtain public trust, schools of all levels and 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 current literature surrounding ISO 9000 implementation 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. This study did not attempt to end the debate over ISO 9000 in education, but looked at the problem with a new perspective. Instead of debating if ISO 9000 is appropriate for schools, this study identified which type of schools are appropriate for ISO 9000. Building on previous qualitative research, this study used quantitative survey research methods to identify factors that lead to a successful ISO 9000 implementation in educational institutions. Arguing from the perspective of world-polity theory and institutional isomorphism, since ISO 9000 is an international issue, the research was conducted as a comparative education study in two different countries, the US and England. The findings indicated that US and English institutions are very much the same with regard to ISO 9000, for example, they have a similar time to ISO 9000 registration, and are implementing ISO 9000 for similar reasons. In addition, several factors were identified that are related to a successful ISO 9000 registration, such as, the previous existence of an unwritten/unspoken quality management practice, and a highly regarded management representative.
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Instruct a wise man and he will be wiser still; teach a righteous man and he will add to his learning. The fear of the LORD is the beginning of wisdom, and knowledge of the Holy One is understanding.

Proverbs 9:9–10
ISO 9000 has become a popular choice as a quality management system for educational institutions world-wide. Unlike the last two decades, where “until mid-1995 just four schools in the whole world were granted accreditation by ISO [International Organization of Standardization],” the late 1990’s experienced the most current movement of educational institutions to adopt a quality management system (Shlomo & Moti, 1999). No formal statistics exist on the number of educational institutions involved, but according to Zuckerman & Rhodes (2000), a variety of educational 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 UK, followed by other European countries and then, finally, by the US and Asia (Van den Berghe, 1997).

As can be speculated, simply from the variety and number of countries involved, the existing literature regarding the ISO 9000 quality standards and their impact is comprehensive, but it is also conflicting (Haversjo, 2000). A quantity of research shows a positive relationship between organizational operations and ISO 9000, but other research shows that the ISO 9000 standards have no impact on the operations of an organization (Singels, Ruel & van de Water, 2001). This divergence in information leaves ISO 9000 in education a very debatable subject; one that is not likely to be resolved soon. This study does not attempt to end the debate over ISO 9000 in education, but seeks to look at the problem with a new perspective. Instead of debating if ISO 9000 is appropriate for schools, perhaps it is more useful to find out which schools may be appropriate for ISO 9000.
1.1 Purpose of the Study

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). Although ISO 9000 is being implemented around the world in the field of education, Van den Berghe (1997) states that “ISO 9000 is not an appropriate goal for any organization in any circumstance” (p. 89). This indicates that ISO 9000 may not be the best option for all educational institutions—despite its growing popularity.

Therefore, this study has two primary objectives. The first objective is to examine and compare ISO 9000 in US and English educational institutions. This comparison will be used to inform consultants, policy makers, school administrators and registrars in national or international educational institutions (especially in the US and England) about ISO 9000 in education.

The second objective of this study is to identify factors that relate to a successful implementation of ISO 9000. Successful implementation is considered as third-party certification to the standards. Certification is considered a successful implementation as Van den Berghe (1998) states that due to the “process nature of an ISO 9000 based quality system, with all its feedback loops and corrective actions, it is very difficult to run a ‘poor’ ISO system. Actually, very few cases of ‘falsification’ of systems or certificates have emerged” (p. 23). Successful ISO 9000 registration will be measured by one dependent variable, the time required to implement ISO 9000. In addition, there are 14 independent variables that emerge from the literature as influencing a successful ISO 9000 implementation in educational institutions.

The results of the study will be used to promote and continue a cross-cultural understanding of ISO 9000 in education in two different countries such as England and the US. Other interested persons in the results of this research include funding bodies such as the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Bank who provide information to developing countries about new directions in educational improvement. The central body of the International Organization for Standardization (ISO) may also be served by the results of this study since they can apply the suggestions from this study to their own current goal of assisting developing countries implement ISO 9000.
1.2 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” (International Organization of Standardization [ISO], n.d., ¶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, Tesolowski, & Simmons, 2000).

As cited in Singels, Ruel, and Van de Water (2001) “It is important to note that the ISO standards cannot be applied in the same manner in every organization. ‘The standards only recommend the essential elements of a proper quality assurance system, without recommending the ways to apply them’ (Tsiotras and Gotzamani, 1996, p. 66). Each organization can design its own system that fits its specific needs and that fits the general requirements of the ISO 9000 standards” (p. 62).

Once certified, the ISO 9000 standards aid the organization in the market place 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., ¶2). Additionally, the standards allow organizations all over the world to apply the same rules and regulations to their systems of production or service.

1.3 Significance of the Study

There are two levels of significance to this study; ISO 9000 as it relates to the quality of education, and the importance of conducting comparative
international education.

John F. Kennedy once said, *Our progress as a nation can be no swifter than our progress in education. The human mind is our fundamental resource.* While made by a former president of the United States, this statement holds truth for every country. In an age where all countries face the pressure of globalization, an increase in international competition and rapid advancement of technology, the quality education of its citizens has indeed become the resource that gives a nation the leading edge. Research shows that not only does education increase an individual’s wages and skill, making them more productive in the economy, but education also positively impacts the environment, health, family structure and relationships (Barr, n.d.; Stacey, 1998). As a tool for higher quality education, ISO 9000 and the studies surrounding it become a valuable economic investment for education policy makers, school administration, and government bodies around the globe. In addition, the study of ISO 9000 will be of interest to students, individuals, and businesses that will benefit from the improvement of education in their communities.

As an international issue that is affecting education in many countries, this research will explore 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 will utilize comparative education as a methodology. At this point, it seems necessary to answer the question – why compare? Why study the implementation of ISO 9000 with a comparative international education methodology in England and the US?

First, as Arnove (1999) points out, “globalization has infused the ever-present need to learn about each other with an urgency and emphasis like no other in history” (p. 16). The ISO 9000 trend is growing as the quality of education has become one way for nations to maintain their international competitive edge; therefore, making it more important for them to be aware of the educational improvement initiatives in other countries.

A second reason to conduct an international comparative study of ISO 9000, is reflected by Ryan (1991) who states that “comparative research has become an industry in its own right, helping to define problems and suggesting lines along which solutions may be sought” (p. 2). Many countries share the same problems and policy issues. By comparing ISO 9000 in two nations such as the United States and England, both seeking to improve their quality of education, we may identify situations where one or both countries can learn from the policy and practices of the other.
Finally, we also make a study of issues from a comparative international perspective for our own ‘self-interest,’ as suggested by Halls, (1990), “we study the phenomena of foreign education with the intention of improving our own education system” (p. 23). Or, as cited by Noble (1997), in a comparative study, we ultimately gain new insight allowing us “to see ourselves differently by understanding the things we find strange and that others take for granted . . . it opens our minds to new ways . . . (Goyder, 1994 p. 26).” US schools are not unique in their struggle to implement a quality system, such as ISO 9000. Looking at the methods and ideas from schools in another country serves to increase the awareness of current methods, encourages a change of perspective, and provides valuable information about how US education (and the education of other countries) may improve.

It is for all reasons mentioned above that the following research on the factors for the successful implementation of ISO 9000 will be studied from a comparative international perspective. Please note that the author is aware of the differences in the educational systems and structure of both countries and, therefore, the challenge of conducting a comparison between them. This is a topic that will be addressed in Chapters 2 and 3 of this paper.

1.4 Conceptual Framework

The conceptual framework for this study is a complex one with many powerful and opposing forces influencing the situation under study. First, in order to dispel any misunderstandings, a few definitions should be noted. The conceptual framework of this study, is based on defining “education” as an “institution.” Not wishing to enter into the debate of institutional theorists about the varying definitions of an institution—for the purpose of this study, “institutions” are broadly defined by Scott (2001) as

“multifaceted, durable social structures, made up of symbolic elements, social activities, and material resources. Institutions exhibit distinctive properties: They are relatively resistant to change (Jepperson 1991). They tend to be transmitted across generations, to be maintained and reproduced (Zucker 1977) . . . Although institutions provide stability and order, they themselves undergo change, both incremental and revolutionary” (p. 49–50).
Based on this definition of education, schools, colleges and universities are therefore considered as organizations that operate in an institutionalized environment (thus the reference to them as “educational institutions” throughout this paper). Meyer and Rowan (1991) note that operating in a highly institutionalized environment increases the stability and survival of an organization, but also encourages it to become decoupled, where “structural elements are only loosely linked to each other and to activities, rules are often violated, decisions are often unimplemented, or if implemented have uncertain consequences, technologies are of problematic efficiency, and evaluation and inspection systems are subverted or rendered so vague as to provide little coordination” (p. 43). It is this loosely linked nature of an educational institution that comes in direct conflict with the ISO 9000 standards, which are based on procedures of inspection and evaluation in order to promote efficiency and effectiveness. In this context, the ISO 9000 standards may be defined, theoretically, as “highly rationalized myths” being pushed by “powerful organizations [that] attempt to build their goals and procedures directly into society as institutional rules” (Meyer & Rowan, 1991, p. 44, 49). It is with the above definitions clearly set that the following conceptual framework, containing elements of neo-liberalism, world-polity theory and institutional isomorphism, is presented as a theoretical explanation for the implementation of ISO 9000 in educational institutions.

1.4.1 Neo-liberalism in the World-Polity

Several authors have attributed market-driven education reforms to the theoretical concepts of neo-liberalism (Ka–Ho Mok & Welch, 2002). Neo-liberalism is defined by Stromquist (2002) as “the economic doctrine that sees the market as the most effective way of determining production and satisfying people’s needs” (p. 25). Cooper (2000) states that “the market model asserts that only individual choices are rational, that the public interest cannot be determined by a group but only by the dynamics of the marketplace in which individual preferences are revealed and out of which broad social trends emerge” (p. 26). In other words, neo-liberal reform is “an instance in which the market dictates the replacement of inefficient institutions with more efficient ones” (Carruthers, Babb & Halliday, 2001, p. 95). The US and other countries have had an increase in the application of market solutions used to reorganize public problems (such as those in education) since the 1970s (Strang & Bradburn, 2001).
As one such market-driven solution, many elements of neo-liberalism are included in the implementation of ISO 9000 in educational institutions. Yet, neo-liberal theory does not completely provide an explanation for this situation as “global standardization is not reducible simply to the workings of the capitalist world economy or the interests of states” (Loya & Boli, 1999, p. 171). Therefore, one of the theories of globalization—world-polity institutional theory will be utilized as it includes an important aspect that is needed to describe the phenomena of ISO 9000 implementation in educational institutions on a global level.

According to Boli & Thomas (1997), the world is more than economic and political interaction. Instead, the world has become a single “international society” or “world polity.” A polity, defined by Meyer (1980), is “a system of creating value through the collective conferral of authority” (p. 112). World-polity theory emphasizes the existence of a world culture, which includes “models” or “frames.” These models consist of a system of set values or rules that are globally prominent. Current world culture includes many neo-liberal models such as “bureaucratization, technical progress, capitalist organization, states, and markets” (Boli & Thomas, 1997, p. 173). Nation-states, organizations, groups and individuals, are all “global actors” in the world culture; actors that are considered “rational, self-interested and capable of initiative” (Boli & Thomas, 1999, p. 4). These actors may be influenced by the world culture, but also they may influence and change the world culture (Boli & Thomas 1997; Boli & Thomas, 1999).

According to the information above, educational institutions are global actors and implementation of the ISO 9000 quality management system is an aspect of the current, neo-liberal world culture. While educational institutions may be mechanically implementing the ISO 9000 standards without modification, it is also possible that they are adapting the standards to fit their needs at a local level.

### 1.4.2 Institutional Isomorphism in the World-Polity

One of the manners in which world culture influences actors is by pressuring them toward “institutional isomorphism” (Meyer, Boli, Thomas & Ramirez, 1997, p. 152–153). Institutional isomorphism as cited by DiMaggio & Powell (1983) is “a process that forces one unit in a population to resemble other units that face the same set of environmental conditions (Hawley, 1968)” (p. 149). At first, the implementation of an innovation usually stems from
an organization’s strategy to improve and become more efficient. However, when a large number of organizations begin implementing the innovation, the strategy may no longer be rational nor may it help the organization to function more efficiently. Instead, the organization may simply be responding to informal or formal pressure from other organizations, pressure from employees within the institution, the cultural expectations of the society surrounding the institution, or changes in the environment (Dimaggio & Powell, 1983).

According to DiMaggio & Powell (1983), there are three types of institutional isomorphic change. Coercive isomorphism happens when an organization is pressured by other organizations and cultural expectations in the society. Mimetic processes occur when there may be a symbolically uncertain environment or when an organization models itself after other institutions that seem similar. Finally, there is normative pressure, which usually stems from professionalization (a large amount of personnel and management in the institution with formal education and involved in occupational socialization). Occupational socialization is considered as involvement in the following: trade associations, professional associations, in-service educational programs, consultant arrangements, employer-professional school networks, and trade magazines (DiMaggio & Powell, 1983, p. 152).

The three situations that lead to institutional isomorphism described above are very real for educational institutions. Welch (1998) notes that educational institutions today (like other social institutions) are in an increasing global environment, are pressured to be more “efficient,” work better with less funding, meet the needs of the market, and engage in never-ending quality improvement efforts. In addition, there is an increasing number of calls for educational institutions to be held accountable from federal and institutional funding bodies, communities, parents, and students (Ka–Ho Mok & Welch, 2002). Yet, the preference for market-economy educational forms may actually cause educational systems to become more uniform (Stromquist, 2002). From this perspective, the first educational institutions may have implemented ISO 9000 for an improvement plan, but as the number of educational institutions that implement ISO 9000 grows, the less it may actually help them become more efficient.
1.4.3 ISO in the World-Polity

Loya & Boli (1999) apply the framework of world-polity theory to what they call the “global standardization sector,” which consists of two international nongovernmental organizations (INGO): the International Electro-technical Commission (IEC) and the Organization for Standardization (ISO). ISO, like other INGOs, is a powerful actor that is responsible for authorizing, modifying, and perpetuating world cultural principles.

As Loya & Boli (1999) explain, membership or activity with ISO is voluntary, but only in theory. It is through rational voluntarism that organizations implement the standards promoted by ISO, but most of them feel compelled to do so in order to access global markets and keep-up with global technical development. In addition, “the character of the standards and the nature of the process by which they are generated—universal, consensually derived standards of unimpeachable technical merit—are themselves sufficient rationale for their adoption” (p. 181). The outcome of the standardization sector is a global environment that is increasingly becoming uniform, maybe not in the way it looks on the outside, but definitely in the way it functions on the inside—and this is all happening at an incredible pace.

In summary, educational institutions are operating in an environment where there is an overarching world culture propelled by INGOs such as ISO. This world culture currently includes neo-liberal concepts for the application of market-driven tools to educational institutions (i.e. ISO 9000). The result of this is that institutions implement ISO 9000 through rational voluntarism, pressure from other institutions, the threat of a changing environment, and expectations of the public. It is possible that educational institutions are innovative with how they apply ISO 9000, but they are actually becoming the same (isomorphic) without necessarily becoming more efficient. Arguing from this perspective, I hope to have set the conceptual framework for this study, by linking the market-driven neo-liberal ideology, and aspects of the world-polity theory and institutional isomorphism to the implementation of ISO 9000 in educational institutions.

1.5 Summary

Educational institutions around the world reflect similar objectives as larger numbers are implementing ISO 9000—a market-driven, quality management
system. Theory suggests that this trend may be the result of various environmental pressures and propelled by a world-culture that embraces neo-liberal ideologies. This study proposes to examine and compare ISO 9000 in two different countries the US and England, and use this information to identify the factors that relate to a successful ISO 9000 implementation. The study will be conducted utilizing a comparative education research method, which allows the study of a phenomena (ISO 9000 implementation in education) through the systems of two different countries. Comparative international studies assist in discovering new solutions and in learning to avoid ideas that seem to fail.

1.6 Organization of Thesis

The remainder of this thesis is organized into the following four chapters. In Chapter 2 there is a review of the literature and related research on ISO 9000, the role of the US and England in ISO 9000 development, ISO 9000 in education, and the rationale behind the selection of the US and England. Chapter 3 includes the methodology of the study. In Chapter 4, the results of the study are described, and in Chapter 5 the conclusions and recommendations are presented. Appendix A contains the survey instruments and consent document, Appendix B includes a list of the ISO 9000 registered schools involved in the study. For convenience, a list of abbreviations and symbols are provided in the Glossary.
The current study has the following two objectives: to examine and compare ISO 9000 in US and English educational institutions; and to identify factors that relate to a successful implementation of ISO 9000. This chapter includes a history of ISO 9000, the empirical research on the debatable application of ISO 9000 in the field of education, the role of the US and England in the development of the ISO 9000 standards, and the rationale for selecting these two countries for this research.

2.1 History of ISO 9000

The concept of quality standards has 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 14th century, the King of England standardized the quality of silver and gold, and during the industrial revolution in Europe, a set of strict standards were set up in the textile industry. In the early 19th 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 many European and non-European countries had national quality standard associations. But, the first form of modern international quality standards can be traced back to 1926 with the founding of the International Federation of National Standardizing Associations (ISA) for mechanical engineering. Loya & Boli (1999) also report
that the ISA dissolved during World War II. However, according to Stimson (1998), during World War II, quality standards were developed for both products and processes that included the British Standard (BS) 5750 standard and the US Mil–Q–9598 standard.

After the 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 US, 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 US, based their own national quality systems on the British standards. In the US, 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 that 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://www.iso.org). In the US, this national body is known as American National Standards Institute (ANSI) and in the UK 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 were adopted by BSI in the UK 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 re-certification 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). With this new focus on continuous improvement, it is important to note that although ISO 9000 is not the same as Total Quality Management (TQM) it is similar to the TQM philosophy. TQM requires everything required by ISO 9000 and they both focus on the concept of continuous quality improvement (CQI) of an institution. The primary difference between the two is that ISO 9000 is concerned with the systems of an institution; whereas, TQM is focused on every function and level of the institution (Goetsch & Davis, 2002).

Today, the ISO 9000 standards are being implemented around the world at an amazing rate. ISO has over 150 members and and over 510 thousand 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 TV 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).

2.2 ISO 9000 in Education

As discussed in Chapter 1, educational institutions are facing tremendous 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, educational institutions face financial accountability from state and institutional supporters (Peters & Wills, 1998). This pressure, applying the institutional isomorphism theory of Dimaggio & Powell (1983), is causing educational institutions to implement the same innovations and resemble other institutions facing the same environmental pressures. In practice, this theory becomes evident as the implementation of ISO 9000 into education is changing from a few isolated cases, in developed nations, to a more global issue in most developing and developed nations alike.

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 educational institutions and higher education in Turkey (Gozacan Borahan & Ziarati, 2002), primary schools in the UK (Garbutt, 1996), universities, colleges of further education, and primary schools in the UK (Moreland & Clark, 1998), vocational education in the US (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 educational 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 and Kirsch, 2001 p. 328).
For the purpose of much-needed clarity in the large amount of confusing information, the literature on ISO 9000 has been arranged in this paper into three dominant categories: official documentation, scholarly research, and anecdotal materials.

2.2.1 Official ISO 9000 Documents

The official documentation surrounding ISO 9000 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).

In both the US and Europe, documents have been developed about ISO 9000 that can be applied specifically to the field of education and training. The development of these documents occurred first in the UK with the creation of the BS 5750: Guidelines for application to education and training. Five years later, in 1996, the US created 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. In 1997, CEDEFOP conducted a large European study on the application of ISO 9000 to education and training and created the Application of ISO 9000 standards to education and training: Interpretation and guidelines in a European perspective.

The BS 5750 guidelines were created with the goal of assisting “education and training establishments in interpreting the requirements of BS 5750” (British Standards Institute [BSI], 1991, p. 1). Since the ISO 9000 standards were based on BS 5750 the guidelines assist education and training institutions in the implementation of ISO 9000. A definition of terms is provided as well as supplemental text to be used in conjunction with the original standards, but the document is very brief and is not to be utilized alone or to replace the actual standards. The intention of the US guidelines is to provide education and training institutions with the benefits of nationally/internationally accepted requirements for quality assurance; and, to improve the communication between training and education institutions and the independent registrars (American National Standards Institute [ANSI], 1996). However, the US guidelines are also very brief and similar to the original version of the ISO 9000 standards. While more helpful than the actual ISO 9000 standards document, the guidelines created by the UK and US are broad and non-specific, making it still very difficult for administra-
tors, faculty, teachers and staff to interpret and implement the ISO 9000 standards.

In contrast to the brief documents created by the UK and the US, the European guidelines for the ISO 9000 standards offer a more extensive, in-depth review of the ISO 9000 standards and their affect on education and training institutions. These guidelines are based on research conducted in 1995 in several European countries (UK, 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. Van den Berghe also provides several conditions that influence successful implementation to ISO 9000, which will be expanded and developed in this study. These factors include the following: the organization status of the school, an existing (maybe implicit) quality policy, the stability of the school, an understanding of internal processes, the financial status of the school, a motivated individual supporting ISO 9000 implementation, senior management commitment, a limited number of customers and products, and the size of the school.

Despite all the valuable information provided by Van den Berghe (1997), there are several limitations in his research, as he notes himself. These limitations include the following: the research should have included in-depth research on many case studies, but due to lack of resources, no new cases were studied; nor was a European-wide survey conducted. The study was based on existing information, descriptions of case studies, reports or articles, and quality manuals of ISO 9000 certified institutions (p. 4). As a result, this study will build on the research by Van den Berghe (1997) in order to actually collect data that will provide more current and generalizable results on this topic.

Currently, the newest developments on ISO 9000 in education are happening in the central body of ISO. Finally, the central organization is supporting the development of official guidelines for the implementation of the ISO 9000 standards in education and service organizations. The guidelines are called the *International Workshop Agreement 2 Quality Management Systems Guidelines for the Application of ISO 9001: 2000 in Education*. At the moment, 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 (this one was held in October, 2002 in Acapulco, Mexico and
attended by 400 people from 20 different countries). Once created, the IWA must be reviewed for a number of years by a designated ISO member body, which may result in publication or withdraw 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). Furthermore, as stated in the document:

“A curriculum can specify what is expected to be learnt and how the learning is to be assessed. However, the curriculum by itself does not ensure that needs and expectations will be met if deficient processes exist in educational organizations. The need to prevent these deficiencies has led to the provision of this International Workshop Agreement to help educational organizations implement a quality management system that is known to be effective. Continuing assessment of the curriculum and educational processes that support instruction can ensure the effectiveness of the learning process” (p. 2).

In addition, the IWA guidelines contain language support for the ISO 9000 standards in any level of education and provide definitions to help schools identify their customers, their customer requirements and their quality process.

2.2.2 Scholarly Research

Scholarly studies on the subject of ISO 9000 in education are starting to become more prevalent, but most of them seem to focus on the following three areas: the controversial application of ISO 9000 to education, the benefits and detriments of the standards, 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 TQM, CQI, 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.”
On one hand, proponents of ISO 9000 state that since there is an amazing rate of change in technology, programs of continual improvement and closed-loop control are appropriate and necessary for educational systems in order to standardize a process that incorporates values of the customer (Waks & Moti, 1999). In addition, ISO 9000 is seen by some to improve education by introducing the private sector ideals of efficiency, reliability and free-market competition to the field. Authors such as John Peters (1999) support ISO 9000 as a global quality system for educational institutions, not necessarily to have the education content standardized, but as a tool to assure that educational providers are keeping their promises to the student-customer. Peters (1999) notes the value of standardizing procedures, but also the difficulty of standardizing books, relationships and the dynamic class environment.

On the other hand, authors such as Welch (1998) state that privatization and market influence may actually decrease the level of education quality as they have a negative impact on the educational systems equality, and individual and social development. Alderman (1999) proposes that a critical evaluation of the success or failure of concepts such as ISO 9000 and Total Quality Management is lacking. According to Alderman (1999), “quality in higher education is not about satisfying the customer (i.e. the student), but is rather about changing the student, which is not the same thing at all . . . an ISO 9000 approach will not and cannot lead, by itself, to the achievement of quality: the most it can lead to is short-to medium, to mid-term bureaucratic procedural compliance” (p. 262).

Yet, despite the controversy described above, there seems to be no doubt that ISO 9000 offers certain benefits when implemented in an educational institution. Among the benefits are improvements in the organizational structure and day-to-day operations. According to Waks & Moti (1999), ISO 9000 “checks how the system is being run based on the assumption that proper functioning coupled with the development of internal control will yield better educational and scholastic results” (p. 253). Nair (2002) showed that there is a positive relationship between the knowledge of ISO 9000 and problem-solving, and a positive relationship between ISO 9000 and decision-making. Studies by Solomon (1993) and Bevans–Gonzales & Nair (2004) revealed that benefits from ISO 9000 implementation include, for example, more client confidence in the school, a greater involvement of staff and faculty in the educational process, better management structure, a clarity of roles and responsibilities, better links to industry and business clients, and an improvement of efficiency and organization of the schools.
Solomon (1993) also showed, similar to Van den Berghe (1997), that several issues should be considered before implementation of ISO 9000 in order to achieve a successful implementation. These issues include, management commitment, management style, ownership, identification of the product, an interpretation of the standards for education, time involved, and cost involved with assessment and use of consultants. In an examination of ISO 9000 and several other quality systems in the UK public sector McAdam, Reid & Saulters (2002) indicated that the majority of organizations utilizing ISO 9000 reported improved performance (primarily beyond one-year of implementation) and that many of them have a strong preference for using ISO 9000 in conjunction with the BEM. Their results did not, however, report details about ISO 9000 or which educational institutions would be most suited to utilize it.

However, the authors of all studies surrounding ISO 9000 also note that in addition to the benefits of the quality management system, there is a fair number of detriments, which as Nair (2002) states “call into question the benefits of pursuing ISO 9001” (p. 118). These detriments include school staff and faculty questioning the application of the standards to education, seeing ISO 9000 as another “trend,” and a paper intensive and time-consuming implementation process (Nair, 2002; Bevans–Gonzales & Nair, 2004). Other studies report an exclusion of some staff, an increase in bureaucracy and impersonal feelings in the institution, a larger gap between the academics and administrators, and stiff regimentation and standardization in the school—described by one person as being fitted “all into the same mold” (Moreland & Clark, 1998).

In addition to other difficulties, ISO 9000 implementation comes with the difficulty of big costs. It is estimated that most school districts have spent $15,000 in registration fees with costs of $10,000 a year for an annual audit (Zuckerman & Rhodes, 2000). These figures do not take into consideration any costs that an educational institution has invested in the time required to implement the system or of the time that employees spend away from their regular jobs working on the implementation process. Doherty (1995) reflects on this situation during a study of the implementation of ISO 9000 and TQM in the University of Wolverhampton in England—the first University to achieve ISO 9000 registration. Doherty (1995) explains that quality management systems such as ISO 9000 and TQM may provide a base for continuous improvement, but there are large costs to consider in the effort, time, money and sheer commitment that it takes to implement. In fact,
The “ISO 9000 (series) may not be suited to the purposes of all educational institutions—that judgment must be a matter for an individual institution itself” (p. 9).

It can be clearly seen in the research summarized above that there is a big debate about the application of ISO 9000 into educational institutions. Most of these articles are based on a case study analysis of ISO 9000 and provide very valuable information on this current problem. However, although several researchers mention that ISO 9000 may not be suited for all educational institutions, they do not address what type of institutions may be most suited for ISO 9000. Solomon (1993) and Van den Berghe (1997) provide the most information on this subject with their suggestions for what should be considered before ISO 9000 implementation. These two studies, in addition to the others have provided the information and variables in the current research that will be developed further in Chapter 3.

2.2.3 Anecdotal ISO 9000 Information

A literature review of ISO 9000 would not be complete without mentioning the enormous amount of anecdotal material available. This information includes, for example, viewpoints and commentaries on ISO 9000 from newspapers and trade magazines, books on ISO 9000 definitions and implementation, and advertisements from independent consultants. These publications are worth mentioning since they are usually very helpful, providing definitions of ISO 9000 with easy to understand explanations, information about schools that have previously implemented the standards, the positive and negative consequences and suggestions for an easier implementation.

One of the most popular free-lance authors on the ISO 9000 standards is Amy Zuckerman. In addition to her work for research journals such as *The Journal for Quality and Participation*, Zuckerman publishes work on ISO 9000 in trade publications such as the *School Administrator*, and books such as *ISO 9000 Made Easy*. Zuckerman provides very helpful and practical, leading-edge information on the development of the ISO 9000 standards. Other assistance with ISO 9000 comes in the form of consultants such as Core Business Solutions, Inc. Similar to other consulting agencies, Core Business Solutions offers up-to-date information about ISO 9000 in education, the definition of ISO 9000 and the benefits of the standards to the school, faculty, staff, students, and community employers. Consultants such as Core also offer training programs and software packages to assist schools in their im-
plementation process. The literature on ISO 9000 in education also consists of information from newspaper reporters that follow the ISO 9000 movement such as Jones in USA Today (1998, May 27) who reports interesting facts about federal funding for ISO 9000 or its application to new areas.

One final mention of ISO 9000 literature should be made regarding a publication entitled *ISO 9000 Survey '99: An Analytical Tool to Assess the Costs, Benefits, and Savings of ISO 9000 Registration*. This survey is the largest study conducted on ISO 9000 in North American industries; previous versions were conducted in 1996 and 1993. As indicated in the title, the study primarily collected data on the cost, benefits and savings related to ISO 9000 registration. The study included industries ranging from agriculture to electronics grouped into six industry types. However, the survey does not include any information on ISO 9000 in education, and the majority of the result are unrelated to educational institutions.

Basically, after searching the current literature available about ISO 9000 from official sources, scholars, newspapers, books and trade magazines—most educational institutions remain confused about the positive and negative aspects of adopting the standards, wondering what their options include and trying to decide whether or not they should attempt ISO 9000 implementation. It is the purpose of this study to build on this foundation of information in order to discover the factors for the successful implementation of ISO 9000 in all levels of educational institutions.

### 2.3 Country Selection

It is important to express that an extensive description of the educational systems, and education policy of England and the US is not within the scope of this study; nor is it the intention of the author to promote that one system is “better” than another. The difference between England and the US educational systems is a topic in and of itself and thoroughly analyzed by other authors, see for example, Litt & Parkinson (1979) and Green (2001). Information in this section will be 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 US and England as they are related to this 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 US, 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 UK’s ISO full member body, has become the worlds 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 schools that were ISO 9000 certified were located in England (e.g. Sandwell College and the University of Wolverhampton). Unlike BSI, the US registrar ANSI has approximately 2,000 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 primary differences in the education systems has to do with control and centralization. As one of the four countries of the UK, England has a national curriculum, a national system of qualifying exams, and a system that is both centralized and decentralized. They include bilingual and religious education in their curriculum, have smaller school enrollments and finish compulsory education at an age of 16 (in the US it is age 18) (Green, 2001). The Department for Education (DFE) in England is responsible for all schools maintained and independent, and further and higher education (Mackinnon, Statham & Hales, 1995, p. 96). In contrast, as suggested by Conway, Goodell, and Carl (2002) the US has a highly decentralized education system with 15,000 school districts that almost all have distinct curriculum, instruction and assessment. The US 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 US and England provide an excellent basis for comparative international education studies since they share a common language and history, and they face the same economic imperatives and policy problems. Furthermore, both countries have and 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, Math 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).

In addition, the US and England have a similar past with the neo-liberal political movement that shapes this study. Currently, no specific government policies 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 US that supported market-driven, more efficient, quality measures in education (i.e. neo-liberal type policies). In the UK, neo-liberal policies were supported by Prime Minister Thatcher and strengthened with the Education Reform Act of 1988. The 1988 act allowed businesses representatives on national curriculum panels and governing bodies, modeled schools on a market system and enabled 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 educational 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. At the same time, neo-liberal ideals for linking education to the economy were supported in the US by President Reagan. These ideals continued to be supported by both the Bush and Clinton administrations in the Goals 2000: America 2000: An Education Strategy. The proposals of this policy, which included school choice and allowing corporate involvement in schools 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 these countries. 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, 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 problem. Conducting comparative research on this topic will benefit educational institutions in both England and the US—to use the words of Franklin Parker (1979):
By observing British schools, Americans may become conscious of strengths and weaknesses within our own education system. That is the value of comparative and international studies in any field, including education. We gain insights into our own education system by seeing how others do things. Furthermore, the bonds of a common language and a historical heritage make a study of British education particularly relevant to Americans (p. 5).

2.4 Summary

This chapter has provided an in-depth review of the ISO 9000 quality system, its development, and its controversial application to the field of education. Current research was presented from countries around the globe, but dominated by industrial nations such as the US and the UK. Although mentioned by several authors, the suitability of ISO 9000 for certain educational institutions over others is a new and needed area of research, one that will be addressed by this current study. Both the US and England are very active with the ISO 9000 standards, maintain activity in ISO as full member bodies and produce the majority of studies and publications on ISO 9000. The shared history and policy development of the US and England provide an excellent environment to conduct a comparative study on this topic. Chapter 3 will provide the variables extracted from this literature and the research methods utilized for conducting the study.
This study had the following two research objectives: to examine and compare ISO 9000 in US and English educational institutions; and to identify factors that relate to a successful implementation of ISO 9000. This chapter will address the background of a comparative international education methodology, the specific methodology of the current study including the type of research to be conducted, the operationalization of variables, a description of the instrument and a preliminary test of the instrument.

3.1 Background of Methodology

Comparative education is truly a field of many disciplines with a diverse set of philosophies, scholars, activities, objectives, and consumers. It is due to this fact that the field cannot claim one single method or conceptual tool (Theisen & Adams, 1990). Both quantitative and qualitative methods are utilized in the field of comparative education, but it is a much debated subject as the qualitative approach is considered too descriptive and biased, whereas the quantitative approach is criticized for its inability to take into account all variables, especially those variables that are descriptive in nature and considered unmeasurable (Halls, 1990).

Each approach to the collection of data (quantitative or qualitative) comes with its positive and negative aspects. On one hand, while it is beneficial to receive very detailed information from a few selected sites, it is hard to generalize this information to a large population. On the other hand, data received from a large number of sites often seems too generalized and not detailed enough—clearly a problem for any comparative researcher. Regardless
of this debate, it appears that most scholars agree that each methodological approach to conducting a comparative study depends on the circumstances and suitability of each study and, of course, should be chosen according to the objectives of the study and the available resources (Theisen & Adams, 1990; Halls, 1990).

### 3.2 Type of Research

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 with a cross-sectional, survey conducted through telephone interviews. For this study, a telephone survey was the preferred type of data collection as it enabled the researcher to collect unbiased information from a sample in order to generalize about a certain characteristic of a population (Babbie, 1990; Fowler, 1993). In addition, a telephone survey ensures that the correct individual completes the questions, provides interviewer administration, allows a prompt data collection, is more cost effective than personal interviews, and is approximately the same cost as a mail survey (Fowler, 1993).

The same methods were applied to both countries involved in the research. However, since the study included a comparison of two countries facing the same problem, a flow chart is provided in Figure 3.1 depicting how the study was conducted. First, data was collected, analyzed and explained on the ISO 9000 situation in each country separately. Then, a comparison of the data between the countries was made, with the researcher drawing conclusions about similarities and differences of ISO 9000 in educational institutions in the US and England. Finally, the results of the study were used to inform the situation regarding ISO 9000 in US and English educational institutions.

### 3.3 Population & Sample

The unit of analysis of the study was organizational as the research focused on educational institutions in the US and England. However, the issue of popu-
lation and sample selection of these educational institutions proved to be a large and complicated endeavor (it is definitely not the type of sample design that fits in a text book example). Despite the fact that ISO functions in a highly rationalized and technical environment, surprisingly, the researcher found the central body of ISO and the national bodies to be poorly organized and vague (perhaps by choice) 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). This description becomes even more evident as ISO 9000 registered educational institutions were attempted to be identified for this research.

ISO (the central body) does not keep records of the number of registered organizations. Furthermore, there is such a large number of national member bodies, and independent ISO 9000 registrars operating under the national member bodies, that the number of educational institutions actually registered to ISO 9000 (i.e. the size of the population) was unable to be determined. Several publishing companies have capitalized on this situation and create and sell databases of ISO 9000 registrations by collecting information from the independent registrars. A few of these companies have started to develop a world-wide list of certified organizations, but unfortunately, it is not yet available. In addition to the complication of an unidentifiable population was the problem of identifying exactly what ISO considers the criteria for an educational institution. The researcher attempted to discover if ISO has criteria, however, when the national bodies were contacted about this question, they revealed that they did not know and referred the researcher to individual auditors. The auditors also admitted that they did not know and referred the researcher back to the national body. Finally, after several months, a global account manager at BSI was reached. During this conversation, it was revealed that ISO and the national bodies do not differentiate between the organizations that are registered to ISO 9000 since the standards are the same regardless of the type of organization in which they are implemented. Only the external auditor is different depending on the type of industry. BSI also noted that they were unable to provide or verify a list of registered schools, and in their opinion most schools obtaining registration were only doing so at the administrative level (BSI, personal communication, August 16, 2004). At that point, the researcher developed criteria for the population included in the study. Therefore, in light of these
problems, the sampling design of the study is described in two stages: first, the identification of educational institutions with ISO 9000 registration; second, the identification of an individual within each of these institutions with the knowledge to answer the survey.

3.3.1 Stage One of the Sample Design

The first stage of sampling design included an attempt to identify as many educational institutions with ISO 9000 certification as possible. The researcher contacted ISO in Geneva, Switzerland and was directed to communicate with the national member bodies for the countries in question. The researcher contacted the national member bodies for the USA and England (ANSI and BSI) and was directed to several database sources. A list of educational institutions registered in the US was obtained from Quality Digest Database, the Quality Systems Update (QSU) Publishing Company database, and the SRI database. Quality Digest and QSU are private publishing companies that collect and disseminate information about ISO 9000. SRI is an independent ISO 9000 registrar. A list of educational institutions registered in England was obtained from the BSI database. BSI is the UK national body and an ISO 9000 registrar. Organizations with ISO 9000 registration are entered into the databases by information collected from independent ISO 9000 registrars. The data is organized only by organization name, making it necessary to search the database with a series of search terms (selected by the researcher). Note that while measures were taken to include as many institutions as possible, the population discovered by this search excluded any institution that was very recently certified to ISO 9000 and not yet reported by the registrar. The search also excluded institutions that were certified by registrars that are not currently contributing to the database. The search terms utilized were “college,” “university,” “school,” “vocational education,” “institute,” “education,” and “school district.” The search was conducted during May and June 2004. The result of this search was a very large list of organizations that have any of the search terms listed in their name or in the description of services and products that they provide.

With the search results, a list of ISO 9000 registered educational institutions was created after adjusting the institutions to fit the following criteria. The population in the study included any educational institution (with a focus on institutions that offer full-time, compulsory schooling or higher education) that was registered to ISO 9000 in the US and England. These
educational institutions include higher education institutions, secondary, primary, and vocational or technical educational institutions. The list did not include school district administrative offices with only a few programs registered to ISO 9000, private sector training organizations, consultant organizations that provide training, government training programs or organizations that make educational products.

A final number of institutions for the study was obtained that included 49 educational institutions in the US and 27 educational institutions in England. As the total number of institutions was only 76, a smaller sample was not taken and all institutions were to be included in the study. This number of educational institutions was considered “representative” of the total population despite the fact that using a sample size formula as recommended by many authors such as Creswell (1990) was not possible. Instead, as Fowler (1993) suggests, the sample size decision was made on a case-by-case basis and took into account numerous aspects of the research study and design. Due to the complicated nature of this study and the impossibility of identifying a population, the number of institutions identified was considered sufficient; and, as stated earlier, “representative” of whatever population might exist or until a later point in time where it may be more available.

In an effort to verify the sample size, contact was made with the British Standards Institute, the American National Standards Institute, the central body of ISO, the Department for Education and Skills (DfES) in the UK, and several State Departments of Education in the US. All of the organizations mentioned above were unable to verify or provide more information regarding the number of ISO 9000 registered educational institutions. Most of the responses were as follows, “I could find no resource for the schools registered to ISO 9000 in Great Britain” (Department for Education and Skills [DfES], personal communication, October 24, 2004). For a listing of the schools involved in this study see Appendix B.

3.3.2 Stage Two of the Sample Design

For stage two of the sampling design, following the suggestion of Dillman (2000) for organizational surveys, the researcher chose only the most appropriate individual to answer the questionnaire, not the entire institution. Therefore, due to the information necessary for this research, the individual most involved in the ISO 9000 activities in each educational institution was selected to answer the questionnaire.
The individual responding to the survey, was either the director or principal of the institution or a different member of the staff who had been assigned to oversee the ISO 9000 implementation process. Since this survey was being conducted in an organization, it was necessary to go through a gatekeeper (in the US this was usually a secretary or a receptionist, in England this was usually a switchboard operator, or an information center manager) in order to find the correct person to respond to the survey. Dillman (2000) suggests that telephone numbers for organizations are easily located and that calling the organization encourages a response, resolves the problem of locating the individual to respond to the survey, and assists with getting through the gatekeeper. Contact information and phone numbers for the majority of each educational institution were collected as they were provided in the information from the ISO 9000 databases. For the few locations that remained, contact information was collected via the website of the individual institution or through the department of education in each country. Once contact information had been collected and after Human Subject Research permission was obtained, a preliminary phone call was made in order to identify the appropriate respondent.

It was during these preliminary phone calls that the author discovered that the databases provided by the registrars and publishing companies were not accurate, nor up-to-date. Many schools (mostly in the US) were no longer using ISO 9000. This included, for example, all schools in the school district of Lancaster, Pennsylvania; all schools in the school district of Manville, New Jersey; Newport University in California; and one technical school in Pennsylvania. This finding will be discussed in detail in Chapter 4, but note that it dropped the initial population to 21 schools in the US. Due to similar circumstances in England, the initial population in England changed to 19 schools.

Once preliminary contact with each school was made, an invitation letter was sent to the individual identified as a potential participant. Then, a second phone call was made to set-up an interview time with that individual. If necessary, respondents were contacted multiple times to request interview participation. However, as recommended by Dillman (2000), the number of times a participant was contacted was limited to five.
3.4 Instrumentation

The instruments utilized for this study were the interviewer and a self-designed survey. The author, who was the only interviewer involved in the study, was considered an instrument of the study because as Fowler (1993) mentions, they have a central role in the study and a potential influence on the quality of data collected. The role of the interviewer included locating respondents and enlisting their cooperation in the study, motivating respondents to do a good and accurate job of answering questions, asking the correct questions, recording answers, and probing for complete and accurate answers.

The survey was based on 15 variables (one dependent variable and 14 independent variables) extracted from the literature and the survey instrument included 50 questions. The survey questions were written according to the suggestions and guidelines provided by Dillman (2000) and Fowler (1993) and were a mix of closed-ended and open-ended questions. The closed-ended questions included unordered response categories that asked for a one item response or a rank-order response. This type of question was selected since according to Dillman (2000) it offers a direct comparison of responses. However, also as recommended by Dillman (2000), the author wished to keep the demand on respondents to a minimum for this type of question by only asking for a ranking of three items if the list contained more than six items. The ordered response questions included mostly a vague quantifier scale ranging from “not at all” to “to a very great extent.” The author was aware of the limitation of vague quantifiers in their potential for error, therefore, this type of question was utilized only as a last option.

To ensure the reliability (the consistency of answers provided by two different respondents) of the survey, several steps as suggested by Dillman (2000) and Fowler (1993) were followed. Questions on the survey were written and asked in complete sentences, the interviewer utilized the same script for every interview, and optional wording and definitions were provided in the script in order to maintain a consistent stimulus for each interview. Validity is described by Fowler (1993) as “the extent to which the answer given is a true measure and means what the researcher wants or expects it to mean” (p. 80). The steps suggested by Fowler (1993) were taken in order to increase the validity of the study. The questions on the survey were be made as reliable as possible by providing definitions and clear wording, each question dealt with only one issue, and multiple questions with different forms were utilized.
to measure a subjective concept. In addition, several questions were asked such as the type of educational institution and number of years of ISO 9000 registration that were verified with external records.

### 3.4.1 Expert Panel and Pilot Study

In addition to the steps outlined above, in order to help ensure the validity and reliability of the instruments, an expert panel was conducted with the survey instrument. Four individuals, from a variety of universities, served as members of the expert panel. All members had either detailed knowledge on topics related to the study such as ISO 9000 or survey research methods. The comments and corrections from the expert panel were incorporated into the survey before the pilot study was conducted.

According to the recommendations of Dillman (2000) and Fowler (1993), a pilot study of the instrument was conducted before the actual data collection. The pilot testing served to establish the validity of the survey instrument and to improve the survey questions and protocol (Creswell, 1990). The pilot study also served as a cognitive interview, which helped the author to identify sensitive questions and assisted the author in deciding if certain questions should be eliminated (Dillman, 2000). Two educational institutions (one from each country) were randomly selected for the pilot study. The responses and comments resulting from this pretest were incorporated into the final instrument revisions. A complete draft of the survey (US and English versions) is available in Appendix A.

The changes to the survey recommended by the expert panel and after the pilot study primarily included improving the flow and word order of the survey, and correcting typing errors. In addition, several changes were made to the English version of the survey to make it more comprehensible to the British respondents. Changes to the English version of the survey included changing the word order or removing superlatives such as “please” and “very.” These changes were made to make the survey questions more clear and sound more natural to speakers of British English.

### 3.5 Operationalization of Variables

The variables for this research originated from the literature and previous studies on ISO 9000 in education. They 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. Optional wording for questions is included in parentheses and was provided for use during the interview if necessary. Definitions for the majority of the variables were taken from *ISO 9000: 2000* or the *IWA 2: Quality management systems–guidelines for the application of ISO 9001: 2000 in education* as these are the same definitions received by any educational institution implementing ISO 9000.

### 3.5.1 Successful ISO 9000 Implementation

The first concept of the study (successful ISO 9000 implementation) was defined as third-party certification to the standards. The registration is considered successful as Van den Berghe (1998) states that due to the “process nature of an ISO 9000 based quality system, with all its feedback loops and corrective actions, it is very difficult to run a ‘poor’ ISO system. Actually, very few cases of ‘falsification’ of systems or certificates have emerged” (p. 23). This concept was measured by one dependent variable, the time required to implement ISO 9000. In addition, there were 14 independent variables that were tested for their influence on this concept. Note that several variables and survey questions such as the number of years of ISO 9000 registration, current ISO 9000 registration costs, and the use of the IWA were utilized purely to examine the difference in ISO 9000 between countries, and were not tested for a relationship with the dependent variable.

**Type of educational institution:** An independent variable, that differs according to country. In the US, the education institution type may be a research university, a comprehensive university, a community college, a vocational-technical college, a vocational-technical secondary school, a high school, a middle school, a primary school, or a preschool. In England, the educational institution type may be a university, a non-research related university, a college of higher education, a specialist college of further education (i.e. nursing), a general further education college, a sixth form college, a secondary school, a primary school, pre-compulsory school. These educational institution types were included as a question and controlled by external records (Fisher, 1993, p. 221).

**Measure:** Two closed-ended questions with unordered response categories. One question that varied according to country and asked the
respondent to identify the type of educational institution. The sec-
ond question was a two-part question which asked the respondent to
identify which part of the institution has ISO 9000 registration. Both
questions provided nominal data.

**Question 1:**
US Version: What is your educational institution?
Answer: □ A research university
□ A comprehensive university
□ A community college
□ A vocational-technical college
□ A vocational-technical secondary school
□ A high school
□ A middle school
□ A primary school
□ A preschool

UK Version: What is your educational institution?
Answer: □ A university
□ A non-research related university
□ A college of higher education
□ A specialist college of further education
□ A general college of further education
□ A sixth form college
□ A secondary school
□ A primary school
□ A pre-compulsory school

**Question 2:** Is the entire educational institution (school, college, uni-
versity) registered to ISO 9000?
Answer: □ Yes
□ No

If the answer is “No,” which part (department) of your educational
institution (school, college, university) is registered to ISO 9000?
Answer:

**Size of educational institution:** An independent variable that included
the number of staff, faculty, administration, and students of an edu-
Cational institution. Calculations for the total size of the educational institution were made by the author.

**Measure:** An open-ended question with a blank space followed by the units that measured the total size of the educational institution. After calculations were made by the author, this question provided numerical data.

**Question 3:** What is the number of managers (administrators), staff, teachers (faculty, professors, lecturers), and students at your educational institution?

**Answer:** ______ Administrators
_________ Staff
_________ Teachers
_________ Students

**Time to registration:** The dependent variable, which was defined as the approximate number of months needed for the educational institution to obtain ISO 9000 registration.

**Measure:** An open-ended question that provided numerical data by measuring the approximate number of months required for the educational institution to obtain ISO 9000 registration.

**Question 4:** On average, how many months did it take for your educational institution (school, college, university) to obtain ISO 9000 registration (certification)?

**Answer:**

**Number of years of ISO 9000 registration:** An independent variable that measured the number of years the educational institution had been registered to ISO 9000. In order to avoid having the respondent make unnecessary calculations (Dillman, 2000) only the first year of ISO 9000 registration was asked and the number of years was calculated by the author.

**Measure:** A closed-ended question with an unordered response category measuring the year that the educational institution was first registered to ISO 9000. This question provided numerical data as the number of years of ISO 9000 registration was calculated by the author from the respondent’s answers.
Question 5: During which year did your educational institution (school, college, university) first receive ISO 9000 registration (certification)?

Answer: 

□ 1990  □ 1991  
□ 1992  □ 1993  
□ 1994  □ 1995  
□ 1996  □ 1997  
□ 1998  □ 1999  
□ 2000  □ 2001  
□ 2002  □ 2003  
□ 2004  

Status of institution before ISO 9000: An independent variable that combined the conditions identified by Van den Berghe (1997) and Solomon (1993) that should exist in the educational institution before the ISO 9000 implementation.

Measure: Two closed-ended, unordered questions that provided nominal data and two open-ended questions that measured the status of the educational institution before ISO 9000 implementation.

Question 6: Which of the following best describes the educational institution (school, college, university) before starting ISO 9000 implementation?

Answer:  □ organized  
□ stable  
□ both organized and stable  
□ neither organized nor stable  

Question 7: Which of the following best describes how quality management was practiced in your educational institution (school, college, university) before ISO 9000?

Answer:  □ There was no quality management practice  
□ There was an unspoken quality management practice  
□ There was a different quality management practice  

Question 8: If there was a different quality management practice, what was the name of it?

Answer:
Question 9: Were there any other major changes going on in your educational institution (school, college, university) at the same time as ISO 9000 implementation?

Answer:

Cost of ISO 9000: An independent variable that measured the implementation and maintenance costs of ISO 9000. 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).

Measure: Three, closed-ended, questions that provided ordinal data by measuring the approximate cost (internal, external and registration) for the educational institution to obtain ISO 9000 registration. Two open-ended questions that asked the respondent to describe an internal and external cost.

Question 10: Approximately, what were the internal costs for ISO 9000 implementation?

Answer:

□ $ 10,000 or less
□ $ 10,001 – $ 20,000
□ $ 20,001 – $ 30,000
□ $ 30,001 – $ 40,000
□ $ 40,001 – $ 50,000
□ $ 50,001 – $ 60,000
□ $ 60,001 – $ 70,000
□ $ 70,001 – $ 80,000
□ $ 80,001 – $ 90,000
□ $ 90,001 – $ 100,000
□ $ 100,001 or more

Question 11: Can you please give me an example of an internal cost?

Answer:

Question 12: Approximately, what were the external costs for ISO 9000 implementation?
Question 13: Can you please give me an example of an external cost?

Answer:

Question 14: Approximately, what were the registrar costs (pre-assessment, registration)?

Answer:

Financial Status of the school: An independent variable identified by Van den Berghe (1997) who reported that an educational institution should be “financially sound” before implementing ISO 9000 (p. 90). However, this was a very difficult variable to measure due to the different meanings of the word “sound,” the enormous variation in the financial situations of educational institutions both within and across countries, and due to the fact that financial information was potentially a sensitive subject.
Measure: After consultation with B. Sheaffer (personal communication, October 20, 2004) at the Pennsylvania Department of Education (PDE) Bureau of Budget and Fiscal Management, Division of Subsidy Data and Administration, this variable was measured by one open-ended question asking the respondent to estimate the annual operating budget of the educational institution. This type of question provided numerical data.

**Question 15:** What is the average annual operating budget for your educational institution (school, college, university)?  
**Answer:**

Management commitment to ISO 9000 implementation: An independent variable defined as “top management (a person or a group of people who direct and control an educational organization at the highest level) identifies and shows their commitment to achieve the development and continual improvement of the quality management system” (IWA 2, 2003 p. 14). Van den Berghe (1997) stated that one of the conditions for successful ISO 9000 implementation is “fully committed” management (p. 96). However, management may demonstrate their commitment in a variety of ways. The purpose of this variable was to identify how different demonstrations of management commitment may influence successful registration.

Measure: One closed-ended question that provided categorical data by measuring the methods utilized by management to show commitment to the ISO 9000 implementation.

**Question 16:** Which of the following is most used by the top management (administration) to show a commitment to ISO 9000 implementation at your institution (school, college, university)? Please put a 1 in the box for the item that is the most used, a 2 in the box for the next item most used, and continue until you have ranked three items.
**Involvement of people:** An independent variable that included that “Management should improve both the effectiveness and efficiency of the organization, including the quality management system, through the involvement and support of people.” (ISO 9004: 2000, section 6.2.1)

**Measure:** Two closed-ended questions that included an ordered response category with options ranging from “not at all” to “to a very great extent.” One closed-ended question, with an unordered response to be ranked by the respondent that provided ordinal data. These questions measured the involvement of the members of the organization in the ISO 9000 process and provided categorical data.

**Question 17:** To what extent do you feel that all members of the institution know why the institution was going to be ISO 9000 certified?

**Answer:** □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

**Question 18:** To what extent do you feel that all members of the institution are convinced of the relevance of the ISO 9000 standard?
Question 19: In which of the following ways does management most involve other members (staff, faculty, students) in the educational institution (school, college, university)? Please put a 1 in the box for the item that is the most used, a 2 in the box for the next item most used, and continue until you have ranked three items.

Answer: □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

ISO 9000 Management representative: An independent variable that was defined as a person or persons that have “the responsibility for ensuring that the requirements of ISO 9001:2000 are met on an ongoing basis and that the guidance provided in this IWA is being implemented. This person should know the contents of these standards and be available for advice on their implementation” (IWA 2, 2003, p. 23). Van den Berghe (1997) describes this person as “a qualified, motivated and credible (highly regarded) person ... available to coordinate the implementation” (p. 81).

Measure: Two closed-ended questions with unordered category responses that provided nominal data by measuring the existence and characteristics of the management representative for ISO 9000. One closed-ended question with ordered response categories that provided
ordinal data by asking the respondent to rank the characteristics of the management representative.

**Question 20:** The IWA 2 Guidelines define an ISO 9000 management representative as “a person (or persons) that have the responsibility for ensuring that the requirements of ISO 9001:2000 are met on an on-going basis.” They should also “know the contents of the standards and be available for advice on their implementation” (IWA 2, p. 23).

According to the above definition, does such a person (or persons) exist in your educational institution (school, college, university)?

**Answer:** □ Yes
□ No

**Question 21:** If yes, to what extent is this person (or persons) highly regarded by other members of the educational institution (school, college, university)?

**Answer:** □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

**Question 22:** Which of the following best describes this person (or persons) in relation to their assistance with the ISO 9000 implementation process?

**Answer:** □ Qualified
□ Motivated
□ Both qualified and motivated
□ Neither qualified nor motivated

**Language Interpretation** An independent variable that measured the interpretation of the ISO 9000 standards into educational terms, defining the product (Solomon 1993), and identifying the customer.

**Measure:** Two closed-ended questions that provided categorical data with a vague quantifier scale ranging from “not at all” to “to a great extent.” Four questions that provided categorical data. These seven questions measured the following items: the interpretation of the ISO 9000 standards into terminology understood in educational institutions, if the educational institutions utilized any guidance notes or external
assistance for the process of implementation, and the definition of the customer and product of the educational institution.

**Question 23:** At the beginning of ISO 9000 implementation, to what extent did your educational institution (school, college, university) define ISO 9000 in terms that were understandable in education?

**Answer:** □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

**Question 24:** Which of the following were used to guide the ISO 9000 implementation process in your educational institution (school, college, university)?

**Answer:** □ An external consultant
□ An external training provider
□ Both an external consultant and an external training provider
□ Neither an external consultant or an external training provider

**Question 25:** To what extent was the IWA 2: Quality management systems–guidelines for the application of ISO 9001: 2000 in education used to guide the implementation process of ISO 9000?

**Answer:** □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

**Question 26:** Which of the following were used to guide the ISO 9000 implementation process in your educational institution (school, college, university)?
Answer: □ The BS 5750: Guidance notes for application to education and training
□ The American National Standard: Quality assurance standards – Guidelines for the application of ANSI/ISO/ASQC Q9001 or Q9002 to education and training institutions
□ Both The BS 5750: Guidance notes for application to education and training and The American National Standard: Quality assurance standards – Guidelines for the application of ANSI/ISO/ASQC Q9001 or Q9002 to education and training institutions
□ Neither The BS 5750: Guidance notes for application to education and training or the American National Standard: Quality assurance standards – Guidelines for the application of ANSI/ISO/ASQC Q9001 or Q9002 to education and training institutions

Question 27: Which of the following most describes your educational institution’s (school, college, university) customer? Place a 1 in the box you would consider the most, a 2 in the box that you would consider second, and go on until you have ranked all five items.
Answer: □ Student
□ Parent
□ Another educational institution
□ Employers
□ Society

Question 28: Which of the following most describes your educational institution’s (school, college, university) product? Place a 1 in the box you would consider the most, a 2 in the box that you would consider second, and go on until you have ranked all three items.
Answer: □ The provision of education
□ Student
□ Curriculum

Question 29: Which of the following most describes your educational institution’s (school, college, university) stakeholders? Place a 1 in the box you would consider the most, a 2 in the box that you would consider second, and go on until you have ranked all five items.
consider second, and go on until you have ranked all five items.

**Answer:** □ Student  
□ Parent  
□ Another educational institution  
□ Employers  
□ Society

**Understanding of internal processes:** An independent variable that was explained as “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” (IWA 2, 2003, p. 3). “An activity using resources, and managed in order to enable the transformation of inputs into outputs, can be considered as a process. Often the output from one process directly forms the input to the next” (ISO 9001: 2000, section 0.2). Van den Berghe (1997) reported that there should be “a good understanding of internal processes” in the educational institution as a condition for the successful implementation of ISO 9000.

**Measure:** Eleven closed-ended, ordinal-scaled questions with vague quantifiers ranging from “not at all” to “to a great extent.” These questions provided ordinal data by measuring if the members of the educational institution understood any of the internal processes as they are defined in *ISO 9001: 2000*.

**Question 30:** To what extent do you feel that the members of your educational institution (school, college, university) understand the role of the educational institution in the socio-economic environment?  
**Answer:** □ To a very great extent  
□ To some extent  
□ To a small extent  
□ Not at all

**Question 31:** To what extent do you feel that the members of your educational institution (school, college, university) understand the process of maintaining the work environment?
Question 32: To what extent do you feel that the members of your educational institution (school, college, university) understand the process of curriculum development?

Answer: □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

Question 33: To what extent do you feel that the members of your educational institution (school, college, university) understand the process of curriculum review?

Answer: □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

Question 34: To what extent do you feel that the members of your educational institution (school, college, university) understand the process of updating curriculum?

Answer: □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

Question 35: To what extent do you feel that the members of your educational institution (school, college, university) understand the process of student assessment?

Answer: □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

Question 36: To what extent do you feel that the members of your educational institution (school, college, university) understand the final
assessment process conducted before an education certificate is presented?

**Answer:** □ To a very great extent  
□ To some extent  
□ To a small extent  
□ Not at all

**Question 37:** To what extent do you feel that the members of your educational institution (school, college, university) understand the teaching-learning support process?

**Answer:** □ To a very great extent  
□ To some extent  
□ To a small extent  
□ Not at all

**Question 38:** To what extent do you feel that the members of your educational institution (school, college, university) understand the process of supporting a student until they complete their education at that institution (school, college, university)?

**Answer:** □ To a very great extent  
□ To some extent  
□ To a small extent  
□ Not at all

**Question 39:** To what extent do you feel that the members of your educational institution (school, college, university) understand the process of communication?

**Answer:** □ To a very great extent  
□ To some extent  
□ To a small extent  
□ Not at all

**Question 40:** To what extent do you feel that the members of your educational institution (school, college, university) understand the measurement of educational processes?

**Answer:** □ To a very great extent  
□ To some extent  
□ To a small extent  
□ Not at all
Industry partnership: An independent variable, which included that “management should establish relationships with suppliers and partners to promote and facilitate communication with the aim of mutually improving the effectiveness and efficiency of processes that create value.” (ISO 9004: 2000, section 6.6)

Measure: Two open-ended questions and one closed-ended question with a vague quantifier ordinal scale ranging from “not at all” to “to a very great extent.” The questions provided categorical data by measuring the definition and relationship of the educational institution to any suppliers and partners.

Question 41: Please listen to the following definition from ISO 9004: 2000, section 6.6:

“Management should establish relationships with suppliers and partners to promote and facilitate communication with the aim of mutually improving the effectiveness and efficiency of processes that create value.”

According to this definition, who would you consider to be a “supplier” for your educational institution (school, college, university)?

Answer:

Question 42: According to the same definition, who would you consider to be a “partner” of your educational institution (school, college, university)?

Answer:

Question 43: To what extent did the relationship with “suppliers and partners” influence your educational institution to implement ISO 9000?

Answer: □ To a very great extent
 □ To some extent
 □ To a small extent
 □ Not at all

3.5.2 Institutional Isomorphism

The second concept of the study involved the theoretical framework and included elements of neo-liberal world culture and institutional isomorphism.
Institutional isomorphism as cited by Dimaggio & Powell (1983) is “a process that forces one unit in a population to resemble other units that face the same set of environmental conditions (Hawley, 1968)” (p. 149). According to this theory, the implementation of an innovation, such as ISO 9000, at first stems from an organization’s strategy to improve and become more efficient. However, when a large number of organizations begin implementing the innovation, the strategy may no longer be rational nor may it help the organization to function more efficiently. There are three types of institutional isomorphism that were utilized as independent variables in the study.

Coercive & Mimetic Isomorphism The first two types of isomorphism (coercive and Mimetic) were measured together with one question. Coercive isomorphism is defined by DiMaggio & Powell (1983) as “both formal and informal pressures exerted on organizations by other organizations . . . and by cultural expectations in the society within which these organizations function” (p. 150). Current cultural expectations are in the form of neo-liberal or capitalist ideas and are involved in the standardization project (Loya & Boli, 1999). Mimetic isomorphism is defined by DiMaggio & Powell (1983) as the type of isomorphism that occurs when “technologies are poorly understood, when goals are ambiguous, or when the environment creates symbolic uncertainty” (p. 151) These two types of isomorphism were combined in order to identify the pressures that may cause educational institutions to implement ISO 9000.

Measure: One question that provided categorical data by measuring the different forms of pressure exerted on an organizational institution that may lead to the selection and implementation of ISO 9000 as a quality management system. One unordered response question that provided nominal data by measuring if there were modifications to ISO 9000 made by the educational institution. One open-ended question that asked the respondent to describe the nature of any changes to ISO 9000.

Question 44: Which of the following was influential in the decision of your educational institution (school, college, university) to implement ISO 9000? Please put a 1 in the box for the item that was the most influential, a 2 in the box for the second most influential, and continue until you have ranked three items.
Question 45: Has your educational institution (school, college, university) made any modifications (changes) to ISO 9000 since it was first implemented?

Answer: □ Yes □ No

Question 46: If yes, please briefly describe these modifications (changes).

Answer:

Normative isomorphism Normative isomorphism was the final independent variable in the study and “stems primarily from professionalization.” This professionalization usually occurs as a large number of personnel, especially “managers and key staff” have the same level of formal education and are involved in occupational socialization. Occupational socialization is considered as involvement in the following: trade associations, professional associations, in-service educational programs, consultant arrangements, employer-professional school networks, and trade magazines (DiMaggio & Powell, 1983, p. 152).

Measure: One closed-ended, unordered, categorical question that measured the respondent’s position. One open-ended question that measured the respondent’s level of education, which Dillman (2000) considers as having a “ready-made” answer. One that measured the involvement of the respondent in organizational socialization.

Question 47: What is your position in the educational institution?

Answer: □ Management (administration) □ Staff □ Faculty (professor, lecturer, or teacher)
**Question 48:** What is the highest level of education that you have completed?

**Answer:**

**Question 49:** Which of the following activities are you most involved in? Please put a 1 in the box for the item that you are most involved in, a 2 in the box that you are the next involved in and continue until you have ranked three items.

**Answer:**

- ☐ Trade associations
- ☐ Professional associations
- ☐ In-service educational programs
- ☐ Consultant arrangements
- ☐ Employer networks
- ☐ Professional networks
- ☐ School networks
- ☐ Trade magazines
- ☐ Professional magazines
- ☐ Scholarly journals

**Final Survey Question** According to P. Krueger (personal communication, Fall, 2001), an open-ended question should be asked at the end of most survey questionnaires to give the respondent a chance to make extra comments.

**Measure:** One open-ended question that provided an opportunity for the respondent to comment on or explain anything extra about ISO 9000 in their educational institution.

**Question 50:** Is there anything else you would like to tell us about ISO 9000 at your educational institution (school, college, university)?

**Answer:**

### 3.6 Interview Protocol

**Step 1:** After Human Subject Research permission was obtained, a preliminary phone call was made to each educational institution in order to identify the correct individual to respond to the survey.
Step 2: Once the survey respondent was identified, an advanced cover letter was mailed that introduced and explained the study. Fowler (1993) reports that this method ensures that response rates are similar for the telephone interview as they would be for a personal interview (p. 60). The letter was printed on Penn State Stationary and contained the following information: the date, the inside address, what would happen, the purpose of the study, the importance of the interview, a thank you, and a real signature (Dillman, 2000, p. 157). The letter also served as the implied consent document and contained the following human subject information: a request for participation, why they were selected, the importance of the survey, anticipated uses of the research, confidentiality and human subject protection information, the time required to take the survey, and the number of survey questions. A copy of the advanced letter can be found in Appendix A.

Step 3: After the letter was mailed and most likely received by the respondent (approximately one week for the US and two weeks for England), a phone call was made to each respondent asking for cooperation and scheduling an interview for an appropriate time. During this step, several respondents were excited about the research and did not wait for a call from the author, but instead called the author to express interest in the research and to schedule an interview time.

Step 4: At the appointed time of the interview, the respondent was called and provided with the following information before the start of the interview: contact information of the interviewer for future questions or concerns, brief instructions and information about the interview process, and a thank you in advance for participating.

Step 5: After the information described in Step 4 was given, the interviewer started asking the survey questions. The interviewer utilized a script which contained all questions, responses, optional wording and definitions (prepared in advance). Items in a long list were read twice (once slowly and then read again with the respondent choosing an answer when the interviewer said it the second time) (Fowler, 1993, p. 57). Incomplete answers were probed in non-direct ways with short questions such as “anything else?” “tell me more,” and “how do you mean that?” Open-ended questions were recorded exactly in the words the respondent chose, and closed-ended responses were recorded only when the respondent selected one. In addition, the personal
relationship between the interviewer and respondent was limited and the interviewer did not express any views or opinions about the survey subject (Fowler, 1993, p. 107–108). Respondents were encouraged to take their time during the entire survey and to answer to the best of their ability. For a copy of the interview script, see Appendix A.

**Step 6:** When the interview was complete, the respondents were thanked again for their cooperation and asked if they would like a copy of the research results.

### 3.7 Data Analysis

The data analysis included the following elements recommended by Creswell (1990), the response rate, the response bias, the descriptive statistics, the internal reliability and consistency of the survey instrument, and the statistical analysis of the relationships between variables.

#### 3.7.1 Response Rate

The response rate was calculated according to the suggestion of Fowler (1993) as the number of people responding to the survey divided by the total number of people sampled (including those who did not respond). In the US, 19 out of 21 responses were received, which provided a response rate of 90.5%. In England, 11 out of 19 responses were received, which provided a response rate of 58%. For both countries, this study surpassed the “response rate of 50 percent” that Babbie (1998) considers “adequate for analysis and reporting” (p. 262).

#### 3.7.2 Response Bias

Response bias is considered as the effect of nonresponse on survey data (Fowler, 1993). Nonrespondents are considered by Fowler (1993) to be “those whom the data collection procedures do not reach . . . those asked to provide data who refuse to do so . . . those asked to provide data who are unable to perform the task required of them (people who are ill) . . .” (p. 38). The nonrespondents in the US included two schools that refused to participate in the study due to a disappointing previous experience with other research.
In England, the nonrespondents included several individuals that were “too busy,” and a few schools that were going through major restructuring and did not currently have an individual in charge of ISO 9000. These reasons for nonresponse were consistent with the reasons suggested by Fowler (1993) who notes that in telephone surveys, nonresponse usually results due to complications with the availability and accessibility of the respondents. Since every effort was made during the data collection to reach each respondent and reduce the possibility of response bias, and the response rate was considered adequate for analysis and reporting (Babbie, 1998), no statistical adjustments were made to the survey data.

3.7.3 Descriptive & Country Comparison Statistics

Descriptive statistics are presented in Chapter 4 by variable. Nominal data was counted and described by frequency and and percentages. Ordinal data was described utilizing measures of central tendency and spread such as the median, mode and percentages. Numerical data (interval and ratio) was 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, a combination of parametric and nonparametric statistical tests were utilized. For interval by categorical data, if the data set was large enough ($N \geq 30$) a Brown–Forsythe analysis of variance (ANOVA) test was utilized to examine the difference between countries. According to the recommendation of Siegel & Castellan (1988), nonparametric 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 were 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.

3.7.4 Instrument Reliability Testing

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 (P. Krueger, personal communication, Fall 2001). For
the US survey responses, the Cronbach’s $\alpha = 0.79$. For the English survey responses, the 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.

### 3.7.5 Relationship & Correlation

A Spearman rank-order correlation was conducted to examine the relationship between variables with at least an ordinal-level of measurement and the dependent variable “time to ISO 9000 registration.” This nonparametric test was selected since it works well with small sample sizes and “makes few or no assumptions about the population from which the scores were drawn” (Siegel & Castellan, 1988, p. 225).

A Brown–Forsythe one-way analysis of variance (ANOVA) was utilized to examine the relationship between the independent nominal variables and the dependent variable “time to ISO 9000 registration.” For variables that did not meet the assumptions of the Brown–Forsythe ANOVA, the Kruskal–Wallis ANOVA was utilized as it makes no assumptions about the mean and variance of the data set. The alpha level was set at 0.05 for all statistical tests of relationship and correlation.

### 3.8 Summary

Included in this chapter was information on the background of comparative education as a research method, the methodology of the study, the population and sample, the sample-selection design, instrumentation, the operationalization of the variables, and the interview protocol. In addition, information on the response rate, response bias, instrument reliability, and the methods for data analysis were presented. Data analysis and interpretation will be presented in Chapter 4.
This study had the following two objectives: to examine and compare ISO 9000 in US and English educational institutions; and to identify factors that relate to a successful implementation of ISO 9000. This chapter includes the data analysis results and interpretation. First, the descriptive statistics are presented for the US and England, followed by a comparison between the countries. Then, relationship and correlation statistics are presented to show which factors relate to a successful ISO 9000 implementation.

4.1 Descriptive Statistics & Country Comparison

The purpose of this section fulfilled the first research objective, that was to examine and compare ISO 9000 in US and English educational institutions. Descriptive statistics are presented below for each variable involved in the study. First, the descriptive statistics are reported for the US educational institutions, followed by those for the English educational institutions. If applicable, following the descriptive statistics, is a comparison of the countries with respect to each variable.

4.1.1 Type of Educational Institution

Data were collected for 30 educational institutions registered to ISO 9000 ($N = 30$). In the US, interviews were completed for 19 educational institutions registered to ISO 9000 ($n = 19$). In England, interviews were completed
for 11 educational institutions registered to ISO 9000 \((n = 11)\).

The majority of US educational institutions involved in the study (73.7%; \(n = 14\)) were secondary vocational-technical schools also known as career and technical centers. The remaining US educational institutions included one technical academy, one high school, one middle school, one elementary school, and one college division. The majority of the English educational institutions involved in the study (72.7%; \(n = 8\)) were general further education colleges. The remaining educational 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 US). Contrary to what the British Standards Institute suggested in an interview, the majority of the educational institutions in both countries, 73% in England and 95% in the US, were completely registered to the ISO 9000 standards.

### 4.1.2 Size of Educational Institution

The size of US educational institutions registered to ISO 9000 ranged from 53–2537, with the most typical size being 767. The size of English educational institutions registered to ISO 9000 ranged from 75–17,580, with the most typical size being 6280.

### 4.1.3 Time to Registration

The average time necessary for US educational institutions to register to ISO 9000 was 16.47 months \((SD = 4.64)\). The average time necessary for English educational institutions to register to ISO 9000 was 16.91 months \((SD = 4.70)\). A Brown–Forsythe analysis of variance (ANOVA) test indicated that the difference in time to ISO 9000 registration by country is not significant \((F = 0.06, df = 1/28, p = 0.80, \eta^2 = 0.002)\).

### 4.1.4 Number of Years of ISO 9000 Registration

The number of years that US schools have been registered to ISO 9000 ranged from 2–6 with 5 years being the most typical. The US schools had a mean rank \((\bar{R})\) of 11.76 \((n = 19)\). The number of years that English schools have been registered to ISO 9000 ranged from 1–14 with 12 years being the most typical. The English schools had a mean rank \((\bar{R})\) of 21.95 \((n = 11)\). A Kruskal–Wallis analysis of variance test (ANOVA) test revealed that
Table 4.1: Number of schools described as organized/stable or neither by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>Organized/</th>
<th>Neither</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>England</td>
<td>11</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>13</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>6</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. $p = 0.06$, $df = 1$, $V = 0.38$.

the difference in the number of years registered to ISO 9000 by country is statistically significant ($\chi^2 = 9.55$, $df = 1$, $p = 0.002$).

4.1.5 Status of Institution before ISO 9000

Only 5.3% ($n = 1$) of the US schools were described as “organized” before implementing ISO 9000. The remaining schools were evenly divided among the other three response categories, 31.6% ($n = 6$) of the US schools were described as “stable” before implementing ISO 9000, 31.6% ($n = 6$) of the US schools were described as “both organized and stable,” and 31.6% ($n = 6$) of the US schools were described as “neither organized nor stable” before implementing ISO 9000. Most of the English schools, 54.5% ($n = 6$) were described as “organized,” before ISO 9000 was implemented. Of the remaining English schools, 18.2% ($n = 2$) were described as “stable,” and 27.3% ($n = 3$) as “both organized and stable” before ISO 9000 implementation.

To investigate if the countries were significantly different with regard to the description of the school before ISO 9000 implementation, it was necessary to collapse the response categories, see Table 4.1 for details. A Fisher’s exact test revealed that there is no significant difference in the description of the school by country.

In the US, most of the respondents reported that before ISO 9000 there was either a different or unspoken/unwritten quality management practice at their educational institution. These previous practices usually included an informal set of regulations or Vocational Industrial Clubs of America (VICA). 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 revealed that there is no significant difference in the previous quality management practice by country, see Table 4.2.

In the US, 14 (73.7%) of the respondents reported that their school had other major change projects during ISO 9000 implementation. For example, “school accreditation,” “finishing a building project,” or “switching directors”. Similar to the US schools, 72.7% (n = 8) of the English respondents reported that their schools had other major change projects during ISO 9000 implementation. Changes in England were usually described as a “significant growth phase” for the school, “changing principals,” or obtaining “new funding bodies.” A Fisher’s exact test showed that there is no significant difference in the number of schools going through major changes by country, details can be viewed in Table 4.3.

### 4.1.6 Cost of ISO 9000

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 doc-

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**Table 4.2:** Number of schools with a previous quality management practice by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>Previous QM practice</th>
<th>No previous QM practice</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>9</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>12</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>9</td>
<td>30</td>
</tr>
</tbody>
</table>

*Note. p = 0.42, df = 1, V = 0.20.*
Table 4.3: Number of schools with major change projects by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>Change project</th>
<th>No change project</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>8</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>14</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>8</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. $p = 1.00$, $df = 1$, $V = 0.01$.

External implementation costs were described as the costs for “travel to [ISO 9000] training,” “consultants,” and “auditors.” On a side note, some of the schools in states such as Pennsylvania and Maryland reported that the cost of ISO 9000 implementation was covered by funding from the State Department of Education. 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 (1 part-time, 2 full-time).” External implementation costs were described as costs for “travel expenses [for training],” and “external consultancy.”

The majority of US respondents (78.9%; $n = 15$) reported that the internal costs for ISO 9000 implementation were $10,000 or less ($£5,000 or less) with specific amounts such as $9,000 (approximately £4,800). Most of the English schools (63.6%; $n = 7$) reported that their internal costs for ISO 9000 implementation were £5,001–£10,000 (about $10,000–$20,000). To compare the internal implementation costs of ISO 9000 between countries, responses were collapsed into two categories, $10,000 or less (£5,000 or less) and $10,001 and greater (£5,001 and greater). It was indicated in a Fisher’s exact test that there is a significant difference in internal implementation cost by country, see Table 4.4.

Seventy-three percent ($n = 14$) of the US schools reported that their external costs for ISO 9000 implementation were also $10,000 or less (£5,000 or less) centering around amounts such as $3,000 to $5,000 (approximately £1,600–£2,600). Most of the English respondents, 54.5% ($n = 6$) reported that the external costs for ISO 9000 implementation at their school were £5,000 or less ($10,000 or less) and 27.3% ($n = 3$) reported that the external
Table 4.4: Number of schools and internal implementation cost by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>$10,000 or less</th>
<th>$10,001 or more</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>1</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>15</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>13</td>
<td>29</td>
</tr>
</tbody>
</table>

Note. $p = 0.00$, $df = 1$, $V = 0.72$.

Table 4.5: Number of schools and external implementation cost by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>$10,000 or less</th>
<th>$10,001 or more</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>US</td>
<td>14</td>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>8</td>
<td>28</td>
</tr>
</tbody>
</table>

Note. $p = 0.40$, $df = 1$, $V = 0.19$.

Table 4.6: Number of schools and registration cost by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>$10,000 or less</th>
<th>$10,001 or more</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>11</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>16</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>3</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. $p = 0.28$, $df = 1$, $V = 0.25$.

costs were £5001–£10,000 (about $10,000–$20,000) with specific amounts, for example, as £6000 ($11,200). To compare the external implementation costs of ISO 9000 between countries, responses were collapsed into two categories, $10,000 or less (£5,000 or less) and $10,001 and greater (£5,001 and greater). No significant difference in external implementation cost by country was indicated by a Fisher’s exact test, see Table 4.5.

Current annual costs to maintain ISO 9000 registration in the US (including audit visits) were also described by most respondents (84.2%; $n = 16$) as being $10,000 or less (£5,000 or less) with specific amounts such as $4950 (£2,640). 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 ($1,600), £2500 ($4,600), and £3794 ($7,090). It can be seen in Table 4.6 that a Fisher’s exact test indicated no significant difference in current registration cost by country.
4.1.7  Financial Status

For the US schools, the operating budget ranged from $355 000 to 18 million (approximately £189 000 to 34 million), with the most typical operating budget being approximately $4 666 666 (£2 400 000) (\(\bar{R} = 12.11, n = 19\)). For the English schools, the operating budget (sometimes described as turnover) ranged from £700 000 to £20 million (approximately $1 300 300 to $37 400 000), with the most typical operating budget being approximately £7 000 000 (13 million USD) (\(\bar{R} = 21.36, n = 11\)). A Kruskal–Wallis ANOVA indicated that there is a significant difference in the financial status of an educational institution by country (\(\chi^2 = 7.78, df = 1, p = 0.01\)).

4.1.8  Management Commitment

In the US schools, when asked how administration shows commitment to ISO 9000, 26.3% (\(n = 5\)) of the respondents 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 schools, 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 educational institution according to the quality objectives” (18.2%; \(n = 2\)).

For this variable, the data were too scattered to allow a statistical comparison between the US and England regarding management commitment. Collapsing categories in this case was not a possible option as the responses were too varied to be combined without a significant loss of meaning.

4.1.9  Involvement of People

In the US, a majority of the respondents 63.2% (\(n = 12\)) reported that at the beginning of ISO 9000 implementation members of their school only knew “to a small extent” why the school was going to be ISO 9000 certified. Similar to the respondents in the US, most of the English respondents 81.8% (\(n = 9\)) reported that at the beginning of ISO 9000 implementation members of their
Table 4.7: Number of schools and the extent members know why school seeks registration by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>To some extent or greater</th>
<th>To a small extent or less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>2</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>5</td>
<td>14</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>23</td>
<td>30</td>
</tr>
</tbody>
</table>

*Note. p = 1.0, df = 1, V = 0.09.

school only knew “to a small extent” why the school was going to be ISO 9000 certified. In order to be able to conduct a comparison between the two countries, the responses were collapsed into two categories “to some extent or greater” and “to a small extent or less.” A Fisher’s exact test revealed that there is no significant difference in knowledge of why the school was seeking ISO 9000 registration by country, see Table 4.7 for details.

Now, however, 52.6% (n = 10) of the US respondents reported that the members of the school are “to some extent” convinced of the relevance of the ISO 9000 standards; and 42.1% (n = 8) of the respondents reported that the members of the school are “to a very great extent” convinced of the relevance of the standards. In England, 63.6% (n = 7) of the respondents reported that the members of the school are “to some extent” convinced of the relevance of the ISO 9000 standards; and 36.4% (n = 4) of the respondents reported that the members of the school are “to a great extent” convinced of the relevance of the standards. In order to be able to conduct a comparison between the two countries, the response categories were collapsed into two categories “to some extent or greater” and “to a small extent or less.” It can be seen in Table 4.8 that a Fisher’s exact test indicated no significant difference in the extent which school members were convinced of the relevance of ISO 9000 registration by country.

When asked to select the way management most involves other members in the in school, 36.8% (n = 7) of the US respondents reported that it is by “establishing team goals,” 21.1% (n = 4) revealed that it is by “ensuring members feel able to communicate suggestions,” and 15.8% (n = 3) said it is by “involving members in decision making.” When asked to select the way management most involves members in the educational institution, 45.5%
Table 4.8: Number of schools and the extent members are convinced of ISO 9000 relevance by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>To some extent or greater</th>
<th>To a small extent or less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>11</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>18</td>
<td>1</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>1</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. \( p = 1.0, df = 1, V = 0.14. \)

\((n = 5)\) of the English respondents revealed that it is through “defining responsibilities,” and 18.2\% \((n = 2)\) said it was through “involving members in goal setting.” Other choices included: “establishing team goals,” and “inviting all members to quality meetings.” For this question, the data were too scattered to allow a statistical comparison between the US and England regarding involvement of people. Collapsing categories was not a possible option as the responses were too varied to be combined without a significant loss of meaning.

4.1.10 ISO 9000 Management Representative

All respondents for the US schools and English schools reported that an ISO 9000 management representative existed in the school. This management representative was described by most of the US respondents (78.9\%; \(n = 15\)) as being highly regarded by other members of the school “to a very great extent.” In English schools, 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.” In order to compare countries the responses were collapsed into two categories “to some extent or greater” and “to a small extent or less.” A Fisher’s exact test revealed that there is no significant difference in how the management representative is regarded by country, see details in Table 4.9.

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.” The remaining one US respondent described the management representative as “motivated.” In England, the management
Table 4.9: Number of schools and the extent management representative is highly regarded by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>To some extent or greater</th>
<th>To a small extent or less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>11</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>18</td>
<td>1</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>1</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. \( p = 1.0, df = 1, V = 0.14. \)

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.” It can be clearly seen in the descriptive statistics above, that both countries are extremely similar with regard to the description of the management representative. Therefore, there is no need, nor enough variation in the data to conduct further comparison between countries.

4.1.11 Language Interpretation

In the US, 36.8% (\( n = 7 \)) of the respondents reported that ISO 9000 was defined in educational terms “to a very great extent,” 47.4% (\( n = 9 \)) of the US respondents reported that ISO 9000 was defined in educational terms “to some extent,” and 15.8% (\( n = 3 \)) of the US respondents reported that ISO 9000 was defined in educational terms “to a small extent.” In England, 63.6% (\( n = 7 \)) of the respondents reported that ISO 9000 was defined in educational terms “to a great extent,” and 18.2% (\( n = 2 \)) reported that ISO 9000 was defined “to some extent.” To compare countries, the responses were collapsed into two categories “to some extent or greater” and “to a small extent or less.” It was shown by a Fisher’s exact test that there is no significant difference in the extent ISO 9000 is defined in educational terms by country, see Table 4.10.

In the US, all of the schools (\( n = 19 \)) 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 schools, 45.5% (\( n = 5 \)) used external assistance to implement ISO 9000, but 54.5% (\( n = 6 \)) did not. A Fisher’s
Table 4.10: Number of schools and the extent ISO 9000 was explained in educational terms by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>To some extent or greater</th>
<th>To a small extent or less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>9</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>16</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>5</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. \( p = 1.0, df = 1, V = 0.031. \)

Table 4.11: Number of schools that used external implementation assistance by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>External assistance</th>
<th>No external assistance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>19</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>6</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. \( p = 0.001, df = 1, V = 0.66. \)

exact test indicated that there was a significant difference in the use of external assistance for ISO 9000 implementation by country, see Table 4.11 for more information.

In the US, 94.7% \((n = 18)\) of the schools utilized a 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 schools utilized a guidance document such as the BS 5750: Guidelines for application to education and training during the implementation process of the standards. A significant difference in using an educational guidance document for ISO 9000 implementation by country was shown by a Fisher’s exact test, details can be found in Table 4.12.

To guide current ISO 9000 activity at the US schools, the International Workshop Agreement 2 Quality Management Systems Guidelines for the Application of ISO 9001: 2000 in Education is only used “to a very great extent”
Table 4.12: Number of schools that used educational guidance documents by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>7</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>19</td>
<td>1</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>5</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. $p = 0.05$, $df = 1$, $V = 0.40$.

Table 4.13: Number of schools using the IWA document by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>0</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>6</td>
<td>13</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>24</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. $p = 0.06$, $df = 1$, $V = 0.38$.

by one school (5.3%), “to some extent” by five schools (26.3%), “to a small extent” by three schools (15.8%), and “not at all” by ten schools (52.6%). In fact, the US schools that are not using the IWA were usually not even aware of its existence. In England, the *International Workshop Agreement 2 Quality Management Systems Guidelines for the Application of ISO 9001:2000 in Education* (IWA) is not used at all by 90.9% ($n = 10$) of the schools. Again, not many of the English respondents were even aware of the existence of the IWA. A Fisher’s exact test indicated that there is no significant difference in the use of the IWA document by country, see Table 4.13 for details.

In the US, 84.2% ($n = 16$) of the schools considered the customer to be the student. In 72.7% ($n = 8$) of the English schools the customer was also considered the student. The remaining schools in both countries defined the customer as either employers or the board of education. No significant difference in the definition of the customer by country was revealed by a Fisher’s exact test, refer to Table 4.14 for more information.

The product was considered the curriculum in 63.2% ($n = 12$) of the US schools. The product was also considered the provision of education (delivery of instruction) in (36.8%; $n = 7$) of the US schools. Different from the US schools, 45.5% ($n = 5$) of the English respondents wrote-in that their product was the “added value to the student,” and 27.3% ($n = 3$) said it was the student. Due to the written-in responses, it seems inappropriate to collapse the categories in order to conduct a further comparison between the countries.

In 42.1% ($n = 8$) US schools, the primary stakeholders were considered students. In 72.7% ($n = 8$) of the English schools, the primary stakeholders were considered students. The remaining schools in both countries considered primary stakeholders to be other educational institutions or employers. A
Table 4.14: Number of schools and definition of customer by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>Student</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>8</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>16</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>6</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. $p = 0.641$, $df = 1$, $V = 0.14$.

Table 4.15: Number of schools and definition of stakeholder by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>Student</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>8</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>8</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>14</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. $\chi^2 = 2.63$, $df = 1$, $p = 0.12$, $V = 0.30$.

A 2×2 $\chi^2$-test indicated that there was no significant difference in how the stakeholder is defined by country, details can be seen in Table 4.15.

### 4.1.12 Understanding Internal Processes

Except for the processes of communication and measurement, respondents from the US reported that the members of their schools understand internal processes of the school “to a very great extent.” For the English schools, responses were more varied, with the majority of respondents reporting that the members of their schools understand internal processes “to some extent.” See Table 4.17 and Table 4.16 for details.

The extent to which school members understand all eleven internal processes was compared between the US and England. In order to make this comparison, the initial four response categories for all internal processes were collapsed into two categories “to some extent or greater” and “to a small extent or less.”

When asked to what extent school members understand the role of the school in the socio-economic environment, all US respondents and the majority of English respondents answered “to some extent or greater.” A Fisher’s exact test revealed that there is no significant difference in the extent school members understand the socio-economic role of the school by country, see Table 4.18.

When asked to what extent school members understand the process of maintaining the work environment, most US and English respondents answered “to some extent or greater.” It was indicated in a Fisher’s exact test that there is no significant difference in the extent school members understand the process of maintaining the work environment by country, details
<table>
<thead>
<tr>
<th>Internal process</th>
<th>Great extent</th>
<th>Some extent</th>
<th>Small extent</th>
<th>Not at all</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-economic role</td>
<td>78.9</td>
<td>21.1</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Work environment</td>
<td>63.2</td>
<td>31.6</td>
<td>—</td>
<td>—</td>
<td>5.2</td>
</tr>
<tr>
<td>Curriculum development</td>
<td>89.5</td>
<td>10.5</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Curriculum review</td>
<td>63.2</td>
<td>36.8</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Update curriculum</td>
<td>89.5</td>
<td>10.5</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Student assessment</td>
<td>89.5</td>
<td>10.5</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Final assessment</td>
<td>68.4</td>
<td>31.6</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Teach-learn support</td>
<td>89.5</td>
<td>10.5</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Student support</td>
<td>94.7</td>
<td>5.3</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Communication</td>
<td>47.4</td>
<td>52.6</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Measurement</td>
<td>26.3</td>
<td>63.2</td>
<td>10.5</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Internal process</th>
<th>Great extent</th>
<th>Some extent</th>
<th>Small extent</th>
<th>Not at all</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-economic role</td>
<td>18.2</td>
<td>72.7</td>
<td>9.1</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Work environment</td>
<td>27.3</td>
<td>63.6</td>
<td>9.1</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Curriculum development</td>
<td>36.4</td>
<td>9.1</td>
<td>45.5</td>
<td>—</td>
<td>9.1</td>
</tr>
<tr>
<td>Curriculum review</td>
<td>36.4</td>
<td>54.5</td>
<td>—</td>
<td>—</td>
<td>9.1</td>
</tr>
<tr>
<td>Update curriculum</td>
<td>45.5</td>
<td>45.5</td>
<td>—</td>
<td>—</td>
<td>9.1</td>
</tr>
<tr>
<td>Student assessment</td>
<td>45.5</td>
<td>45.5</td>
<td>9.1</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Final assessment</td>
<td>54.5</td>
<td>45.5</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Teach-learn support</td>
<td>36.4</td>
<td>63.6</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Student support</td>
<td>27.3</td>
<td>72.7</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Communication</td>
<td>27.3</td>
<td>27.3</td>
<td>45.5</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Measurement</td>
<td>9.1</td>
<td>45.5</td>
<td>45.5</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>
Table 4.18: Number of schools and the extent that members understand the socioeconomic role of the school by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>To some extent or greater</th>
<th>To a small extent or less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>10</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>19</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>1</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. $p = 0.37$, $df = 1$, $V = 0.24$.

Table 4.19: Number of schools and the extent that members understand the process of maintaining the work environment by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>To some extent or greater</th>
<th>To a small extent or less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>10</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>18</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>1</td>
<td>29</td>
</tr>
</tbody>
</table>

Note. $p = 0.38$, $df = 1$, $V = 0.19$.

can be seen Table 4.19.

Table 4.20 shows that a Fisher’s exact test found a significant difference in the extent school members understand the process of curriculum development by country. Most of the US respondents reported their school members understand the process “to some extent or greater,” while the English respondents were evenly divided between both categories.

When asked to report the extent members of their school understand the process of curriculum review, both US and English responses were divided between the two categories. A Fisher’s exact test revealed that there is no significant difference in the extent school members understand the process of curriculum review by country, details can be seen Table 4.21.

For the process of updating curriculum, all of the US respondents reported their school members understand the process “to some extent or greater,”
**Table 4.20:** Number of schools and the extent that members understand the process of curriculum development by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>To some extent or greater</th>
<th>To a small extent or less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>US</td>
<td>19</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>5</td>
<td>29</td>
</tr>
</tbody>
</table>

*Note.* $p = 0.002$, $df = 1$, $V = 0.63$.

---

**Table 4.21:** Number of schools and the extent that members understand the process of curriculum review by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>To some extent or greater</th>
<th>To a small extent or less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>US</td>
<td>12</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>13</td>
<td>29</td>
</tr>
</tbody>
</table>

*Note.* $p = 0.27$, $df = 1$, $V = 0.23$. 
Table 4.22: Number of schools and the extent that members understand the process of updating curriculum by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>To some extent or greater</th>
<th>To a small extent or less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>US</td>
<td>19</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>5</td>
<td>29</td>
</tr>
</tbody>
</table>

Note. $p = 0.002$, $df = 1$, $V = 0.63$.

Table 4.23: Number of schools and the extent that members understand the process of student assessment by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>To some extent or greater</th>
<th>To a small extent or less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>US</td>
<td>17</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>7</td>
<td>29</td>
</tr>
</tbody>
</table>

Note. $p = 0.03$, $df = 1$, $V = 0.02$.

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, more information is available in Table 4.22.

When asked to report the extent members of their school understand the process of student assessment, the majority of US respondents answered “to some extent or greater,” and English responses were divided between the two categories. Despite this response disparity, a Fisher’s exact test revealed that there is no significant difference in the extent school members understand the process of student assessment by country, see Table 4.23.

For the process of final assessment, both US and English responses were divided between the two categories. In Table 4.24, it can be seen that a Fisher’s exact test indicated no significant difference in the extent school
Table 4.24: Number of schools and the extent that members understand the process of final assessment by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>To some extent or greater</th>
<th>To a small extent or less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>6</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>13</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>11</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. $p = 0.70$, $df = 1$, $V = 0.45$.

Table 4.25: Number of schools and the extent that members understand the teaching-learning support process by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>To some extent or greater</th>
<th>To a small extent or less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>4</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>17</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>9</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. $p = 0.004$, $df = 1$, $V = 0.56$.

members understand the process of final assessment by country.

However, a Fisher’s exact test did show that there is a significant difference in the extent school members understand the teaching–learning support process by country, see Table 4.25 for details. Most of the US respondents reported their school members understand the process “to some extent or greater,” while most English respondents reported 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 school members understand the process of student support by country, see Table 4.26. Most of the US respondents reported their school members understand the process “to some extent or greater,” while most English respondents reported their school members understand the process “to a small extent or less.”
Table 4.26: Number of schools and the extent that members understand the student support process by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>To some extent or greater</th>
<th>To a small extent or less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>3</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>18</td>
<td>1</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>9</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. $p = 0.000$, $df = 1$, $V = 0.71$.

Table 4.27: Number of schools and the extent that members understand the process of communication by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>To some extent or greater</th>
<th>To a small extent or less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>6</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>19</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>5</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. $p = 0.003$, $df = 1$, $V = 0.59$.

For the process of communication, all of the US respondents reported their school members understand the process “to some extent or greater,” while the English respondents were almost evenly divided between both categories. Table 4.27 shows that a Fisher’s exact test indicated a significant difference in the extent school members understand the process of communication by country.

Finally, a Fisher’s exact test showed no significant difference in the extent school members understand the measurement of educational processes by country, see Table 4.28. Although, this relationship approaches significance with the majority of US respondents falling in the category “to some extent or greater” and the English respondents again almost equally divided between categories.
Table 4.28: Number of schools and the extent that members understand the measurement of educational processes by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>To some extent or greater</th>
<th>To a small extent or less</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>6</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>US</td>
<td>17</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>7</td>
<td>30</td>
</tr>
</tbody>
</table>

Note. $p = 0.07, df = 1, V = 0.40.$

4.1.13 Industry Partnership

Survey respondents were asked to define a “supplier” and “partner” for their educational institutions. US respondents identified “suppliers” as “text book suppliers,” the “eight sending school districts who supply us with our students,” “business and industry,” and the “occupational advisory committee.” US respondents identified school “partners” as “the business community,” “business and industry, coop employers, chamber of commerce,” and “customers . . . business and industry, parents, community, school districts.”

English respondents identified 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, caters, cleaners, suppliers of management info services.” “Partners” of the English schools were identified as “employers and various community groups because they can help us with any ethnic issues . . . ,” “probably the Learning and Skills Counsil who is our funding body,” and “community partners, certain key employers, local authority.”

In the US, 36.8% ($n = 7$) of the respondents reported the relationship with suppliers and partners influenced them to implement ISO 9000 “to a very great extent,” 31.6% ($n = 6$) said “to some extent,” 21.1% ($n = 4$) said “to a small extent,” and 10.5% ($n = 2$) reported that they were not influenced at all by their relationship with suppliers and partners. In English educational institutions, 63.6% ($n = 7$) of the respondents reported the relationship with suppliers and partners influenced them to implement ISO 9000 “to some extent,” and 18.2% ($n = 2$) reported that the relationship with suppliers and
partners did not influence them at all. In order to compare countries, the responses were collapsed into two categories ‘to some extent or greater” and “to a small extent or less.” A Fisher’s exact test showed that there is no significant difference in the extent schools are influenced to implement ISO 9000 by suppliers and partners by country, see Table 4.29 for more details.

\section*{4.1.14 Coercive & Mimetic Isomorphism}

In the US, 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\%; \(n = 1\)). For this variable, there were too many response categories to allow a statistical comparison between the US and England. Collapsing categories was not possible without a significant loss of meaning. However, upon closer scrutiny, it can be seen that the top two reasons for implementing ISO 9000 are simply switched in each country, therefore reflecting that 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.

The majority, 94.7\% \((n = 18)\) of the US schools reported that they have modified ISO 9000 since it was first implemented in their school. When asked to comment on the modifications made to their ISO 9000 system, US

\begin{table}[h]
\centering
\begin{tabular}{llll}
\hline
Country & To some extent or greater & To a small extent or less & Total \\
\hline
England & 8 & 3 & 11 \\
US & 13 & 6 & 19 \\
Total & 21 & 9 & 30 \\
\hline
\end{tabular}
\caption{Number of schools and the extent influenced by suppliers and partners by country.}
\end{table}

\textit{Note.} \(p = 1.0, df = 1, V = 0.045\).
respondents noted changes such as, “the biggest change is from ISO 9002 to ISO 9001:2000” and “it [ISO 9000] is a process of continual improvement ... ISO is modified daily and constantly evolving” and “the biggest change we have made is ... we re-calibrated the auditing questions to what we do and we also now have crossed walked it to Middle States Accreditation and [Malcolm] Baldridge.”

All of the English schools have modified ISO 9000 since it was first implemented in their school. Comments on the modifications to ISO 9000 included the following: “it [ISO 9000] has totally changed on the basic level because of the movement from 9002 to 9001, basically the initial way it was implemented had more of a culture of checking things according to what we had written down, but now there is more of a focus on continual improvement” or “we made the implementation of the standard much more outcome based and less procedure based.” Several English schools had implemented the BS 5750 standard before it became the ISO 9000 standard, so respondents commented that their modification of ISO 9000 had included going “from BS 5750 through 3 changes of the standard.” Since all but one US school made modifications to ISO 9000, further comparison between the US and England was not possible or necessary.

4.1.15 Normative Isomorphism

In the US schools, 36.8% \( (n = 7) \) of the survey respondents said they were involved in in-service educational programs; 21.1% \( (n = 4) \) said they were involved in professional associations; and 21.1% \( (n = 4) \) said they were involved in school networks; the remainder of respondents were involved in professional networks, consulting, and employer networks respectively. In the English schools, 63.6% \( (n = 7) \) of the survey respondents said they were involved in in-service educational programs. The remaining respondents were involved in trade associations, consulting, employer networks, and school networks.

The survey was answered by a member of the management (administration) at each US school and 89.5% \( (n = 17) \) of the survey respondents had a masters degree or higher. In England, the survey was answered by 45.5% \( (n = 5) \) members of the management (administration), 45.5% \( (n = 5) \) by teachers or faculty members and one survey was answered by a staff member. In England, 45.5% \( (n = 5) \) of the survey respondents had a higher national diploma (similar to a two-year degree in the US), 18.2% \( (n = 2) \) of
the respondents had a bachelors degree, and 27.3% \((n = 3)\) of the respondents had a masters degree.

4.1.16 Respondent Final Comments

The final question on the survey asked respondents to add any other comment about ISO 9000 at their school. Many comments were usually centered around a unique situation or challenge that each school had experienced with ISO 9000. Yet, the following general themes emerged (the same themes emerged from both US and English schools): student involvement in ISO 9000, the importance of management commitment to ISO 9000, benefits of ISO 9000 registration, and advice for other educational 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 schools 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 . . . 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.”

4.2 Relationship & Correlation

This section fulfilled the second research objective, that was to identify factors that relate to a successful implementation of ISO 9000. As there were only a few significant differences between the US and England, in order to
examine the factors related to successful ISO 9000 implementation, the samples were combined. For the few instances where significant differences were found between country, the correlation or relationship is provided separately for each country and then the combined group.

### 4.2.1 Type of Educational Institution

To examine the relationship between the type of educational institution and the time to register to ISO 9000, a Brown–Forsythe one-way ANOVA was performed. The types of educational institutions registered to ISO 9000 were collapsed into the following three major categories: higher education, vocational education (also called career and technical education), and primary/secondary education. Higher educational institutions and primary/secondary educational institutions registered to ISO 9000 in an average time of 16.50 months ($SD = 5.25, n = 12, 4$ respectively). Vocational education institutions took slightly longer to register to ISO 9000 ($\bar{x} = 16.79, SD = 4.53, n = 14$). The test indicated that the differences in the time to register to ISO 9000 by the type of educational institution are not statistically significant ($F = 0.02, df = 2/27, p = 0.98, \eta^2 = 0.001$).

### 4.2.2 Size of Educational Institution

A Spearman rank-order correlation revealed that there was little or no relationship between the size of the educational institution and the time to register to ISO 9000 (Spearman $r_s = -0.08, p = 0.67, n = 30$). The relationship between size of the educational institution and time was also found to be not significant when country was controlled (US Spearman $r_s = 0.14, p = 0.57, n = 19$; English Spearman $r_s = 0.06, p = 0.87, n = 11$).

### 4.2.3 Status of Institution before ISO 9000

Before implementing ISO 9000, educational institutions were described as “organized” ($\bar{R} = 8.07, n = 7$), “stable” ($\bar{R} = 15, n = 9$), “both organized and stable” ($\bar{R} = 19.19, n = 8$), and as “neither organized nor stable”($\bar{R} = 20, n = 6$). A Kruskal–Wallis analysis of variance indicated that there was a statistically significant difference in the time to ISO 9000 registration by the description of the school before implementing ISO 9000 ($\chi^2 = 9.21, df = 3, p = 0.03$).
Educational institutions that had no quality management practice prior to ISO 9000 required the most time to register to ISO 9000 ($\bar{x} = 20, SD = 5.20, n = 9$), followed by schools with a different quality management practice ($\bar{x} = 15.36, SD = 2.58, n = 11$). Schools with an unspoken or unwritten quality management practice registered to ISO 9000 the fastest ($\bar{x} = 15, SD = 4.47, n = 10$). A Brown–Forsythe ANOVA test indicated that the difference in the time to register to ISO 9000 by the previous quality management practice was statistically significant ($F = 4.02, df = 2/27, p = 0.03, \eta^2 = 0.24$).

Educational institutions with other major change projects during ISO 9000 implementation required more time to register ($\bar{x} = 18.14, SD = 3.76, n = 22$) than educational institutions with no other major change projects ($\bar{x} = 12.50, SD = 4.24, n = 8$). A Brown–Forsythe ANOVA test indicated that the difference between time to register to ISO 9000 by whether there was another major change project at the educational institution was statistically significant ($F = 10.99, df = 1/28, p = 0.01, \eta^2 = 0.31$).

### 4.2.4 Cost of ISO 9000

The internal implementation costs for ISO 9000 were collapsed into two categories, $\$10,000$ or less ($\£5,000$ or less) ($R = 17.41, n = 16$) and $\$10,001$ and greater ($\£5,001$ and greater) ($\bar{R} = 12.04, n = 13$). One outlier value was dropped from the analysis. A Kruskal–Wallis ANOVA revealed that there is no significant difference in the time it takes to register to ISO 9000 by the internal implementation costs ($\chi^2 = 3.34, df = 1, p = 0.07$). There was not a sufficient amount of data to examine the relationship separately for each country and the time to ISO 9000 registration.

The external implementation costs for ISO 9000 were collapsed into two categories, $\$10,000$ or less ($\£5,000$ or less) ($\bar{R} = 13.83, n = 20$) and $\$10,001$ and greater ($\£5,001$ and greater) ($\bar{R} = 16.19, n = 8$). Two outlier values were dropped from the analysis. A Kruskal–Wallis ANOVA revealed that there is no significant difference in the time it takes to register to ISO 9000 by the external implementation costs ($\chi^2 = 0.56, df = 1, p = 0.45$).

### 4.2.5 Financial Status

A Spearman rank-order correlation of time to ISO 9000 registration and the financial status of an educational institution showed a fair, but not statis-
tically significant relationship ($r_s = 0.22$, $p = 0.252$, $n = 30$). The relationship between the financial status of the educational institution and time was also found to be not significant when country was controlled (US Spearman $r_s = 0.41$, $p = 0.08$, $n = 19$; English Spearman $r_s = 0.55$, $p = 0.08$, $n = 11$).

4.2.6 Management Commitment

For educational institutions where the management stated a belief in the value of ISO 9000, the average registration time was 13 months ($SD = 4.58$, $n = 3$). In educational institutions where management provided resources (human, material, time) the average registration time was 15.20 months ($SD = 3.83$, $n = 5$). For educational institutions where the management stated a long term vision for quality the average time was 15.86 months ($SD = 3.71$, $n = 7$). Management that communicated quality policy, quality objectives and customer requirements had educational institutions that registered to ISO 9000 in an average of 17.73 months ($SD = 0.91$, $n = 11$) and management that measured the performance of the school according to quality objectives had an average registration time of 19.5 months ($SD = 10.24$, $n = 4$). A Brown–Forsythe ANOVA test indicated that there is no significant difference in time to ISO 9000 registration by the different ways management shows commitment to ISO 9000 ($F = 0.75$, $df = 4/25$, $p = 0.59$, $\eta^2 = 0.16$).

4.2.7 Involvement of People

The relationship between the time to ISO 9000 registration and involvement of people was measured by two tests. First, a Spearman rank-order correlation showed little or no relationship between knowledge of why the school was being registered to ISO 9000 and the time to ISO 9000 registration (Spearman $r_s = 0.11$, $p = 0.55$, $n = 30$).

Second, the relationship between how management involves people in the school and the time to ISO 9000 registration was measured with a Brown–Forsythe ANOVA test. In educational institutions where management “defined the responsibilities of its members” there was an average registration time of 15.86 months ($SD = 1.46$, $n = 7$), followed by educational institutions where management involved members in “goal setting, decision making, and quality meetings” ($\bar{x} = 16.25$, $SD = 7.87$, $n = 8$), then, educational institutions where management “establishes goals (individual and team)”
and finally, educational institutions where management “ensures members are (or feel) able to communicate suggestions and opinions” \((\bar{x} = 18.50, \ SD = 2.95, \ n = 6)\). However, these differences in time to ISO 9000 registration by ways management involves people were not statistically significant \((F = 0.437, \ df = 3/26, \ p = 0.73, \ \eta^2 = 0.05)\).

### 4.2.8 ISO 9000 Management Representative

The relationship between the time to ISO 9000 registration and the management representative was measured by two tests. A Spearman rank-order correlation showed that there was a significant, negative correlation between the time to ISO 9000 registration and the regard held for the ISO 9000 management representative \((\text{Spearman } r_{s} = -0.43, \ p = 0.02, \ n = 30)\). As the regard for the ISO 9000 management representative decreases, the time required to register to ISO 9000 increases.

In most of the educational institutions, \((96.7\%; \ n = 29)\) the management representatives were described as “both qualified and motivated.” These educational institutions had an average registration time of 16.90 months \((\ SD = 4.43)\). Since the majority of all respondents had the same answers to this question, there was not enough variation in the description of the management representative to allow further examination of relationship between the time to registration and the description of the management representative.

### 4.2.9 Language Interpretation

According to a Spearman rank-order correlation, there was little or no relationship in the data set between the extent that ISO 9000 was translated into educational terms and the time to ISO 9000 registration \((\text{Spearman } r_{s} = 0.14, \ p = 0.47, \ n = 30)\).

A Kruskal–Wallis ANOVA was performed to examine the relationship between using external assistance with ISO implementation \((\bar{R} = 17.17, \ n = 24)\) and not using external assistance \((\bar{R} = 8.83, \ n = 6)\) with the time to ISO 9000 registration. The test indicated that there is a significant difference in time to ISO 9000 registration between using external assistance and not using external assistance \((\chi^2 = 4.96, \ df = 1, \ p = 0.03)\). However, the sample size for each country is too small and not varied enough to offer further examination of time controlling for country.
Educational institutions that used 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 or the BS 5750: Guidelines for application to education and training during implementation had an average time to register of 16.12 months ($SD = 4.06, n = 25$). Educational institutions that utilized neither of these two documents had an average time to register of 19.20 months ($SD = 6.57, n = 5$). A Brown–Forsythe ANOVA test indicated that there was no significant difference in the time to register to ISO 9000 by the type of document utilized during the implementation process ($F = 1.02, df = 1/28, p = 0.36, \eta^2 = 0.07$).

Educational institutions that defined the customer as the student had an average time to ISO 9000 registration of 16.67 months ($SD = 5.01, n = 24$), and educational institutions defined the customer as someone other than the student (employer, board of education) had an average time to registration of 16.50 months ($SD = 2.51, n = 6$). A Brown–Forsythe ANOVA revealed that there was no significant difference in the time to ISO 9000 registration and how the customer was defined ($F = 0.01, df = 1/28 p = 0.91, \eta^2 = 0.00$).

Educational institutions that defined the product as the provision of education (delivery of instruction) had an average time to ISO 9000 registration of 16.40 ($SD = 2.76, n = 10$) months, followed by educational institutions that defined the product as the student or the added value to the student ($\bar{x} = 16.71, SD = 5.96, n = 7$), and then, by educational institutions that defined the product as the curriculum ($\bar{x} = 16.77, SD = 5.22, n = 13$). A Brown–Forsythe ANOVA test showed that there was no significant difference in the time to ISO 9000 registration by how the product was defined ($F = 0.02, df = 2/27, p = 0.98, \eta^2 = 0.001$).

Educational institutions that defined the stakeholder as the student had an average time to ISO 9000 registration of 16.06 months ($SD = 5.63, n = 16$), and educational institutions defined the stakeholder as someone other than the student (employer, board of education) had an average time to registration of 17.29 months ($SD = 3.07, n = 14$). A Brown–Forsythe ANOVA revealed that there was no significant difference in the time to ISO 9000 registration and how the stakeholder was defined ($F = 0.564, df = 1/28, p = 0.46, \eta^2 = 0.018$).
4.2.10 Understanding Internal Processes

There was little or no relationship between understanding the role of the school in the socio-economic environment and the time to ISO 9000 registration (Spearman $r_s = -0.139$, $p = 0.46$, $n = 30$).

There was little or no relationship between understanding the work environment and the time to ISO 9000 registration (Spearman $r_s = -0.06$, $p = 0.77$, $n = 29$).

There was a negative, significant, and moderate to good relationship between understanding the process of curriculum development and the time to ISO 9000 registration (Spearman $r_s = -0.52$, $p = 0.004$, $n = 29$). This indicates that as understanding the process of curriculum development decreases, the time to ISO 9000 registration increases. A Spearman rank-order correlation also indicated that this relationship was significant in the US educational institutions (Spearman $r_s = -0.47$, $p = 0.04$, $n = 19$), but not in the English educational institutions (Spearman $r_s = -0.46$, $p = 0.19$, $n = 10$).

There was a fair, but not significant negative correlation between understanding the process of curriculum review and the time to ISO 9000 registration (Spearman $r_s = -0.29$, $p = 0.13$, $n = 29$).

There was a negative, significant, and fair degree of relationship between understanding the process of updating curriculum and the time to ISO 9000 registration (Spearman $r_s = -0.49$, $p = 0.01$, $n = 29$). This indicates that as understanding the process of updating curriculum decreases, the time to ISO 9000 registration increases. A Spearman rank-order correlation also indicated that this relationship was significant in the US educational institutions (Spearman $r_s = -0.47$, $p = 0.04$, $n = 19$), but not in the English educational institutions (Spearman $r_s = -0.39$, $p = 0.26$, $n = 10$).

There was a negative, significant, and moderate to good relationship between understanding the process of student assessment and the time to ISO 9000 registration (Spearman $r_s = -0.55$, $p = 0.002$, $n = 30$). This indicates that as understanding the process of student assessment decreases, the time to ISO 9000 registration increases. A Spearman rank-order correlation also indicated that this relationship was significant in the US educational institutions (Spearman $r_s = -0.47$, $p = 0.04$, $n = 19$), and that the relationship possibly approaches significance in the English educational institutions (Spearman $r_s = -0.54$, $p = 0.08$, $n = 11$).

There was little or no relationship between understanding the final assessment process and the time to ISO 9000 registration (Spearman $r_s = -0.23$, $p = 0.12$, $n = 29$).
There was a negative, significant, and moderate to good relationship between understanding the teaching–learning support process and the time to ISO 9000 registration (Spearman $r_s = -0.50$, $p = 0.01$, $n = 30$). This indicates that as understanding the teaching–learning support process decreases, the time to ISO 9000 registration increases. A Spearman rank-order correlation also indicated that this relationship was significant in the US educational institutions (Spearman $r_s = -0.47$, $p = 0.04$, $n = 19$), but not in the English educational institutions (Spearman $r_s = -0.40$, $p = 0.23$, $n = 11$).

There was a negative, significant, and fair degree of relationship between understanding the process of supporting a student until the completion of their education at that school and the time to ISO 9000 registration (Spearman $r_s = -0.41$, $p = 0.02$, $n = 30$). This indicates that as understanding the process of student support decreases, the time to ISO 9000 registration increases. A Spearman rank-order correlation also indicated that this relationship was significant in the US educational institutions (Spearman $r_s = -0.45$, $p = 0.05$, $n = 19$), but not in the English educational institutions (Spearman $r_s = -0.46$, $p = 0.15$, $n = 11$).

There was little or no relationship between understanding the communication process and the time to ISO 9000 registration (Spearman $r_s = -0.21$, $p = 0.27$, $n = 30$). A Spearman rank-order correlation also indicated that this relationship was not significant in the US educational institutions (Spearman $r_s = -0.06$, $p = 0.82$, $n = 19$) or in the English educational institutions (Spearman $r_s = -0.47$, $p = 0.15$, $n = 11$).

There was a fair, but not significant, relationship between understanding the measurement of educational processes and the time to ISO 9000 registration (Spearman $r_s = -0.28$, $p = 0.14$, $n = 30$).

### 4.2.11 Industry Partnership

A Spearman rank-order correlation indicated that the relationship of the school to its suppliers and partners had little or no correlation with the time to ISO 9000 registration (Spearman $r_s = 0.13$, $p = 0.48$, $n = 30$).

### 4.2.12 Coercive & Mimetic Isomorphism

The reasons for ISO 9000 implementation were collapsed into three categories. Educational institutions that implemented ISO 9000 as a market tool
(\(\bar{x} = 16.43, SD = 6.26, n = 14\)), educational institutions that implemented ISO 9000 to improve school efficiency (\(\bar{x} = 17.54, SD = 1.66, n = 13\)), and educational institutions that implemented ISO 9000 due to pressure from industry or a changing socio-economic environment (\(\bar{x} = 13.67, SD = 3.78, n = 3\)). A Brown–Forsythe ANOVA indicated that there is no significant difference in time to ISO 9000 registration by the reason for implementation (\(F = 0.56, df = 1/28, p = 0.46, \eta^2 = 0.06\)).

4.2.13 Normative Isomorphism

Normative isomorphism was measured by the level of education and the activities of the survey respondent. A Spearman rank-order correlation revealed that there was little or no correlation between the level of education and the time to ISO 9000 registration (Spearman \(r_s = 0.169, p = 0.37, n = 30\)).

The respondent activities were collapsed into three groups. Educational institutions where the survey respondents were involved mostly in associations (professional or trade) (\(\bar{R} = 14.90, n = 5\)), educational institutions where the survey respondents were involved mostly in in-service educational programs (\(\bar{R} = 16.25, n = 14\)), educational institutions where the survey respondents were involved mostly in networks (employer, professional, or school) (\(\bar{R} = 11.56, n = 9\)). A Kruskal–Wallis ANOVA showed that there was no significant difference in the time to ISO 9000 registration by the activity of the survey respondents (\(\chi^2 = 2.15, df = 2, p = 0.34\)).

4.3 Summary

A statistical analysis of the data suggested that there are a few significant differences between ISO 9000 registered schools in the US and England such as a difference in the understanding of internal processes and in the number of years registered to ISO 9000. However, the analysis also suggested that there are many similarities between schools in the US and England. For example, schools in both countries have a similar time to ISO 9000 registration, the same reasons for implementing ISO 9000, and consider the student the customer. Furthermore, the data analysis suggested that there are several factors related to a successful ISO 9000 implementation. These factors include that the management representative should be highly regarded by other school members, that the school should be organized/stable before ISO 9000
implementation, that there should be a previous (unwritten/unspoken) quality management practice, and that the school should not have other major change projects during ISO 9000 implementation. A more complete summary of the findings and what they mean for educators can be found in Chapter 5.
Conclusions and Recommendations

The objectives for this study were to examine and compare ISO 9000 in US and English educational institutions; and to identify factors that relate to a successful implementation of ISO 9000. This chapter includes a review of the findings, the unanticipated findings, the implications for education, and the recommendations for future research.

5.1 ISO 9000 in US and English Education

In the US and England, ISO 9000 is being voluntarily implemented in many different levels of education. 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 schools 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 educational 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. Of course, this difference in the types of schools to implement ISO 9000 most likely leads to the significant differences in the size, financial status, and ISO 9000 internal implementation costs between the US and English schools that were revealed in the data.

There were several other significant differences that emerged between the US and English schools registered to ISO 9000. English schools have been
registered to ISO 9000 longer than US schools and were less inclined to use external assistance or a guidance document during ISO 9000 implementation. English schools have defined the product in terms of the “added value to the student” whereas most US schools have defined the product as the “curriculum.” In addition, the English survey respondents included a variety of administrators, staff, and teachers with different levels of education, while the US survey respondents included mostly administrators with masters degrees or higher. Furthermore, US survey respondents reported that their school members understand “to some extent or greater” the internal processes of the school such as 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 “to some extent or greater” and the other half reporting “to a small extent or less.”

Despite the differences between the US and English schools registered to ISO 9000, as suggested by the theoretical framework, there were also striking similarities. The most interesting similarity was reflected in the time to ISO 9000 registration—with schools in both countries registering in approximately 16.5 months. Additionally, most US and English schools reported being “organized and/or stable” before ISO 9000 implementation, but also reported going through other major changes at the time of ISO 9000 implementation.

The external implementation costs and current registration costs for ISO 9000 are similar in both the US and England, and all schools reported the existence of a management representative that 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 “to some extent or greater.” Furthermore, most of the schools in the US 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 and reported modifying ISO 9000 to fit the needs of their institution. In addition, the top reasons US and English schools are implementing ISO 9000 are “to improve school efficiency” and “to have ISO 9000 as a market tool.” Finally, the activities of survey respondents in US and English schools were similar with most respondents being involved in
5.1.1 Factors Related to Successful ISO 9000 Implementation

Successful ISO 9000 does not appear to be a question of school type or size or how the customer or product is defined. Instead, the data in this study suggested that the factors described below are related to a successful ISO 9000 registration.

The importance of management commitment to ISO 9000 was strongly suggested in the qualitative data. While it does not seem to be important exactly “how” management supports ISO 9000, US administrators may want to try “communicating quality objectives to all school members,” “providing the material resources necessary to reach quality objectives,” and “stating a belief in ISO 9000.” English administrators may want to try “stating a long term vision for quality,” “communicating to all members the importance of meeting customer requirements for the educational service provided,” and “measuring the performance of the educational institution according to the quality objectives.” Additionally, it is not the level of education or position of the ISO 9000 management representative that appears to be important. Instead, above all, the management representative should be an individual that is highly regarded by other members of the school.

Another important factor related to successful ISO 9000 implementation is the status of the educational institution before ISO 9000. Particularly successful, are schools that can be described as “organized and/or stable” before starting ISO 9000 implementation, schools with an inherent quality management practice, and schools without other major change projects happening at the same time as ISO 9000 implementation.

An interesting result suggested by the data is that the schools most successful with ISO 9000 implementation were those that did not use external assistance (external consultants or training providers) for ISO 9000 implementation. Perhaps it is related to the importance of having a highly regarded member in charge of ISO 9000 at the school.

It is also important that school members understand the internal processes of the educational institution, particularly, the process of curriculum development, the process of updating curriculum, the process of student assessment, the teaching-learning support process, and the student support
process. As the understanding of these processes increases, the data suggests that time to ISO 9000 registration will decrease.

5.2 Unanticipated Findings

The first unanticipated finding of the study was the discovery that schools in the US and England are starting to give up their ISO 9000 registration. It is not that schools are losing their ISO 9000 registration, instead, they are intentionally making the decision to stop using ISO 9000. As noted in Chapter 3, this finding occurred during the preliminary phone calls to the educational institutions. It was during this preliminary phone call that two US respondents and one English respondent voluntarily informed the interviewer about the reasons schools are no longer using ISO 9000.

In the US, the reasons for dropping ISO 9000 centered around cost and change in leadership. The first US respondent noted that all of the schools 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 $7500–$10 000 annual cost to maintain ISO 9000 registration. The second 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 “man power or the finances” to support ISO 9000. The English respondent reported that English schools have started to drop ISO 9000 due to so many other inspections. English schools 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 second unanticipated finding of the study was the discovery that many of the survey respondents (i. e. the individuals in charge of ISO 9000) were so busy and overwhelmed with the task of implementing and maintaining ISO 9000 registration. Of course, one would expect these individuals to be busy, but not so entirely overwhelmed. Many of the survey participants were even quite difficult to get on the phone for 30 minutes. However, once the structured questions had been answered, and participants were asked to
share their final thoughts about ISO 9000, most of them would open up and vent their frustration or tiredness regarding the entire situation with ISO 9000. It should be noted that these individuals are most likely on the receiving end of a lot of questions and misunderstandings from the rest of the school members regarding any ISO 9000 activities. It even went so far for one survey respondent to say,

“I am looking for another job because I don’t want to do it [ISO 9000] and I will be leaving and looking for another school that doesn’t have it. I think people walk around our school and ask why are we doing this? It’s quite frustrating. Even the auditors are looking from a business and industry perspective and are not understanding education.”

5.3 Educational Implications

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). Even though the data were drawn from a relatively small sample ($N = 30$), the findings may be generalized to broader populations for the following reasons: First, the findings of this study are supported by the ISO 9000 studies of Van den Berghe (1997) and Solomon (1993). Second, the findings were based on a very conservative data analysis—utilizing both parametric and nonparametric statistical tests. However, it is with caution that the results of any study should be interpreted, utilized, and projected to other educational institutions.

As far as generalizations are concerned, the findings of this study have important implications for all educators interested in ISO 9000 as a quality management system. Before implementing ISO 9000 in their school, educators should be asking themselves (and the other members of their school) the following questions:

• Is there administrative commitment to ISO 9000?
• Does the current administration intend to remain at the school until ISO 9000 is firmly established?

• Can the school be described as organized and stable?

• Is there an unspoken/unwritten quality management practice already in place at the school?

• Will ISO 9000 implementation be the only major change project at the school?

• Will a highly regarded member of the school be selected as the ISO 9000 management representative?

• Is it a possibility to have internal training and consulting for the implementation ISO 9000?

• Do the members of the school understand the following internal processes: the process of curriculum development, the process of updating curriculum, the process of student assessment, the teaching-learning support process, and the student support process?

The data suggest that for the educators that answer “yes” to most or all of these questions, their schools may be appropriate for ISO 9000. Administrators should note that while everyone may realize that there should be management commitment to ISO 9000, there should first be the management commitment to the school itself.

5.4 Theory versus Reality

Overall, the findings of this study are supported by the theoretical framework. Theory suggested that educational institutions are operating in an environment where there is an overarching world culture propelled by INGOs such as ISO. This world culture currently includes neo-liberal concepts for the application of market-driven tools to educational institutions (i.e. ISO 9000). The result of this is that institutions implement ISO 9000 voluntarily due to pressure from other institutions, a changing socio-economic environment, and expectations of the public. As reflected by their modifications to ISO 9000, educational institutions seem to be innovative with how they apply
ISO 9000, but because of the implementation of ISO 9000 the educational institutions are also being changed.

Yet, one element of the theory seems different from reality, theory has suggested that educational institutions are actually becoming the same (isomorphic) without necessarily becoming more efficient. But, at this point, the degree of isomorphism between schools seems unclear. There does appear to be evidence of isomorphic change reflected in the many similarities between schools, such as, their similar time to ISO 9000 registration, their reasons for implementing ISO 9000, and in the characteristics of the management representative. However, it seems that schools are still implementing ISO 9000 in order “to improve school efficiency.” In addition, there are fairly large numbers of schools consciously making the decision to drop ISO 9000—which is contrary to the idea suggested by theory that schools will irrationally start to make the decision to use ISO 9000 even if it does not improve their efficiency. Obviously, future research is needed here to discover the degree of isomorphic change in ISO 9000 registered educational institutions, and also to measure their level of efficiency (before and after ISO 9000 registration).

5.5 Conclusion & Recommendation

In addition to the suggestions described above, ideally, future research for ISO 9000 would include obtaining a larger sample to test and further develop the findings of this study. It would also be beneficial to conduct this same study in other countries to see if similar patterns develop. However, with the number of schools that have recently dropped ISO 9000, and the difficulty in identifying a current population, these research ideas may not be viable options until some future date. If it became possible to collect a larger amount of data, future data analysis could include a factor analysis. Factor Analysis would help determine if the measurement of the variables overlap suggesting an underlying structure in the relationships or if there are variables that measure the same concepts. Several other ideas for future research also emerged from the schools involved in the current study. First, the respondents of several schools mentioned a desire to identify and create ways to increase student involvement in ISO 9000. Second, several of the schools would provide excellent case studies that would help to identify the best internal training practices for ISO 9000 in education.

In this study, ISO 9000 was examined and compared in US and En-
GLISH educational institutions and several factors were identified that relate to a successful implementation of ISO 9000. Despite several obvious differences (i.e. school type, size, and financial status), US and English institutions turned out to be very much the same with regard to ISO 9000. For example, US and English educational 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. The study of educational institutions in the US and England allowed the identification of several factors that are related to a successful ISO 9000 registration, such as, management commitment, an organized and/or stable school, the existence of an unwritten/unspoken quality management practice, and a highly regarded management representative. It is surprising that after such a long, complicated implementation process, there are schools 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.
Survey and Interview Instruments

A.1 ISO 9000 in Education Survey:
US Version

Instructions for the Interviewer: This survey is intended to be used in a telephone interview. Please ask each question in this survey to the interview participant. Read items in a list twice (once slowly and then read again with the respondent choosing an answer when you get to it the second time). Probe incomplete answers in non-direct ways with short questions such as “anything else?” “tell me more,” and “how do you mean that?” Record (on paper) open-ended questions exactly in the words the respondent chooses, and record (on paper) closed-ended responses only when the respondent chooses one. Please note: Optional wording is included in parentheses.

Question 1: What is your educational institution?
Answer: □ A research university
□ A comprehensive university
□ A community college
□ A vocational-technical college
□ A vocational-technical secondary school
□ A high school
□ A middle school
□ A primary school
□ A preschool
**Question 2:** Is the entire educational institution (school, college, university) registered to ISO 9000?

**Answer:** □ Yes
□ No

If the answer is “No,” which part (department) of your educational institution (school, college, university) is registered to ISO 9000?

**Answer:**

**Question 3:** What is the number of managers (administrators), staff, teachers (faculty, professors, lecturers), and students at your educational institution?

**Answer:** ______ Administrators
______ Staff
______ Teachers
______ Students

**Question 4:** On average, how many months did it take for your educational institution (school, college, university) to obtain ISO 9000 registration (certification)?

**Answer:**

**Question 5:** During which year did your educational institution (school, college, university) first receive ISO 9000 registration (certification)?

**Answer:** □ 1990 □ 1991
□ 1992 □ 1993
□ 1994 □ 1995
□ 1996 □ 1997
□ 1998 □ 1999
□ 2000 □ 2001
□ 2002 □ 2003
□ 2004

**Question 6:** Which of the following best describes the educational institution (school, college, university) before starting ISO 9000?

**Answer:** □ organized
□ stable
□ both organized and stable
□ neither organized nor stable
Question 7: Which of the following best describes how quality management was practiced in your educational institution (school, college, university) before ISO 9000?
Answer:  □ There was no quality management practice
□ There was an unspoken quality management practice
□ There was a different quality management practice

Question 8: If there was a different quality management practice, what was the name of it?
Answer:

Question 9: Were there any other major changes going on in your educational institution (school, college, university) at the same time as ISO 9000 implementation?
Answer:

Question 10: Approximately, what were the internal costs for ISO 9000 implementation?
Answer:  □ $ 10 000 or less
□ $ 10 001 – $ 20 000
□ $ 20 001 – $ 30 000
□ $ 30 001 – $ 40 000
□ $ 40 001 – $ 50 000
□ $ 50 001 – $ 60 000
□ $ 60 001 – $ 70 000
□ $ 70 001 – $ 80 000
□ $ 80 001 – $ 90 000
□ $ 90 001 – $ 100 000
□ $ 100 001 or more

Question 11: Can you please give me an example of an internal cost?
Answer:

Question 12: Approximately, what were the external costs for ISO 9000 implementation?
Question 13: Can you please give me an example of an external cost?

Answer:

Question 14: Approximately, what are the annual registration costs of ISO 9000?

Answer: □ $ 10 000 or less
□ $ 10 001 – $ 20 000
□ $ 20 001 – $ 30 000
□ $ 30 001 – $ 40 000
□ $ 40 001 – $ 50 000
□ $ 50 001 – $ 60 000
□ $ 60 001 – $ 70 000
□ $ 70 001 – $ 80 000
□ $ 80 001 – $ 90 000
□ $ 90 001 – $ 100 000
□ $ 100 001 or more

Question 15: What is the average annual operating budget for your educational institution (school, college, university)?

Answer:

Question 16: Which of the following is most used by the top management (administration) to show a commitment to ISO 9000 at your institution (school, college, university)? Please put a 1 in the box for the item that is the most used, a 2 in the box for the next item most used, and continue until you have ranked three items.
Answer: □ Stating a belief in the value of ISO 9000
□ Stating a long term vision for quality
□ Providing the human resources necessary to reach the quality objectives
□ Providing the material resources necessary to reach the quality objectives
□ Providing the time necessary to reach quality objectives
□ Communicating of a quality policy to all members of the institution
□ Communicating of quality objectives to all members of the institution
□ Communicating to all members of the institution the importance of meeting the customer requirements for the educational service provided
□ Measuring the performance of the educational institution according to the quality objectives

Question 17: At the beginning of ISO 9000 implementation, to what extent do you feel that all members of the institution (school, college, university) knew why the institution was going to be ISO 9000 certified?
Answer: □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

Question 18: To what extent do you feel that all members of the institution (school, college, university) are now convinced of the relevance of the ISO 9000 standard?
Answer: □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

Question 19: In which of following ways does management most involve other members (staff, faculty, students) in the educational institution (school, college, university)? Please put a 1 in the box for the item that is the most used, a 2 in the box for the next item most used, and continue until you have ranked three items.
Question 20: The IWA 2 Guidelines define an ISO 9000 management representative as “a person (or persons) that have the responsibility for ensuring that the requirements of ISO 9001: 2000 are met on an on-going basis.” They should also “know the contents of the standards and be available for advice on their implementation” (IWA 2, p. 23).

According to the above definition, does such a person (or persons) exist in your educational institution (school, college, university)?

Answer: □ Yes
□ No

Question 21: If yes, to what extent is this person (or persons) highly regarded by other members (staff, faculty, students) of the educational institution (school, college, university)?

Answer: □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

Question 22: Which of the following best describes this person (or persons) in relation to their assistance with the ISO 9000 implementation process?

Answer: □ Qualified
□ Motivated
□ Both qualified and motivated
□ Neither qualified nor motivated

Question 23: At the beginning of ISO 9000 implementation, to what extent
did your educational institution (school, college, university) define ISO 9000 in terms that were understandable in education?

**Answer:** □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

**Question 24:** Which of the following were used to guide the ISO 9000 implementation process in your educational institution (school, college, university)?

**Answer:** □ An external consultant
□ An external training provider
□ Both an external consultant and an external training provider
□ Neither an external consultant or an external training provider

**Question 25:** In 2003, a new document was published entitled the *IWA 2: Quality management systems–guidelines for the application of ISO 9001: 2000 in education*, to what extent is this document currently used to guide the ISO 9000 activity at your educational institution(school, college, university)?

**Answer:** □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

**Question 26:** Which of the following were used to guide the ISO 9000 implementation process in your educational institution (school, college, university)?
Question 27: Which of the following most describes your educational institution’s (school, college, university) customer? Place a 1 in the box you would consider the most, a 2 in the box that you would consider second, and go on until you have ranked all five items.

**Answer:** □ Student  
□ Parent  
□ Another educational institution  
□ Employers  
□ Society

Question 28: Which of the following most describes your educational institution’s (school, college, university) product? Place a 1 in the box you would consider the most, a 2 in the box that you would consider second, and go on until you have ranked all three items.

**Answer:** □ The provision of education  
□ Student  
□ Curriculum

Question 29: Which of the following most describes your educational institution’s (school, college, university) stakeholders? Place a 1 in the box you would consider the most, a 2 in the box that you would consider second, and go on until you have ranked all five items.
Answer: □ Student
□ Parent
□ Another educational institution
□ Employers
□ Society

Question 30: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the role of the educational institution in the socio-economic environment?
Answer: □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

Question 31: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the process of maintaining the work environment?
Answer: □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

Question 32: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the process of curriculum development?
Answer: □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

Question 33: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the process of curriculum review?
Answer: □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

Question 34: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) under-
stand the process of updating curriculum?

**Answer:** □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

**Question 35:** To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the process of student assessment?

**Answer:** □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

**Question 36:** To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the final assessment process conducted before an education certificate is presented?

**Answer:** □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

**Question 37:** To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the teaching-learning support process?

**Answer:** □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

**Question 38:** To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the process of supporting a student until they complete their education at that institution (school, college, university)?

**Answer:** □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all
Question 39: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the process of communication?
Answer: □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

Question 40: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the measurement of educational processes?
Answer: □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

Question 41: Please listen to the following definition from ISO 9004:2000, section 6.6:
“Management should establish relationships with suppliers and partners to promote and facilitate communication with the aim of mutually improving the effectiveness and efficiency of processes that create value.”
According to this definition, who would you consider to be a “supplier” for your educational institution (school, college, university)?
Answer:

Question 42: According to the same definition, who would you consider to be a “partner” of your educational institution (school, college, university)?
Answer:

Question 43: To what extent did the relationship with “suppliers and partners” influence your educational institution (school, college, university) to implement ISO 9000?
Answer: □ To a very great extent
□ To some extent
□ To a small extent
□ Not at all

Question 44: Which of the following was influential in the decision of your educational institution (school, college, university) to implement ISO 9000? Please put a 1 in the box for the item that was the most influential, a 2 in
the box for the second most influential, and continue until you have ranked three items.

**Answer:**

- □ Pressure from parents for better education
- □ To have ISO 9000 as a market tool
- □ Pressure from industry to provide more-skilled workers
- □ To improve school efficiency
- □ Other schools were successful with ISO 9000
- □ Rapidly changing technology
- □ Pressure from funding providers
- □ A changing socio-economic environment

**Question 45:** Has your educational institution (school, college, university) made any modifications (changes) to ISO 9000 since it was first implemented?

**Answer:**

- □ Yes
- □ No

**Question 46:** If yes, please briefly describe these modifications (changes).

**Answer:**

**Question 47:** What is your position in the educational institution (school, college, university)?

**Answer:**

- □ Management (administration)
- □ Staff
- □ Faculty (professor, lecturer, or teacher)

**Question 48:** What is the highest level of education that you have completed?

**Answer:**

**Question 49:** Which of the following activities are you most involved in? Please put a 1 in the box for the item that you are most involved in, a 2 in the box that you are the next involved in and continue until you have ranked three items.
Answer: □ Trade associations
□ Professional associations
□ In-service educational programs
□ Consultant arrangements
□ Employer networks
□ Professional networks
□ School networks
□ Trade magazines
□ Professional magazines
□ Scholarly journals

Question 50: Is there anything else you would like to tell me about ISO 9000 at your educational institution (school, college, university)?

Answer:
A.2 ISO 9000 in Education Survey: English Version

Instructions for the Interviewer: This survey is intended to be used in a telephone interview. Please ask each question in this survey to the interview participant. Read items in a list twice (once slowly and then read again with the respondent choosing an answer when you get to it the second time). Probe incomplete answers in non-direct ways with short questions such as “anything else?” “tell me more,” and “how do you mean that?” Record (on paper) open-ended questions exactly in the words the respondent chooses, and record (on paper) closed-ended responses only when the respondent chooses one. Please note: Optional wording is included in parentheses.

Question 1: What is your educational institution?
Answer: □ A university
□ A non-research related university
□ A college of higher education
□ A specialist college of further education
□ A general college of further education
□ A sixth form college
□ A secondary school
□ A primary school
□ A pre-compulsory school

Question 2: Is the entire educational institution (school, college, university) registered to ISO 9000?
Answer: □ Yes
□ No

If the answer is “No,” which part (department) of your educational institution (school, college, university) is registered to ISO 9000?
Answer:

Question 3: What is the number of managers (administrators), staff, teachers (faculty, professors, lecturers), and students at your educational institution (school, college, university)?
Question 4: About how many months did it take for your educational institution (school, college, university) to obtain ISO 9000 registration (certification)?

Answer:

Question 5: During which year did your educational institution (school, college, university) first receive ISO 9000 registration (certification)?

Answer:

Question 6: Which of the following best describes the educational institution (school, college, university) before starting ISO 9000?

Answer:

Question 7: Which of the following best describes how quality management was practiced in your educational institution (school, college, university) before ISO 9000?

Answer:

Question 8: If there was a different quality management practice, what was the name of it?

Answer:

Question 9: Were there any other major changes going on in your educational institution (school, college, university) at the same time as ISO 9000?
implementation?

Answer:

Question 10: Approximately, what were the internal costs for ISO 9000 implementation?

Answer: □ £5 000 or less
□ £5 001 – £10 000
□ £10 001 – £15 000
□ £15 001 – £20 000
□ £20 001 – £25 000
□ £25 001 – £30 000
□ £30 001 – £35 000
□ £35 001 – £40 000
□ £40 001 – £45 000
□ £45 001 – £50 000
□ £50 001 or more

Question 11: Can you give me an example of an internal cost?

Answer:

Question 12: Approximately, what were the external costs for ISO 9000 implementation?

Answer: □ £5 000 or less
□ £5 001 – £10 000
□ £10 001 – £15 000
□ £15 001 – £20 000
□ £20 001 – £25 000
□ £25 001 – £30 000
□ £30 001 – £35 000
□ £35 001 – £40 000
□ £40 001 – £45 000
□ £45 001 – £50 000
□ £50 001 or more

Question 13: Can you give me an example of an external cost?

Answer:

Question 14: Approximately, what are the annual registrar costs of ISO 9000?
**Question 15:** What is the average annual turnover (operating budget, annual sales, what do you bring-in?) for your educational institution (school, college, university)?

**Answer:**

□ £5 000 or less
□ £5 001 – £10 000
□ £10 001 – £15 000
□ £15 001 – £20 000
□ £20 001 – £25 000
□ £25 001 – £30 000
□ £30 001 – £35 000
□ £35 001 – £40 000
□ £40 001 – £45 000
□ £45 001 – £50 000
□ £50 001 or more

**Question 16:** Which of the following is most used by the top management (administration) to show a commitment to ISO 9000 at your institution (school, college, university)? Please put a 1 in the box for the item that is the most used, a 2 in the box for the next item most used, and continue until you have ranked three items.

**Answer:**

□ Stating a belief in the value of ISO 9000 registration
□ Stating a long term vision for quality
□ Providing the human resources necessary to reach quality objectives
□ Providing the material resources necessary to reach quality objectives
□ Providing the time necessary to reach quality objectives
□ Communicating a quality policy to all members of the institution
□ Communicating quality objectives to all members of the institution
□ Communicating to all members of the institution the importance of meeting the customer requirements for the educational service provided
□ Measuring the performance of the educational institution according to the quality objectives
Question 17: At the beginning of ISO 9000 implementation, to what extent do you feel that all members of the institution (school, college, university) knew why the institution was going to be ISO 9000 certified?

Answer: □ To a great extent
□ To some extent
□ To a small extent
□ Not at all

Question 18: To what extent do you feel that all members of the institution (school, college, university) are now convinced of the relevance of the ISO 9000 standard?

Answer: □ To a great extent
□ To some extent
□ To a small extent
□ Not at all

Question 19: In which of following ways does management most involve other members (staff, faculty, students) of the educational institution (school, college, university)? Please put a 1 in the box for the item that is the most used, a 2 in the box for the next item most used, and continue until you have ranked three items.

Answer: □ Provide training
□ Provide career planning
□ Define responsibilities
□ Establish individual goals
□ Establish team goals
□ Involve employees in goal setting
□ Involve employees in decision making
□ Invite all employees to quality meetings
□ Reward employees
□ Provide two-way communication of information
□ Provide conditions that encourage innovation
□ Ensure that employees are able to communicate suggestions
□ Ensure that employees are able to communicate opinions

Question 20: The IWA 2 Guidelines define an ISO 9000 management representative as “a person (or persons) that have the responsibility for ensuring that the requirements of ISO 9001: 2000 are met on an on-going basis.” They should also “know the contents of the standards and be available for advice on their implementation” (IWA 2, p. 23).
According to the above definition, does such a person (or persons) exist in your educational institution (school, college, university)?

**Answer:**

- □ Yes
- □ No

**Question 21:** If yes, in relation to their assistance with ISO 9000, to what extent is this person (or persons) highly regarded by other members (staff, faculty, students) of the educational institution (school, college, university)?

**Answer:**

- □ To a great extent
- □ To some extent
- □ To a small extent
- □ Not at all

**Question 22:** Which of the following best describes this person (or persons) in relation to their assistance with the ISO 9000 implementation process?

**Answer:**

- □ Qualified
- □ Motivated
- □ Both qualified and motivated
- □ Neither qualified nor motivated

**Question 23:** At the beginning of ISO 9000 implementation, to what extent did your educational institution (school, college, university) define ISO 9000 in terms that were understandable in education?

**Answer:**

- □ To a great extent
- □ To some extent
- □ To a small extent
- □ Not at all

**Question 24:** Which of the following were used to guide the ISO 9000 implementation process in your educational institution (school, college, university)?

**Answer:**

- □ An external consultant
- □ An external training provider
- □ Both an external consultant and an external training provider
- □ Neither an external consultant or an external training provider

**Question 25:** In 2003, a new document was published entitled the *IWA 2: Quality management systems—guidelines for the application of ISO 9001: 2000 in education*, to what extent is this document currently used to guide the the
ISO 9000 activity at your educational institution (school, college, university)?

**Answer:** □ To a great extent
□ To some extent
□ To a small extent
□ Not at all

**Question 26:** Which of the following were used to guide the ISO 9000 implementation process in your educational institution (school, college, university)?

**Answer:** □ The *BS 5750: Guidance notes for application to education and training*

□ The *American National Standard: Quality assurance standards – Guidelines for the application of ANSI/ISO/ASQC Q9001 or Q9002 to education and training institutions*

□ Both The *BS 5750: Guidance notes for application to education and training* and The *American National Standard: Quality assurance standards – Guidelines for the application of ANSI/ISO/ASQC Q9001 or Q9002 to education and training institutions*

□ Neither The *BS 5750: Guidance notes for application to education and training* or the *American National Standard: Quality assurance standards – Guidelines for the application of ANSI/ISO/ASQC Q9001 or Q9002 to education and training institutions*

**Question 27:** Which of the following most describes your educational institution’s (school, college, university) customer? Place a 1 in the box you would consider the most, a 2 in the box that you would consider second, and go on until you have ranked all five items.

**Answer:** □ Student
□ Parent
□ Another educational institution
□ Employers
□ Society

**Question 28:** Which of the following most describes your educational institution’s (school, college, university) product? Place a 1 in the box you would consider the most, a 2 in the box that you would consider second, and go on until you have ranked all three items.
Answer: □ The provision of education
□ Student
□ Curriculum

Question 29: Which of the following most describes your educational institution’s (school, college, university) stakeholders? Place a 1 in the box you would consider the most, a 2 in the box that you would consider second, and go on until you have ranked all five items.
Answer: □ Student
□ Parent
□ Another educational institution
□ Employers
□ Society

Question 30: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the role of the educational institution in the socio-economic environment?
Answer: □ To a great extent
□ To some extent
□ To a small extent
□ Not at all

Question 31: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the process of maintaining the work environment?
Answer: □ To a great extent
□ To some extent
□ To a small extent
□ Not at all

Question 32: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the process of curriculum development?
Answer: □ To a great extent
□ To some extent
□ To a small extent
□ Not at all

Question 33: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) under-
stand the process of curriculum review?

Answer: □ To a great extent
    □ To some extent
    □ To a small extent
    □ Not at all

Question 34: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the process of updating curriculum?

Answer: □ To a great extent
    □ To some extent
    □ To a small extent
    □ Not at all

Question 35: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the process of student assessment?

Answer: □ To a great extent
    □ To some extent
    □ To a small extent
    □ Not at all

Question 36: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the final assessment process conducted before an education certificate is presented?

Answer: □ To a great extent
    □ To some extent
    □ To a small extent
    □ Not at all

Question 37: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the teaching-learning support process?

Answer: □ To a great extent
    □ To some extent
    □ To a small extent
    □ Not at all

Question 38: To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) under-
stand the process of supporting a student until they complete their education at that institution (school, college, university)?

**Answer:**
- □ To a great extent
- □ To some extent
- □ To a small extent
- □ Not at all

**Question 39:** To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the process of communication?

**Answer:**
- □ To a great extent
- □ To some extent
- □ To a small extent
- □ Not at all

**Question 40:** To what extent do you feel that the members (staff, faculty, students) of your educational institution (school, college, university) understand the measurement of educational processes?

**Answer:**
- □ To a great extent
- □ To some extent
- □ To a small extent
- □ Not at all

**Question 41:** Please listen to the following definition from ISO 9004:2000, section 6.6:

“Management should establish relationships with suppliers and partners to promote and facilitate communication with the aim of mutually improving the effectiveness and efficiency of processes that create value.”

According to this definition, who would you consider to be a “supplier” for your educational institution (school, college, university)?

**Answer:**

**Question 42:** According to the same definition, who would you consider to be a “partner” of your educational institution (school, college, university)?

**Answer:**

**Question 43:** To what extent did the relationship with “suppliers and partners” influence your educational institution (school, college, university) to
implement ISO 9000?

**Answer:** □ To a great extent
□ To some extent
□ To a small extent
□ Not at all

**Question 44:** Which of the following was influential in the decision of your educational institution (school, college, university) to implement ISO 9000? Please put a 1 in the box for the item that was the most influential, a 2 in the box for the second most influential, and continue until you have ranked three items.

**Answer:** □ Pressure from parents for better education
□ To have ISO 9000 as a market tool
□ Pressure from industry to provide more-skilled workers
□ To improve school efficiency
□ Other schools were successful with ISO 9000
□ Rapidly changing technology
□ Pressure from funding providers
□ A changing socio-economic environment

**Question 45:** Has your educational institution (school, college, university) made any modifications (changes) to ISO 9000 since it was first implemented?

**Answer:** □ Yes
□ No

**Question 46:** If yes, please briefly describe these modifications (changes).

**Answer:**

**Question 47:** What is your position in the educational institution (school, college, university)?

**Answer:** □ Management (administration)
□ Staff
□ Faculty (professor, lecturer, or teacher)

**Question 48:** What is the highest level of education that you have completed?

**Answer:**

**Question 49:** Which of the following activities are you most involved in? Please put a 1 in the box for the item that you are most involved in, a 2 in
the box that you are the next involved in and continue until you have ranked three items.

**Answer:**

- □ Trade associations
- □ Professional associations
- □ In-service educational programs
- □ Consultant arrangements
- □ Employer networks
- □ Professional networks
- □ School networks
- □ Trade magazines
- □ Professional magazines
- □ Scholarly journals

**Question 50:** Is there anything else you would like to tell me about ISO 9000 at your educational institution (school, college, university)?

**Answer:**

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**A.3 Consent Document**
Dear [Title] [Name],

Quality schooling has often been a subject of international concern. In all nation-states, government bodies and concerned communities are pressuring educational institutions to be more efficient as they prepare students for life and the labor market. In an effort to meet new government standards for federal funding, improve their performance, and obtain public trust, it seems that schools of all levels and in many countries are implementing the ISO 9000 quality management system.

I recently called your school and was informed by [name] that you are the right person to speak with about ISO 9000. A few days from now I will call you to request that we schedule a time for you to participate in a phone interview for an important research project at Pennsylvania State University. I am writing in advance because we have found that many people like to know ahead of time that they will be contacted. Please read the following information as it will inform you about the research that you will be asked to participate in.

The purpose of the research is to (1) identify the factors that influence a successful ISO 9000 implementation in educational institutions in the US and England and (2) compare the factors in the US and England in order to examine them for similarities or variations. We will be asking questions, for example, about the experience of your educational institution with ISO 9000, the cost of ISO 9000, and the administrative commitment to ISO 9000. Your opinion is important to us. We want to hear from everyone we contact, not just people with strong opinions about ISO 9000. To obtain a representative sample, we worked with Quality Digest, QSU Publishing Company, the American National Standards Institute (ANSI) and the British Standards Institute (BSI).

You must be at least 18 years old to participate. The interview will include 50 brief questions and take approximately 30 minutes. Results will be shared with educators, policy makers, and community members who are interested in quality education.

Your participation is completely voluntary, you may end your participation at any time, and you may skip any question you do not want to answer. All your answers will be kept confidential, and your name will be kept separate from your questionnaire. There is an identification number on your questionnaire so we can check your name off the list when interview is complete. As soon as the information is collected, we will destroy the list of names. The Office for Research Protections may review files related to this project. By participating in the telephone interview, you will have indicated your consent to participate in this research.

For more information about the survey, you can contact me at 814–404–7018, (international code: 001) or by e-mail at tlb933@psu.edu or my adviser, Dr. David Passmore, at 814–863–2583. To learn more about your rights as a research participant, you can contact the Penn State Office for Research Protections at 814–865–1775. Thank you in advance for your help.

Sincerely,

Theresa Thonhauser

This consent document (IRB#19755) was reviewed and approved by the Office for Research Protections on 11/04/04 (CAY); it will expire on 10/14/05 (CAY).
A.4 Phone Script

A.4.1 Initial Phone Call Script

Hello, my name is Theresa Thonhauser. I am calling from Pennsylvania State University, may I ask you a question? We are conducting a research project on ISO 9000 in education and I would like to interview the person at your school who is (or was) in charge of ISO 9000 implementation (or the most involved in ISO 9000 activities). Can you tell me who this person is? May I have their phone number and address?

Institution:
Phone number:
Secretary Name:
Participant Name:
Participant address:
Participant phone number:

A.4.2 Invitation Phone Call Script

Hello, my name is Theresa Thonhauser. I am calling from Pennsylvania State University and I sent you a cover letter a short time ago about a research project that we are conducting about ISO 9000 in education. I am calling to ask if you would please be a part of our research and let me schedule a time to interview you?

Interview Date:
Time:
Phone number:
Secondary phone number:

Thank you very much for your participation. I look forward to talking with you soon!

A.5 Interview Script

Hi, this is Theresa Thonhauser from Pennsylvania State University. I am calling for the interview that we scheduled several days ago. Before we start
with the survey questions. I would like to give you some information about
the research and the interview process. OK do you have any questions so far?
If not, I would like to give you a short set of instructions for the interview
process.

During the interview, you will be asked to answer 50 survey questions about
your educational institution and about the implementation process of ISO
9000 at your school. Before we start the survey questions, let me tell you
a little bit about the interview process and how it works. For the next 30
minutes or so, you will be asked two kinds of questions for this survey. In
some cases, I will be asking you to answer questions in your own words.
For these questions, I will write down every word you say, not summarizing
anything. For other questions, you will be given a set of answers and asked
to choose the one that is closest to your own view. I will read items in a list
twice (once slowly and then again with you choosing an answer when I get
to it the second time). Even though none of the answers may fit your ideas
exactly, choosing the response closest to your views will enable us to compare
your answers more easily with those of other people. Please remember that
it is very important that you answer as accurately as you can. Take your
time, consult records if you want, ask me to clarify if you have any questions
about what is wanted. Do you have any questions or concerns before we
start? I would like to thank you for participating! Now, lets begin with the
questions.

Interviewer reads and records questions using the appropriate version of the
“ISO 9000 in Education Survey” questionnaire.

Well, those are all the questions that I have for you. Is there anything else
you would like to add or clarify about our interview? Once again, thank you
for participating in the study. If you wish, I would be happy to mail you a
copy of the research results. Please contact me at the information I gave you
earlier if you have any questions about what we have talked about! Thank
you and Goodbye.
## ISO 9000 Registered Schools

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<th>Address 2</th>
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Glossary

List of Abbreviations

ANOVA  Analysis of variance.
ANSI   American National Standards Institute.
ANSI 90 Series of US standards based on the British BS 5750 standards.
BEM    Business Excellence Model.
BS 5750 British standards developed during World War II and that became the basis of the first ISO 9000 standards.
BSI    British Standards Institute.
CEDEFOP European Centre for the Development of Vocational Training.
CEN    European Committee for Standardization.
CQI    Continuous Quality Improvement.
DFE    UK Department for Education.
DfES   UK Department for Education and Skills.
EU     European Union.
IGO    Intergovernmental organizations.
INGO   International Nongovernmental Organizations.
ISA    International Federation of National Standardizing Associations.
ISO  International Organization of Standardization. The ruling body of the ISO 9000 and 14000 standards based in Geneva, Switzerland.

ISO 9000  A set of written guidelines that make up a non-specific quality management system.

IWA  International Workshop Agreement.


TQM  Total Quality Management.

UN  United Nations.

UNESCO  United Nations Educational, Scientific and Cultural Organization.

VET  The field of vocational education and training, a name commonly utilized by the British for what the US would call vocational/technical and workplace education.

VICA  Vocational Industrial Clubs of America.

**List of Symbols**

- $\alpha$  Alpha; probability of a Type I error; Cronbach’s measure of internal consistency
- $df$  Degree of freedom
- $\eta^2$  Eta squared, the measure of the strength of a relationship
- $N$  Total number in a sample
- $n$  Number in a subsample
- $r_s$  Spearman rank correlation coefficient
- $\bar{R}$  R bar, the mean rank
- $\bar{x}$  x bar, the sample mean
- $SD$  Standard deviation
- $V$  Cramér’s statistic for contingency tables
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